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PATTERNS OF ATTENDANCE IN THE MATERNITY WARD OF KURUMAN DISTRICT HOSPITAL 2006 – 2009

KEOBIDITSE DAWN DIJONG

A RESEARCH REPORT SUBMITTED TO THE FACULTY OF HEALTH SCIENCES, UNIVERSITY OF THE WITWATERSRAND, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTERS OF PUBLIC HEALTH

April 2012

DECLARATION

I, KEOBIDITSE DAWN DIJONG, declare that this research report is my own work. It is being submitted for the degree of Master of Public Health (Hospital Management) at the University of Witwatersrand, Johannesburg. It has not been submitted before for any degree nor examination at this university or any other university.

Signature:

Date:

DEDICATION

I dedicate this work to:

My husband and children for their kind understanding, support and motivation rendered throughout the period of my studies.

My mother and grandmother, for their warm support and encouragement.

Lastly to my heavenly father for the person that I am, in depositing in me all the abilities required to glorify his name.

ABSTRACT

BACKGROUND:

Maternal health services have been receiving increasing attention internationally. The high rates of maternal and infant mortality throughout the world place a demand on health systems to prioritize maternal and child health care services. The constitution of South Africa recognizes reproductive health as a fundamental right (Republic of South Africa, 1995). However, the inability of South Africa to meet the Millennium Development Goals targets for maternal and child health increases the need for more studies to identify the reasons for a consistently high maternal mortality rate.

The South African health system is based on district health system model which facilitates the delivery of primary health care and the appropriate referrals and admissions of patients. District hospitals, public and private community health centers and public primary health care clinics provide the first level of care to patients. Normal deliveries should take place at this level. Referrals are made to secondary and tertiary level of care. The maternity ward at Kuruman Hospital in the Northern Cape province of South Africa is overcrowded. There are concerns around the quality of care and over 80% of deliveries are normal, suggesting

that they could take place at the primary health care clinics and community health centres in the district.

AIM: To describe the patterns of attendance to the maternity ward of Kuruman Hospital from the surrounding clinics and community health centers.

METHODOLOGY: This was a cross-sectional study and a descriptive retrospective analysis of data from the maternity admission register and patients files was undertaken. Information obtained included demographic profile of women, obstetric profile and final outcome. No intervention was done as part of the study.

The setting was Kuruman Hospital in John Taolo Gaetsewe district, situated in the Northern Cape Province. The hospital serves a population of 198 000 people. Data was collected from 384 maternity patients admitted between January 2006 and December 2009. Data on variables such as the caseload [number of maternity admissions during the study period]; demographic profile of women [age, educational status, race, medical aid, occupation, income level and marital status]; access to facilities [name of the nearest clinic and distance, name of the nearest community health centre (CHC) and the distance, name of the nearest hospital and distance]; obstetric profile [number of previous deliveries, place of antenatal care (ANC) and number of antenatal visits]; reasons for admissions at

the hospital [number of women transported by the emergency vehicle, time of arrival at the hospital, date of admission, and diagnosis made by the referring facility] were collected.

FINDINGS: Sixty three percent of women seen in the maternity unit of Kuruman Hospital were self referred and regarded as clinic deliveries. The study shows that 243 (63.3%) of women should have delivered at the facility nearest their home. The institution experienced an increase in the number of maternity admissions over the four years of 9.3%.

CONCLUSION: This study was the first of its kind to be done in John Taolo Gaetsewe health district. The referral system within the district is not functioning optimally. Although there are good practices with regard to the referral system within the district, much still needs to be done to ensure that the community health centers (CHC's), primary health care (PHC) clinic and the hospital are effectively functioning in rendering services relevant to each level of care.

Most patients presented at Kuruman Hospital's maternity section during the study period could have been managed at the clinic level. The caseload and work load of the maternity unit of the hospital could be reduced if these women could have delivered at their nearest CHC/PHC clinic. The interventions recommended in this study could be used to strengthen the referral system within the district.

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NOMENCLATURE

District Health system (Department of Health, 2000): A district is a more or less self contained segment of the national health system. A district comprises first and foremost of a well-defined population, living in clearly delineated administrative and geographical area, whether urban and rural. The district includes all institutions and individuals providing health care in the district, whether governmental, social security, non-governmental, private and traditional.

A District Health System therefore consists of a large variety of inter-related elements that contribute to health in homes, schools, work places, and communities, through the health and other related sectors. Health care includes self care and all health care workers and facilities, up to and including the hospital as the first referral level, and an appropriate laboratory, or other diagnostic and logistic support services.

District Hospital (World Health Organization, 1992): The District Hospital serves three critical roles in a well-functioning district health system, namely to: (a) provide support to health workers in primary health care clinics and community health centers, both in terms of clinical care and public health expertise (b) provide first level hospital care for the district and (c) be the place

of referral from clinics and/or community health centers, and be responsible for referring patients.

Maternity ward: A ward or unit in the facility providing the maternity and obstetric services.

High risk maternity cases: The cases are those in which some condition puts the mother, the developing fetus, or both at higher than normal risk for complications during or after the pregnancy and birth. A pregnancy can be considered a high – risk pregnancy for a variety of reasons. Factors can be divided into maternal and fetal. Maternal factors include age (younger than age 18, older than age 35); height (less than five feet); history of complications during previous pregnancies etc. A pregnancy is also considered high risk when prenatal tests indicate that the baby has a serious health problem, for an example, a heart defect (Maternity guidelines, 2007).

Low risk maternity cases: refers to common problems in pregnancy that can be managed at PHC clinics and CHC centers (Maternity guidelines, 2007).

Referral System (Hensher et al, 2006): A referral system can be defined as any process in which health care providers at lower levels of the health system, who lack the skills, the facilities, or both to manage a given clinical condition,

seek the assistance of providers who are better equipped or specially trained to guide them managing or to take over responsibility for a particular episode of a clinical condition in patient. Referrals can be classified as follows.

(a) *Proper*– where a health professional from a health care facility refers a patient to higher or lower levels of care following appropriate and relevant local, provincial and national guidelines.

(b) *Improper*– where a health professional from a health care facility fails to follow relevant local, provincial and national guidelines for referring patients and

(c) *Self referral* – where a patient refers themselves bypassing the referral system.

LIST OF ABBREVIATIONS

DHS	District Health System
DHIS	District Health Information System
CHC	Community Health Centre
PHC	Primary Health Centre
WHO	World Health Organization
MDG's	Millennium Development Goals
ANC	Ante Natal Care
EMS	Emergency Medical Services
PIH	Pregnancy Induced Hypertension
PMTCT	Prevention of Mother to Child Transmission
C/S	Caesarean section
MMR	Maternal Mortality Ratio
DOH	Department of Health
IES	Income and Expenditure Survey
LFS	Labour Force Survey
UPFS	Uniform Patient Fee Schedule (South Africa)
JTG	John Taolo Gaetsewe
HD	Hospital deliveries
CD	Clinic deliveries
HPT	Hypertension
HIV	Human Immune Virus

CHAPTER 1

INTRODUCTION

The purpose of this study was to describe the patterns of attendance to the maternity ward of Kuruman Hospital. This introductory chapter covers the background to the hospital, problem statement which provides the context for the research study, aims and objectives of the study and literature around the reasons people by pass services.

Background

Maternal health services have been receiving increasing attention internationally. The high rates of maternal and infant mortality throughout the world place a demand on health systems to prioritize maternal and child health care services. Several recent works have expressed concern that despite widespread global attention to safe motherhood, insufficient progress has been made in reducing the number of maternal deaths in childbirth in the developing world (Weil et al, 1999).

The World Health Organization and UNICEF estimate that there were nearly 600,000 such deaths in 1990 (WHO and UNICEF, 1996), an alarmingly high figure that meant that almost one in every 200 births in the world resulted in the death of

the mother. In 1987 an international conference on safe motherhood was held in Nairobi, Kenya, bringing together dozens of international organizations, NGOs and country representatives. The conference resulted in a declaration of global commitment to reducing the number of maternal deaths by half by the year 2000.

Expectations were high that in the ensuing decade significant progress could be made in fighting this long neglected issue. These hopes have not been met: it is was clear at the end of 2000 that the world was nowhere near achieving this goal, and it is not even certain that global maternal mortality levels have declined in the past decade to any significant degree

Improving maternal health is one of the eight Millennium Development Goals adopted by the international community at the United Nations Millennium Summit in 2000. In Millennium Development Goal 5 (MDG5), countries have committed to reducing the maternal mortality ratio by three quarters between 1990 and 2015. However, between 1990 and 2005 the maternal mortality declined by only 5%. Achieving Millennium Development Goal 5 requires accelerating progress" (WHO, 2007).

Studies have attributed this lack of progress to multiple factors, but are in agreement on certain fundamental points (Weil et al, 1999): the major medical causes of maternal death in childbirth are well understood, the interventions are

well-established to prevent such deaths, and the most critical of these is ensuring accesses to essential and emergency obstetric medical care in the event of complications arising during childbirth.

The constitution of South Africa recognizes reproductive health as a fundamental right (Constitution of the Republic of South Africa, 1996). However the inability of South Africa to meet the Millennium Development Goals (MDG) targets for maternal and child health increases the need for more studies to identify the reasons for consistently high maternal mortality rates. The Millennium Development Goals (MDG) country report estimates the maternal mortality ration to be 625 deaths per 100,000 live births.

On the 22nd October 2010, the Minister of Health signed a service delivery agreement with the president of the country and committed himself to decreasing maternal mortality to less than 100 per 100, 000 live births by 2014 (DOH, 2010). The Department of Health's Strategic plan for 2010 – 2014 highlights a number of interventions to reduce maternal mortality (Table 1. 1).

Table 1. 1 Health sector outputs. National DOH strategic plan, 2010

Improving antenatal care	Increase the percentage of pregnant women receiving antenatal care.
	Reducing the proportion of pre-term deliveries and low birth weight babies.
	Increase number of women who book before 20 weeks.
	Ensuring that basic antenatal care (BANC) is implemented in 95% of primary care facilities.
Reducing the number of children, born with HIV	Less than 5% of babies born to HIV positive mothers are HIV positive.
	Reduce the proportion of births in women below 16 years and 16 – 18 year from the existing level (13.2% in 1998).
Improving delivery of care	Increase the deliveries in institutions by trained birth attendants. 70% of health facilities should have health care providers trained in Emergency Obstetric Care. Increase percentage of mothers and babies who receive post natal care within 3 days.

The South African health system is based on a district health system model which facilitates the delivery of primary health care and the appropriate admissions/ referral of patients. District hospitals, public and private community health centers and clinics provide the first level of care for patients. Referrals are made to secondary and tertiary levels of care (Figure 1.1).

Most medical conditions do not need the facilities of the hospitals. For the most effective health management, clinics and hospitals should share the load of patient care, whereby clinics manage common and low risk problems and hospitals the more difficult clinical cases. Only when the patient cannot be managed at the clinic level should they be referred to the CHC and the patient should only be referred to the district hospital when the problem cannot be managed at the CHC level. It is

essential to have in place a referral system with clear protocols for management, referral, transport and responsibilities (Department of Health, 2000)

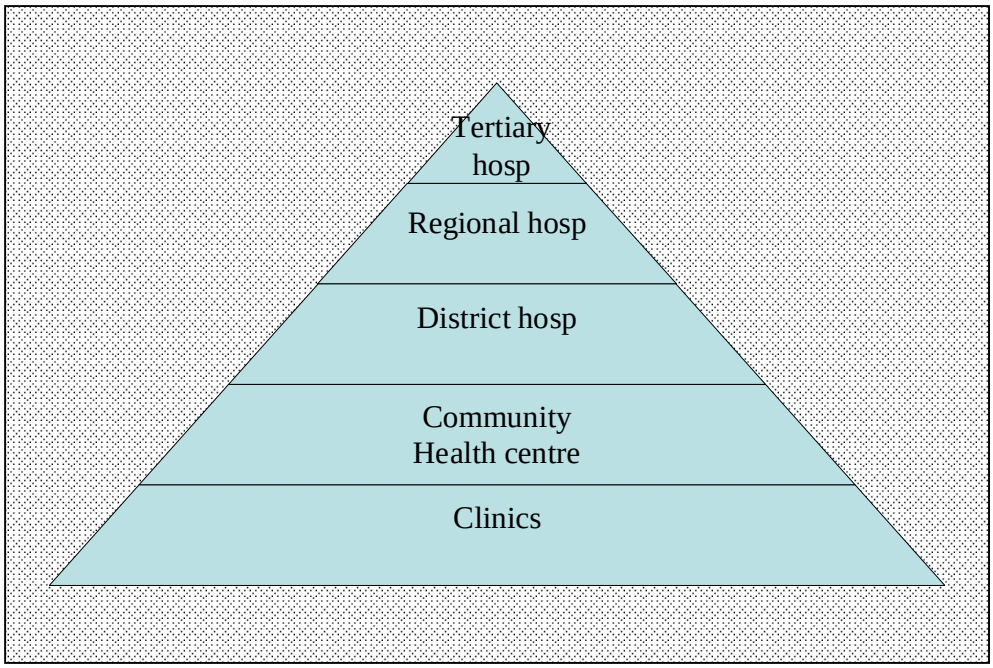


Figure 1.1: Levels of health care

In South Africa, district hospitals support primary health care and provide level one service to in-patients and outpatients referred from the public health clinics (Department of Health, 2007).

According to the "*Guidelines for Maternity care in South Africa*", all low risk maternity cases should be managed at the PHC's and CHC's facilities (Maternity guidelines, 2007).

Women should be referred to a district hospital if there are any of predisposing factors (given in Table 1.2) that would indicate that they are a high risk pregnancy. The staffing structure for different levels of care is outlined as follows:

- At the PHC clinic there should be a midwife providing antenatal, emergency obstetric and postnatal care.
- CHCs provide 24 hours comprehensive service including obstetrics, antenatal care for low and intermediate risk women including on – site routine testing, treatment of the common problems of pregnancy, 24 hour labour and delivery services for low risk women, vacuum extraction, postnatal checks including contraception, referral of complications to the hospital and management of emergencies (Department of Health, 2007).
- District hospitals should have a similar structure to the CHC's, with medical officers and outreach monthly programs of specialists. District hospitals provide the following services: antenatal care for high risk women presenting with risk factors as outlined in Table 1.2, including on–site routine blood testing, antenatal ultrasound, 24 hour labour and delivery services for intermediate and high risk women, vacuum extraction, caesarean section and manual removal of placenta, post natal care including complications and postoperative care.

Table 1.2 Predisposing factors that would indicate a high risk pregnancy and therefore require referral to hospital for antenatal care and delivery (DOH, 2007)

Obstetric profile	Previous stillbirth, neonatal death, low birth weight baby (<2.5 kg), large baby (>4.5kg), pregnancy admission for hypertension or pre – eclampsia, caesarean section, myomectomy, cone biopsy and cervical cerclage.
Current pregnancy	Diagnosed or suspected multiple pregnancies, age <18years, age >35 years, rhesus isoimmunisation in previous or current pregnancy, vaginal bleeding, pelvic mass and diastolic blood pressure >90 mmHg.
General medical condition	Diabetes mellitus, cardiac and kidney disease, epilepsy, asthma on medication, active tuberculosis, known substance abuse including alcohol and any severe medical condition
Risk factors requiring hospital delivery	Previous postpartum haemorrhage, parity >5.

Maternity services in the Northern Cape Province.

The Northern Cape Province had an estimated population of 1.6 million people in 2011 and the lowest population density of all the provinces. The small population does mean that many indicators may fluctuate much more than for other provinces, particularly mortality indicators. Access to piped water is high and covered 94.4% of the population in 2007. In 2010, 13.6% of people were estimated to have medical insurance (Health Systems Trust, 2012)

In 2010 the Northern Cape had 16 district hospitals as compared to 24 in 2007, with some facilities being reclassified as CHCs. However, several of these CHCs continue to perform many of the functions of a district hospital, and this may be one factor contributing to an inflated expenditure on PHC in some areas of the province. The percentage of district health expenditure on hospitals decreased from 46.5% in 2007/08 to 38.1% in 2010/11, which is slightly below the national average of 39.8% for 2010/11. The values ranged from 15.9% in Frances Baard (with two district hospitals) to 62.8% in Siyanda (with four district hospitals). The cost per patient day equivalent (PDE) in district hospitals in the Northern Cape Province was R1 575 in 2010/2011 and varied from low a low of R438 in Frances Baard (lowest among all districts in the country) to R2 079. The province's bed utilization rate, 62.9% in 2010/11, reflects a slight increase from the previous year. Again the values of the districts vary widely (46.2% in Frances Baard to 78.2% in Namakwa). The average length of stay (ALOS) in a district hospital was 2.5 days in 2010/11, well below the national average of 4.1 days (Health Systems Trust, 2012).

By 2009, ANC coverage in the Northern Cape Province (defined as the proportion of women receiving some antenatal care), according to the district health information system (DHIS) was reported to be 93% with each pregnant woman receiving, on average 3.8 antenatal visits (Health System Trust, 2009).

The Caesarean section rate increased from 8.8% in 2007/08 to 31.1% in 2010/11, but was still the third lowest in the country. The delivery rate in facilities has fluctuated over the last eight years and stands at 85.4% in 2010/11. The proportion of total deliveries for girls below 18 years of age was 9.4% in 2010/11. These represent a small decrease over the past three years (Health Systems Trust, 2012).

In 2010/11 both the still birth rate (26.8% per 1 000 births) and the perinatal mortality rate (38.3 per 1 000 births) were up from the previous year and were above the national average of 23.0 per 1 000 births for stillbirths and 32.8 per 1 000 births for perinatal mortality. Both these rates have fluctuated over the past eight years in all of the districts in the Northern Cape. This is partly due to the small numbers related to these indicators. However processes need to be put in place to measure these indicators as accurately as possible in order to reach the MDG (Health Systems Trust, 2012).

District (John Taolo Gaetsewe)

John Taolo Gaetsewe district municipality (JTG), previously named Kgalagadi, is the smallest municipality with 2.6% of the population. JTG is one of five health districts in the Northern Cape Province. The district has a low population density and is the poorest district in the province. Only 12% of the population has access to medical

aid. Only 50% of women deliver in a health care facility, which is less than the national average of 80.6 % (Health Systems Trust, 2007/08).

The districts in the Northern Cape show extremes in the province's burden of disease profile. In 2008, JTG, with the 'youngest' population structure and greatest index of deprivation, had the highest proportion of deaths and years of life lost (YYLs) of all districts in South Africa due to communicable diseases, maternal, perinatal, and nutritional conditions (Health Systems Trust, 2012).

Kuruman Hospital

Kuruman Hospital is one of two district hospitals which provides level one maternal health care services to a population of 197 000 people. The hospital has 64 beds and the following clinical departments: outpatients, emergency/casualty, medicine, surgery, obstetrics, pediatrics and psychiatry. For secondary level of care, patients are referred to the Kimberly Hospital Complex which is 290km away. Tshwaragano Hospital is the second level one hospital in the district and is situated in a rural village. The hospital is older and inaccessible. Patients prefer to use Kuruman hospital which is on a main road and in a main town in the district.

The maternity unit has only twenty (20) antenatal, delivery and post-natal beds. The maternity unit admits 2290 patients per year and is a point of referral for 4

mobile clinics, 37 PHC clinics and five CHC's. The maternity unit staff includes ten midwives, four nursing assistants and three cleaners. There are only four doctors currently employed in the entire hospital.

The researcher has noted the discrepancy on the bed utilization rate of Kuruman Hospital, which is always over 100% as shown on Table 1.3. However, in JTG, district bed utilization rate was 54.5% in 2010/11, which was below the South African value of 70%. The average C-section rate in district hospitals in South Africa for 2010/11 was 18.8%. The World Health Organization (WHO) recommends a rate between 10-15% and the values for 36 districts (82%) fell outside of this range in 2010/11, with 22 districts (44%) exceeding 20%. John Taolo Gaetsewe district Caesarean section rate was 12% in 2010/11, below the South Africa average of 18% (Health Systems Trust, 2012).

During 2010/2011, the South African delivery rate in facilities was 84.0% which declined from the 2008/09 estimates of 87.2%. The ideal situation would have all women delivering in a health facility under the supervision of trained personnel. The current system does not include comprehensive data on deliveries performed in private health institution; as such, the indicator value is unlikely to reach 100%. The delivery rate of JTG district (89%) rates higher than the South Africa average (85%) in 2010/11 (Health Systems Trust, 2012).

Table 1.3: Maternity Indicators January – March 2010

INDICATOR (%)	Jan	Feb	Mar	AVERAGE
Normal vaginal delivery rate	89%	88%	87%	88%
Caesarean section rate	13%	12%	12%	12%
Bed utilization rate	104%	100%	120%	108%

Source: District Health Information System, Kuruman Hospital

Problem statement

The maternity section of Kuruman Hospital is overburdened with a high workload and caseload. The hospital is experiencing a shortage of hospital beds and patients wait long hours in the maternity section. The maternity section is running at its full capacity and often, due to unavailability of beds, there are only floor beds for patients. Table 1.3 indicates that over 80% of all deliveries in the facility are normal vaginal deliveries and approximately 12% of deliveries are by caesarean section.

The provincial maternal health annual reports (used for monitoring and evaluating maternal health services in the province), have suggested that there is a problem with the maternal health services in Kuruman Hospital. In 2008, Kuruman Hospital had 8 maternal deaths, and the hospital was regarded as the third highest in terms of the number of maternal deaths in all the district hospitals of the province.

Considerable steps have been taken by Kuruman Hospital management to make a significant improvement in the maternal health services, such as monitoring the

implementation of the recommendations in the *Saving Mothers 2005-2007*. *Fourth Report on Confidential Enquiry into Maternal Deaths* (Department of Health, 2005-2007).

Despite these measures the hospital has received negative publicity. The poor maternal services in the hospital arouse the interest of the public and receive coverage in the media. Ms Andrea Botha, a Volksblad local newspaper journalist reported on the poor maternity services at Kuruman Hospital in March 2007 "*Probleme by Kuruman hospital duur voort – Kuruman dorp het nie 'n hospital nie .Punt. 'N Vrou wat onlangs in die hospital geborte gegee het, se die diens is verskrilik swak. Die pasient word ure gelos sonder dat iemand kom kyk of alles reg is"*[1] (Volksblad news paper, 2007). As a result of negative media reports, the public has a very negative perception of the hospital and staff.

The hospital normal delivery rate is always over 80%, and in theory the hospital is overburdened with normal deliveries that could have been managed at clinic facilities. If all normal deliveries take place at the PHC and CHC facilities, the workload at the hospital should be less and performance may improve. It is against this background that the study aims to describe the patterns of attendance to the maternity section ward of Kuruman Hospital. The results of the study will assist the district management to strengthen the referral system within the district.

[1] *Problems at Kuruman hospital continue. A woman who has given birth at the hospital said the services at the hospital are poor. The patients are left for a very long without being attended to.*

LITERATURE REVIEW

The purpose of the literature review is to discuss key concepts and similar research done around the topic being studied as well as searching for potential solutions for the research problem. In this chapter, relevant reports into referral systems, factors influencing the referral system, and the impact of malfunctioning of the referral system on resource utilization in health facilities are discussed.

The risk of women experiencing serious complications or dying during pregnancy, childbirth or the puerperium continues to be high in Sub-Saharan Africa (Majako et al, 2005). WHO recently reported on the lack of progress in maternal health in the Sub – Saharan region, and expressed concern that most countries will not be able to meet the targets of the MDGs by 2014 (UNO, 2008). Therefore the gradual strengthening of the entire health system will enable the delivery of effective maternal, newborn, and child health care at all levels of care, including the primary health care level (Ekman et al, 2008). The strengthening of the maternal, newborn, and child health care, at the primary health-care, should also be regarded as a worldwide priority in order to reach the Millennium Development Goals targets for reducing maternal and child mortality (Bhutta et al, 2008).

In South Africa, referral systems are not used optimally, and as a result many patients bypass lower levels and access higher levels of care. The different levels of health care (figure 1.1) provide for the efficient functioning of the health service. In many instances, regional and tertiary hospitals provide a high proportion of care that could be more appropriately provided by the district hospital (Chopra et al, 2009).

A public enquiry (into access to health care services) reported that the referral system in South Africa is inefficient because patients often bypass clinics and go to the hospital for their consultation (The South African Human Rights Commission, 2009). In 2002, a study was undertaken that revealed that there was under utilization of PHC clinics by communities for the maternity services (Desair, 2006).

A study done in Cape Town, albeit in tertiary hospital, showed substantial inappropriate utilization of pediatric services for children under 6 in Khayalitsha. In this study a high proportion (69%) of Red Cross Children's Hospital visits could have been managed more appropriately at primary care level. As approximately 40% of public sector daytime curative consultations take place at the hospital, there is a great scope for reducing patient loads on hospitals by correcting inappropriate utilization (London et al, 1997). WHO estimates that over 80% of all consultations could be managed at primary level with 3-5% requiring hospital services (London et al, 1997). Reid et al (2005), suggest that; "the early management of conditions by

community health workers and in PHC clinics, may reduce the burden on secondary facilities".

Many patients spend long waiting hours at the hospital, to be seen by highly trained health workers who could be seeing hospital patients resulting in misuse of the hospital resources and distortion of their function (Cullinan, 2006). In a study done in Nigeria and Ethiopia, the efficiency and effectiveness of public hospitals is affected by a large numbers of patients. The study demonstrated that hospitals are overcrowded with patients that could have been seen in the primary health clinics.

FACTORS INFLUENCING THE REFERRAL SYSTEM

Patients' demand for hospital services may be influenced by a wide range of factors. Their perception of severity of their illness, cultural beliefs, and physical accessibility of the hospital, affordability and performance of peripheral units' services all influence the success of the referral system within the district (English et al, 2001). One study shows that 65% of patients prefer to deliver in hospitals as compared to 28% who preferred to deliver at a Maternal Obstetric Unit. (Thomas et al, 2007).

In an ethnographic study done in South Africa it was found that patients were making decisions about which hospital they want to deliver in, which was counter to what health planners had envisaged in terms of the referral system (Penn-Kekana et al, 2006).

Accessibility

Hospitals are often situated geographically nearer to most people in urban areas than clinics and therefore, people make hospitals their first entry level (Hensher et al, 2006).

A study on the referral system in Nigeria found that when PHC clinics were not accessible after the usual working hours, patients go straight to the nearest hospital. A study that was done in Mauritius yielded the same results.

The time of operations of health facilities also play an important role in accessibility of the referral system. In a study done in Nigeria on referrals to a tertiary hospital it was found that the patients that have been referred to a tertiary hospital report usually between 2 pm and 10 pm where as the self referred come to the hospital between 10 pm and 6 am. This may be because working people bring their sick families to the health facilities at night to avoid having to wait to be attended to (Cullinan, 2006).

In the Eastern Cape, 40% of poor women are not accessing health care services due to the lack of availability of ambulances and also because the referral system is not functioning optimally (South African Human Rights Commission, 2009).

Acceptability

Patients may bypass the primary health care clinics due to poor management of these facilities. A study done on referrals in Meru District Hospital in Kenya found that attitudes of personnel had influenced patients' decision to use a particular health facility (Nordberg, 1996). Patients bypass the clinics and go to the hospitals for various reasons including a lack of access to drugs, lack of resources, insufficient capacity and expertise at primary health care level, clinics supervisor's inability to recruit and retain medical officers.

IMPACT OF MALFUNCTIONING REFERRAL SYSTEM

Clinic deliveries increase the workload of the few health professionals working in public hospitals. Many patients spend long waiting hours to be seen by highly trained health workers who could be seeing hospital patients resulting in misuse of hospital resources and distortion of their functions (Cullinan, 2006). This resulted in increasing workload of staff and overspending.

In an attempt to provide efficient health services, hospitals in both developed and developing countries are faced with the challenges of increasing health demands of an ever increasing population. The resources and systems need to be responsive

and effective in addressing the needs and expectations of the communities (Meel, 2003)

Research indicates that the increased workload resulting from self referrals to hospital maternity unit that could have been managed at PHC and CHC level affect the quality of care negatively and a reduction of maternity referrals has shown to improve the maternity unit efficiency (English et al, 2001).

The tendency of patients to bypass the PHC and CHC facilities means that patients may spend long waiting hours in hospitals and these tendencies also distorts the core functions of the hospitals and compromise the quality of service. The provision of primary health care by the hospital is uneconomical; the cost of the patient at the hospital is more than the cost at the lower level of care (Cullinan, 2006).

This user pattern places an additional burden on hospitals where lack of space, resources and staff is already a problem. Some patients prefer to be treated by the doctor rather than a nurse due to the nurse's poor attitude (South African Human Rights Commission, 2009). Finally patients seen by private practitioners are often referred directly to the hospital rather than a primary health care facility (Engelbrecht et al, 2000).

AIM AND OBJECTIVES

AIM

The aim of this study was to review all admissions to the hospital over a three year period and to determine the percentage of women who could have delivered at the clinic.

SPECIFIC OBJECTIVES

1. To describe the caseload of the maternity section of the hospital between 2006 and 2009.
2. To describe the profile of women attending the maternity section of the hospital in terms of their demographic characteristics, obstetric profile and their access to primary health care facilities and the hospital.
3. To determine the number of women who are self referred to the maternity unit and the number of women referred by a PHC clinic, CHC or the private sector.
4. To determine the number of women who could have delivered at a primary health care facility/ community health centre, instead of Kuruman hospital.
5. To explore any association between the hospital delivery and primary health care clinic/community health care centre, also the reasons for the hospital delivery in terms of obstetric profile and distance to the facility.

CHAPTER 2

METHODOLOGY

This chapter describes the methodology used to conduct this research. The study setting, study population as well as methods and tools used for collecting and analyzing the data are explained in this chapter. The methodology for this study was selected on the basis of its aims and objectives.

Study design

A cross-sectional study design is used for the study. The study is based on a retrospective review of hospital records.

Study setting

The study was conducted in the maternity section of the Kuruman Hospital in John Taolo Gaetsewe Health district.

Study population

All maternity records during the study period (1st January 2006 - 31st December 2009) were included in the study. There average number of admissions per year is 2,290. This gives the total of 9,160 admissions over the study period.

Study sample

EPI Info version 3.2 (February 2004) was used to calculate the appropriate sample size. The researcher predicted that the expected frequency of an appropriately delivered patient at Kuruman Hospital was 50% and most acceptable result would be 45% at 95% confidence level.

The sample size of 384 thereafter was used in this study. Systematic sampling was used to get the required sample size. The total number of women delivered in Kuruman Hospital during the study period was 7494, therefore the total number was divided by 384 to get the appropriate number of files that should be used for sampling (7494/384=19.5). This implies that every 19TH file was retrieved and the last file was number 384.

Data sources

The maternity and admissions registers were used to identify all patients who were admitted to the maternity unit. All inpatients records were then retrieved and reviewed by the researcher and research assistants. The first woman admitted on the 1st of January 2006 was patient 1 and the last was admitted on the 31st December 2009. Every 19th women admitted was then identified and her file retrieved.

Data collection

Data from the inpatient files was collected using the data collection tool in Annexure 1 by the researcher and two research assistants. The research assistants were trained for one day by the researcher to ensure that they were familiar with the details of admission procedures and the data collection tools. If the selected file was found to have missing data, this was replaced by the file of the next patient in the register.

Table 2.1 Variables collected and presentation of data

Variables	Presentation of variables
Objective 1 To describe the caseload of the maternity section of the hospital between 2006 and 2009.	
The number of women attending the maternity section each year – 2006, 2007, 2008 and 2009	Number of women attending the maternity section per year.
Objective 2 To describe the profile of women attending the maternity section of the hospital in terms of their demographic characteristics, obstetric profile and their access to primary health care facilities and the hospital.	
Demographic profile 1. Age 2. Educational status 3. Race 4. Medical aid 5. Occupation 6. Income level (according to UPFS Fee Schedule for subsidized patients) 7. Marital status	 Under 18, 18 – 35, over 35 Number of women - no education, primary school education, secondary school education, tertiary education Number of women – Black, White, Coloured, Indian Number of women - No medical aid, Medical aid Number of women – Employed, Unemployed, Self employed Number of women - H0= Unemployed, H1=<R36 000 single income or R50 000 family income per year, H2= from R36 000 to R72 000 single or R50 000 to R100 000 family income per year. Number of women – Married, Single, Divorced, Widowed
Access to facilities Patients residential address, village (Annexure 1)	This information was calculated by the researcher. • Name of nearest clinic and distance to residence. • Name of nearest CHC and distance to residence. • Distance to Kuruman Hospital. • Number of women who attend nearest facility to their home for delivery (Annexure 2).
Obstetric profile • Women booked to deliver at the hospital. • Place of antenatal care.	 • Number of women who were booked to deliver at the hospital. • Number of women attending ANC in clinics/ CHC/hospital/private practitioner.

• ANC visits	• Number of ANC visits per each woman.
Objective 3. To determine the number of women who are self referred to the maternity unit and the number of women referred by a PHC, CHC or the private sector.	
Referral letter in patient records Place of referral/name of referring unit.	Number of women with and without referral letter. Number of women referred from the following facilities • Primary health care clinic. • CHC. • Private sector.
Objective 4 To determine the number of women who could have delivered at a primary health care facility/community health centre instead of Kuruman Hospital.	
Emergency transport to hospital.	Number of women transported by the Emergency medical vehicle.
High risk pregnancy • Multiple pregnancy • Previous caesarean section • Co morbid medical condition – hypertension, TB, diabetes etc • Bad obstetric history (still birth) • Women over 35 • Women under 18	Number of women with reason to deliver in hospital
The diagnosis made by the referring facility(if referred)	• Number women referred based on relevant diagnosis requires hospital delivery. • Diagnosis made by the receiving facility (Kuruman Hospital).
Objective 5 To explore any association between the hospital delivery and clinic, also the reasons for the hospital delivery in terms of obstetric profile and distance to the facility.	

Data analysis

Data was entered into the researcher's laptop. The researcher did double entry of data in order to reduce errors and checked every 10th file for accuracy. The data was analyzed by the researcher with the assistance of a bio-statistician.

The data was entered into Microsoft Excel. The data was then imported into Microsoft Access and then into Epi Info for analysis. New variables were formulated by using EpiInfo.

1. Women were classified into two groups based on the distance between their place of residence and their nearest health facility.

    a. Clinic deliveries: Those women that could have delivered in a PHC facility/CHC/ as there was one nearer to their residence than Kuruman Hospital.

    b. Hospital deliveries: Those women, whose nearest facility for delivery to their stated residence was Kuruman Hospital and women whose nearest facility for delivery is another hospital were also regarded as hospital deliveries, but not included in the number of hospital deliveries for Kuruman Hospital.

2. Age groups. Women were placed into one of three groups (<18, 18 – 35, >35).

Descriptive statistics were used to analyze the data. Numerical variables are present as averages (mean/median) and spread (standard deviation) based on the distribution of data. Categorical data is presented as proportions. The number of women admitted to the maternity section per annum was presented as the total number of women admitted per annum.

Analytical statistics

The t – test and Chi square were used to look for any significant difference between the two groups (hospital and clinic deliveries) with respect to a number of variables (age, parity & gravidity, mode of delivery, use of EMS transport to deliver at the hospital, and presence of co-morbid conditions) in order to assess the appropriateness of the hospital deliveries. Other variables (educational level, employment and race) were not looked at because most of the women were black, unemployed and uneducated.

Ethical considerations

Permission for conducting this research was obtained from the School of Public Health Post graduate Assessors Committee, the Wits Human Research Ethics Committee (Annexure 3 – M10831) as well as from the Department of Health in the Northern Cape (Annexure 4).

All information collected on patients excluded their names and ID numbers to maintain anonymity. Patient's confidentiality was respected at all times and no identifying patient details were captured. House number and street address were not collected, only the name of the village or town in which the patient lived. All data was stored on the researcher's laptop and desk top. Both laptop and desk top were protected with a password and only the researcher and the research assistants knew the password.

CHAPTER 3

RESULTS

In this chapter the results of the analysis are presented and analyzed. These have been presented in tables and percentages. The total number of admissions during the study period was 7494.

CASELOAD

The caseload in the maternity section of Kuruman Hospital during the study period is shown in table 3.1

Table 3.1: Total number of maternity admissions 2006 – 2009

Month	Admissions 2006	Admissions 2007	Admissions 2008	Admissions 2009	Total
January	147	159	184	208	**698**
February	146	119	158	171	**594**
March	160	129	154	210	**653**
April	128	157	98	163	**546**
May	131	144	222	168	**665**
June	125	121	168	203	**617**
July	94	143	178	180	**595**
August	130	136	184	169	**619**
September	156	168	196	195	**715**
October	126	139	138	166	**569**
November	137	125	164	153	**579**
December	133	160	193	158	**644**
TOTAL	**1613**	**1700**	**2037**	**2144**	**7494**

A total of 7494 women were admitted to Kuruman Hospital maternity unit for the period 1st January 2006 to 31 December 2009. There was an increase in the number of admissions from 2006 (1613) to 2009 (2144).

A systematic sample of 384, were taken from the total study population. The first woman was admitted on the 1st of January 2006 was patient 1 and the last was patient number 384. The following section analyses results of the study sample.

Table 3.2 Admissions per year

Year	Total admissions per year	Number of files per year	% cohort
2006	1613	83	**22%**
2007	1700	87	**23%**
2008	2037	107	**28%**
2009	2144	109	**27%**
Total	**7494**	**384**	**100%**

DEMOGRAPHIC PROFILE OF WOMEN

In this section the demographic profile of the women are presented. The pie charts in Figures 3.1 to 3.6 below show the distributions of women by age group, marital status, ethnicity, medical aid, occupation and level of income. It can be seen that, in

all these demographic aspects, at least 80% of women fall into only one group. Over 82% of the patients are between 18 to 35 years old, more patients are single (89.8%) and black (87.5%). The age of patients ranged from 14 to 41. Many patients do not have medical aid (98.7%), are unemployed (95.6%) and they classified themselves as having no income (95.8%).

Figure 3.1 Age of women

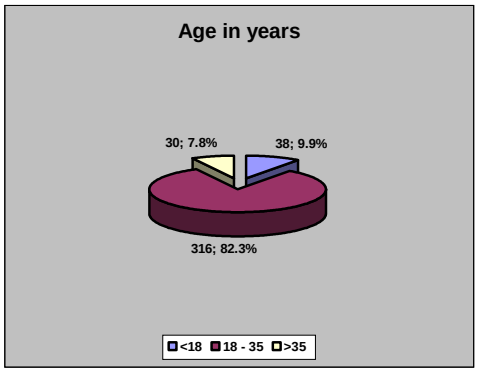


Figure 3.2 Marital status of women

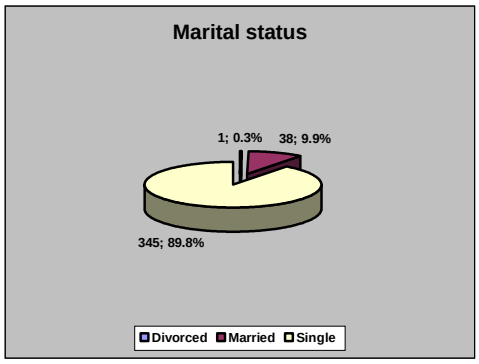


Figure 3.3 Ethnicity

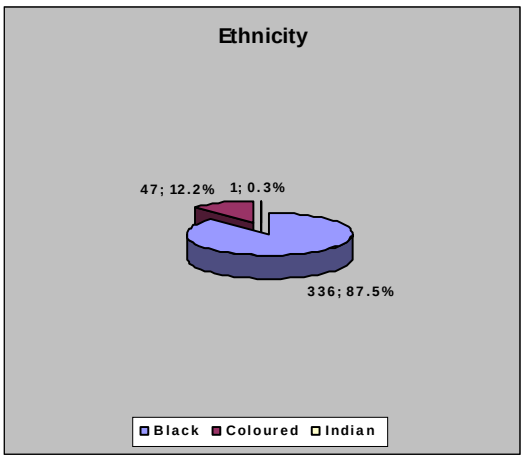


Figure 3.4 Medical Aid status

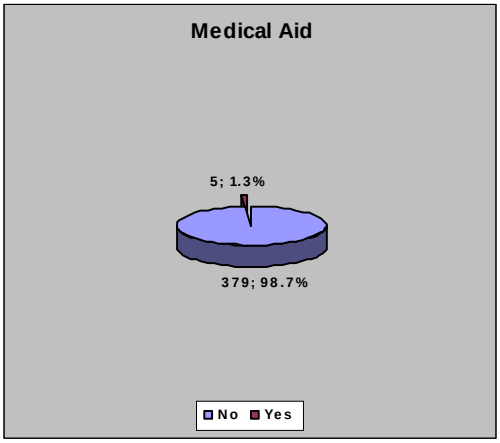


Figure 3.5 Occupation

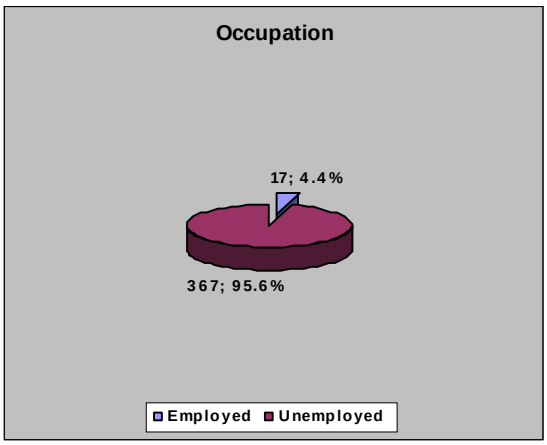
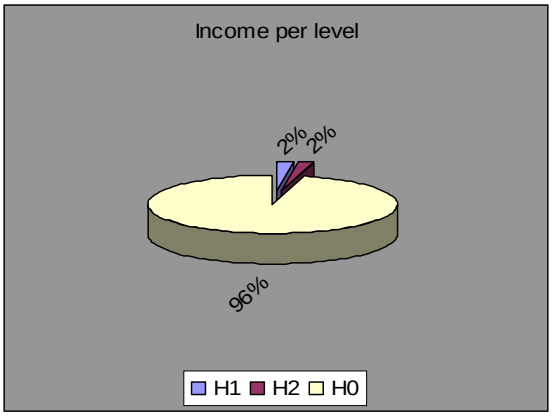


Figure 3.6 Income level as per hospital classification



OBSTETRIC PROFILE

Table 3.3 describes the obstetric profile of the women and shows that, for 45% of women this was their first pregnancy.

Table 3.3 Parity and gravidity

	Parity		Gravidity	
	Number of women	**Percentage %**	**Number of women**	**Percentage %**
0	176	45.8%	0	0
1	108	28.1%	151	39.3%
2	64	16.7%	120	31.2%
3	24	6.3%	65	16.9%
4	7	1.8%	24	6.3%
5	5	1.3%	12	3.1%
6	0	0%	5	1.3%
Total	**384**	**100%**	**377**	**100%**

The gravidity of 7(1.8%) women was not stated in their files.

Table 3.4 describes women who attended a health facility for antenatal care and also shows that most women attended ANC and went for between two and four ANC visits.

Table 3.4 Number of ANC visits

Number of ANC visits	Total	Percentage
0	47	12.3%
1	29	7.6%
2	79	20.6%
3	86	22.4%
4	81	21.0%
>4	62	16.1%
Total	**384**	**100%**

A total of 1079 ANC visits were made by 384 women, and an average of 2.8 visits were made by each woman, who delivered at Kuruman Hospital.

REFERRALS

Table 3.5 indicates that only 7 women came to the hospital for delivery with a referral letter that was in the patients file. Two women had been referred by a private practioners and the other 5 women had referral letters from one of the surrounding public sector PHC clinics/CHC's.

Table 3.5 Women who came with a referral letter

	Number of women	Percentage
No referral letter	377	98.2%
Referral letter	7	1.8%
Total	**384**	**100%**

ACCESS

The study indicated that out of the 37 PHC clinics in the district, women in the sample utilized only 19 clinics for antenatal care (Annexure 1). Table 3.6 indicates that over 73% of women lived within 50 km of Kuruman Hospital.

Table 3.6: Distance between the patient's residence and Kuruman Hospital.

Distance	Total	Percentage
0 – 50 km	281	73.1%
51 – 100 km	84	22%
101 – 150 km	0	0%
15 1 - 200km	19	5%
Total	384	100%

Table 3.7 indicates that almost all women lived within 20km of a clinic and a community health centre.

Table 3.7 Distances between the nearest clinics, community health centers and the patient residence

Distance to the clinic and community health centres	Nearest PHC/ Number of women	Nearest CHC/ Number of women
0 – 10 km	279	277
11 – 20 km	105	82
21 – 30 km	0	18
31 – 40 km	0	2
41 – 50 km	0	5
Total	384	384

HOSPITAL DELIVERIES

In Table 3.8, women are divided into two groups – those whose nearest facility is Kuruman Hospital and those whose nearest facility for delivery is PHC clinic/CHC and the table also indicate that over 63% of deliveries at the hospital could be classified as clinic/CHC deliveries.

Table 3.8 Hospital deliveries and clinic/CHC deliveries.

Deliveries	Number of women	Percentage
Women whose nearest facility for delivery is Kuruman hospital (hospital deliveries)	141	36.7%
Women whose nearest facility for delivery is PHC and CHC (clinic/CHC deliveries)	243	63.3 %
Total	384	100%

Table 3.9 indicates that over 80% of women did not have any medical condition that could have influenced the need for a hospital delivery and only 29 women were taken to hospital in an ambulance.

Table 3.9 Factors influencing hospital delivery

	Number of women	**Percentage**
Medical condition during pregnancy		
Asthma	1	0.2%
HIV	39	10.1%
HPT	12	3.1%
No medical condition	332	86.4%
Total	**384**	**100%**
Arrival in ambulance		
No	355	92.4%
Yes	29	7.6%
Total	**384**	**100%**

Table 3.10 indicates the percentage of women who attended ANC and the number of women who attended a facility that does deliveries for their antenatal care. Thirty five percent of women attended a facility for ANC where they could have delivered their babies.

Table 3.10 Place of ANC attendances

Place of delivery	**Total**	**Percentage**
Women who attended a facility for ANC that does not do deliveries	241	62.8%
Women who attended a facility for ANC that does do deliveries	136	35.4%
Facility not known	5	1.3%
Private sector	2	0.5%
Total	**384**	**100%**

Table 3.11 considers both groups of women - the clinic and hospital deliveries and indicates whether the women who could have delivered in a PHC clinic or CHC had any reason to deliver in Kuruman Hospital – age, mode of transport used, mode of delivery and existing co-morbid condition.

Table 3.11 Comparison of clinic and hospital deliveries in terms of presence of reasons to deliver in hospital

	Clinic deliveries	Hospital deliveries
Age		
<18	23 (9.4%)	15 (10.6%)
18 - 35	204 83.9%)	112(79.4%)
>35	16 (6.5%)	14 (9.9%)
Use of Emergency Medical Services		
Yes	13 (5.3%)	16 (11.3%)
No	230 (94.6%)	125 (88.6%)
Mode of delivery		
C/S	0 (0%)	13 (9.2%)
ND	215 (88.4%)	128 (90.7%)
Not stated	28 (11.5%)	0 (0%)
Number of women with co morbid conditions		
HIV	22 (9.0%)	17 (12%)
Hypertension	7 (2.8%)	5 (3.5%)
None	214 (88%)	119 (84.3%)
Number of women who had obstetric reason to deliver at the hospital		
Not given	242 (99.5%)	139 (98.5%)
PIH	1 (0.4%)	2 (1.4%)
Previous c/s	0(0%)	0 (0%)

The data shows that 39 women needed to deliver in hospital because they were under the age of 18 or older than 35, and 3% of clinic deliveries were taken to the hospital in an ambulance. Over 50% of women had a normal vaginal delivery and over 55% of women did not have any co – morbid condition that required them to deliver in the hospital.

Table 3.12 Time of delivery for women for "clinic" deliveries

Time	Total	Percentage
Day (07:01 – 19:00)	113	46,5%
Night (19:01 – 7.00)	130	53,4%
Total	**243**	**100%**

Table 3.12 shows that over 40% of clinic deliveries took place during the day, when all PHC clinic and CHC's in the district are operational, confirming that these deliveries could have taken place at a PHC clinic or CHC's.

COMPARISON OF THE DEMOGRAPHIC PROFILE OF CLINIC AND HOSPITAL DELIVERIES

Table 3.13 compares clinic and hospital deliveries in terms of the demographic profile. The Mann – Whitney /Wilcoxon two sample test was used to calculate the difference between clinic and hospital deliveries. Chi square = 1.93 p value = 0.381, is greater than 0.05 therefore there is no difference between hospital and clinic deliveries in terms of their demographic profile.

Table 3.13 Comparison of the demographic profile of clinic and hospital deliveries

	Clinic deliveries	Hospital deliveries
Age		
<18	23 (5.9%)	15 (3.9%)
18 - 35	204 (53.1%)	112 (29.1%)
>35	16 (4.1%)	14 (3.6%)
Education		
Not stated	223 (58%)	161 (41.9%)
Primary	1 (0.2%)	0 (0%)
Secondary	15 (3.9%)	8 (2.0%)
Tertiary	4 (1.0%)	0 (0%)
Ethnicity		
Black	233 (60.6%)	103 (26.8%)
Coloured	3 (0.78%)	44 (11.4%)
Indian	1 (0.26%)	0 (0%)
Medical Aid		
Yes	4 (1.04%)	1 (0.2%)
No	232 (60.4%)	147 (38.2%)
Occupation		
Unemployed	225 (58.5%)	142 (36.6%)
Employed	11 (2.8%)	6 (1.5%)
Income level		
H0	226 (58.8%)	142 (36.9%)
H1	5 (1.3%)	3 (0.78%)
H2	5 (1.3%)	3 (0.78%)

From Table 3.14, the p-value is greater than 0.05. A test was performed to determine whether there is an association between mode of delivery and clinic and hospital deliveries, and the test revealed that there is no association between the two groups (clinic and hospital deliveries).

Table 3.14 Association between mode of delivery and clinic and hospital deliveries

	Hospital deliveries	Clinic deliveries	Total
C/S	13 (3.4%)	28 (7.3%)	41 (10.6%)
ND	128 (33.3%)	215 (55.9%)	343 (89.3%
Total	**141 (36.7%)**	**243 (63.3%)**	**384 (99.9%)**

Chi square = 0.496 P-value = 0.481

LIMITATIONS OF THE STUDY

1. The particular subject is not widely researched at the district level and therefore the literature related to the subject is scanty.
2. Incomplete and inaccurate records
    a. The researcher could not collect information on the educational level of patients as this information was missing in most of the patients records. The researcher assumes that educated women will know the importance of ANC service and also adhere to the referral policy of the district.
    b. In almost all records, the income level was recorded as level H0. According to the Uniform Patient Fee Schedule policy of the National Department of Health, all employed pregnant mothers should pay for the maternity service at the hospital and for the unemployed (H0) the maternity service is free. It is likely that women indicated that they were unemployed even if they were not to avoid payment

c. The researcher could not look at race as a variable because over 80% of women delivered at the hospital were Blacks.

d. Ten files seems to be missing, because of the sampling method used, Therefore the researcher chose to retrieve every 19^{th} file, instead of 19.5^{th} file or 20^{th} file, to make the total sample size of 384.

3. Factors influencing hospital delivery such as outcome of pregnancy is limited as women could not have known the outcome when they made the decision to go to the hospital. In the study, one of the criteria to put the women into one or two groups was whether the delivery was normal. However, "normal delivery" could not be predicted.
4. Although the researcher may have over simplified the categorization – the presence/absence of risk factors requiring a hospital delivery were taken from the ANC card in the file. It is possible that the cards are not filled properly, and that can result in the misclassification of women.
5. The misclassification of women might be because of the following reasons:
    a. Patient's notes being incomplete.
    b. Referral letter missing, and
    c. Some women may turn up at the clinic 5 minutes before it closes and will need to go to hospital for this reason.

- Very few women had a referral letter in their notes. It was not possible in this study to know how many women went to a clinic and were not given a letter.

Technically if a woman was referred to the hospital from PHC clinic or CHC during the course of her pregnancy, this should be recorded in the ANC or at least a referral letter.

CHAPTER 4

DISCUSSION

In this chapter, the results obtained from the analysis of the data are discussed and compared with those from other published studies.

INTRODUCTION

The study was the first scientific evaluation of the data collected at Kuruman Hospital on the patterns of attendance to the maternity ward of Kuruman Hospital. The aim of the study was to quantify the size of the problem and not to look at why women bypass the clinics. No studies have been conducted at the level of the district hospital to measure the caseload of women by-passing the clinics and CHC's and going straight to the hospital.

The results presented in this report are based on the data derived from patients' records and the registers as documented by nursing staff working in the maternity unit. Nursing staff are expected to record data as no ward clerks are available for this administrative function. All data were captured for patients over the study period, however not all data for the selected variables were available. No interviews

were conducted especially for this study. A sample of 384 files was systematically selected.

The study shows that the hospital maternity unit caters for all women of childbearing age and the age range of women attending the hospital was 14 to 41 years. The majority of women seen are single and black. Kuruman Hospital is predominantly used by the unemployed and medically uninsured patients. Many women do not have medical aid and are unemployed.

CASELOAD

A total of 7494 women were admitted to Kuruman Hospital maternity unit for the period 1st January 2006 to 31 December 2009. There was an increase in the number of admissions from 2006 (1613) to 2009 (2144). This increase can probably be attributed to the following reasons:

- In 2006 former North West Province health institutions were incorporated into the Northern Cape province and thus resulted in the increase in the number of feeder clinics to Kuruman Hospital (Previously the feeder PHC clinics were 5 and 1 CHC but currently they are 37 PHC's and 5 CHC's).
- The population served by the hospital also increased to 198 000, due to the new boundaries.

The study shows that the lowest number of admission was in the year 2006 and highest number of admissions was in the year 2009. This trend has also been seen in other rural and district hospitals. Read et al reported a 275% increase in adult medical admissions over a 12 year in a rural hospital (Read et al., 2005). Unplanned increases in the number in of admissions may impact negatively on the resources that are human and capital.

Managers should plan ahead for any increase in the number of maternity admissions in particular in every year, in order to avoid increased workload and caseload in terms of resources (human and capital) that can lead to poor service delivery.

In Kuruman Hospital, it should be noted that despite these changes in workload, there has been no increase in the number of the staff and beds in the past five years, and this might be the reason for the high bed utilization rate and sub-optimal service delivery (Table 1.3). According to the saving babies report of 2003 -2005, there should be 16 midwives per 100 deliveries in a month, whereas in Kuruman Hospital there is always two midwives per approximately 250 deliveries in a month, and thus can result in staff burn out and resignations due to the high workload.

DEMOGRAPHIC PROFILE

Age

The ages of women ranged from 14 to 41 years, and the average age of women seen was 25. The study shows that the majority of women seen (n=316, 82.3%) were between 18 and 35 years old. Only 9.9% of women were less than 18 years old and 7.8% of the women delivering at the hospital during the study period were over the age of 35. This might mean that women in the district are aware of the risk of falling pregnant after the age 35.

Marital status, Ethnicity, Medical Aid and Occupation

The majority of patients were single (n=345, 89.8%) and black (n=336, 87.5%). Many women do not have medical aid (n=379, 98.7%) and are unemployed (n=367, 95.6%).

This findings confirm that blacks are not just the majority group that are accessing health services in government institutions, but also they belong to the ethnic group that represents the biggest proportion of individuals with no or little support for health services in the form of a medical aid.

Kuruman Hospital is predominantly used by the unemployed and medically uninsured patients. One of the reasons why other racial groups are not using Kuruman Hospital might be because there are utilizing a private hospital which is 40km away from Kuruman Hospital.

One of the reasons might be that coloureds prefer to utilize a private hospital (Kathu medi – clinic) than a government hospital (Kuruman Hospital). It is noted that many Whites and Coloureds work and reside in Kathu. Medi –clinic (Kathu) is their nearest health facility rather than Kuruman Hospital which is 40 km away.

Income level

Over 95% of patients that were admitted were classified as H0, which is "individuals who have no income "pensioners and unemployed citizen." H1 classified patients refers to an individual with an annual single income of less than R36 000 or an annual household income of less than R50 000 and H2 classified patients refers to an annual single income of less than R72 000 or annual household income of less than R100 000.

The socio-economic deprivation index of JTG district was 2.8% in 2007, which is not alarming, therefore the assumption would be most of the women who delivered at Kuruman Hospital had income and should be classified as H1 or H2 patients (Health Systems Trust, 2012).

In South Africa, maternity services at hospital level are free for only unemployed women. It is therefore likely that most women stated that they had no income in order not to pay for services. Staff in the admission office often does not take the time to probe for the income level of patients, either because of their workload or ignorance. This area need to be investigated further before a clear conclusion can be reached.

In South Africa maternity services at the clinic and community health centres is free for all woman whether employed or unemployed (DOH, 2007) and of any income level. Therefore it is best for all women to utilize clinics and community health centers rather than the hospital for maternity services.

Educational status

The educational status of women was not recorded in the patient files. In a study on the referral system in Nigeria, both the educated and uneducated bypass the lower levels of care to obtain health care at the secondary or tertiary level of care (Cullinan, 2006)

ACCESS TO THE HOSPITAL

Almost all the women who delivered at Kuruman Hospital were from John Taolo Gaetsewe district. Nineteen of these women live more than 100 km away from Kuruman Hospital and over 95% live within 20 km of a clinic. One hundred and five women however live more than 10km from the nearest clinic. Primary health care norms and standards state that all citizens should live within 5 km radius of a PHC facility (DOH, 2000), and this high number is therefore unacceptable. Although the hospital might be further away for these women, the long distance to a clinic might be the reason for some women to deliver at the hospital instead at the clinic.

For eleven villages/towns in the district and 113 women, Kuruman Hospital is a fact the nearest health facility, and it is expected that the women deliver at the hospital. For example for the thirty seven women from Deben town, Kuruman Hospital is their nearest health facility (Annexure 2).

Sixty three percent (63%) of the women in this study live nearer to a clinic where they could have delivered their babies than Kuruman Hospital and yet they still go to Kuruman Hospital to deliver.

This study has attempted to quantify the number of women who could have delivered in their nearest clinic. Several factors were considered apart from the distance between their home and the hospital.

Kuruman Hospital, being in the centre of town, is also more accessible to many women who may rely on public transport. There are areas where there is no public transport and it is often easier for people to use the public transport route to the hospital rather than to the nearest clinic.

People living in rural areas will tend to live some distances from the nearest referral hospital. Studies done on the accessibility of hospital care in countries such as Ethiopia and Nigeria have shown that individuals living further away from the referral centre will be less likely to access that service (Mugisha, 2008).

Due to a shortage of midwives in the district some clinics and community health centers are not able to perform deliveries and some do not open for 24 hours. Eleven of the PHC clinics do not perform deliveries at all due to lack of midwives. Although the remaining facilities all perform deliveries, 20 PHC clinics and 3 CHC's only do so during working hours (08h00-16h00). Only 6 PHC clinics and 2 CHC's operate for 7 days a week and 24 hours a day (these PHC clinics and CHC's were originally situated in North West province). The study shows that over 50% of

women delivered in Kuruman Hospital during the night and 27% delivered during the weekend when some of the clinics were closed.

Thirty five percent of women went for ANC to a facility that does deliveries (Table 3.10) and some of these women did not deliver at those facilities due to reasons known to them. The study further shows that (n=18, 4.6%) primigravida's delivered at Kuruman Hospital during the study period never attended ANC and (n=6; 1.5%) primigravida's attended ANC once during their pregnancy. The required minimum number of ANC visits for all categories of pregnant women is 4, and although the women did not attend ANC clinic service, they are not regarded as high risk according to the 2007 maternity guidelines. There is a need for health education of all pregnant women in the District, in order to emphasize the importance of ANC visits/service.

Although the reasons that women may not choose to use primary health care facilities were not explored, one other reason for women to choose to go to hospital might be perceived as poor quality of care at the clinics and attitude of staff members.

REFERRALS

Very few women (1.8%) arrived at the hospital with a referral letter from the PHC clinics, CHCs and private practioners and most women (98%) seem to bypass the clinics for delivery. The reasons for not having referral letters might be because of the following factors:

(a) Women did not go to the clinic but to the hospital for delivery.

(b) Clinic staff did not write the referral letters.

(c) The hospital staff lost the referral letters.

Dr Motsoaledi said in a briefing to the portfolio committee on women, children and people with disabilities that people were going straight to hospital for treatment. *"We need to overhaul the whole health care service and move it towards primary health care because some needs to be treated at the clinics .People in South Africa are not utilizing clinics. They are utilizing tertiary hospitals. This is not how health care must be conducted. You don't wake up and go to the highest hospital. You start at the clinics"* (DOH, 2010).

The study results show that over 63% of women that could have delivered at the PHC clinic and CHC's, based on their classification delivered at Kuruman Hospital, and if all these women could have been delivered at the clinics and CHCs, there

would have been a decrease in the number of deliveries at Kuruman Hospital (Maternity guidelines, 2007).

This study also shows that only a minority of the women (n=4, 1%) delivered at Kuruman hospital during the study period had obstetric reason to deliver at Kuruman Hospital.

According to guidelines for maternity care in South Africa 2007, normal vaginal deliveries should be done at the PHC and CHC facilities and complicated/high risk cases should be delivered at the hospital.

Although almost eight percent of women were brought to the hospital in an ambulance, this will not change the conclusion that most of the patients seen in the maternity unit were self referred. There is a need for a systematic research on the criteria used by the emergency care practioners when deciding to bring patients straight to the hospital instead to the clinics or community health centers.

Bypass fee

The Northern Cape Department of Health does have a policy whereby patients who have bypassed the clinics and community health centres should pay a bypass fee of R20. Charging such a fee is aimed at encouraging patients to start consulting at

their nearest PHC clinics and CHCs. However this policy is not fully implemented in John Taolo Gaetsewe District, most of the women in the district do not pay the bypass fee.

The study suggests that most patients bypassed the PHC clinics and CHC's and lead to the high number of the clinic deliveries at the hospital.

The reason for bypassing PHC clinics and CHC's may be driven by a number of factors, including the patients' perception of superior quality of care and resource availability in the hospitals, and the fact that for many urban populations, a hospital may simply be the nearest health facility (DOH, 2000). More accurate and substantial information can be derived from qualitative study where interviews with patients are conducted.

CONCLUSIONS

This was a cross – sectional descriptive study. The study looked at rather broad issues pertaining to the subject of the referral system in relation to maternity patients in the public health system.

The study shows that most women delivered at the Kuruman Hospital irrespective of the fact that they live nearer a clinic or CHC, where they could have delivered and

that clinic offers, in theory, the same services. This results in overcrowding at the hospital and patients should, therefore, be informed about the importance of the utilization of PHC clinics and CHC's.

The study suggests that patients go to the hospital when is not necessary, maybe because of the barriers at the PHC's and CHC, but it might be that they prefer the services at the hospital than the services at PHC clinics and CHCs, thus resulting in increased staff workload. The caseload and work load of the maternity unit of the hospital could be reduced if these women had delivered at their nearest CHC or primary health care (PHC) clinic.

Much still has to be done to ensure that the primary health care clinics and hospitals are effectively functioning in rendering services relevant to each level of care. The interventions recommended in this study will assist in the strengthening the delivery of district health care system and in particular improve the referral system within the district. The fact that most women seem to prefer to deliver at the hospital would suggest that the hospital is providing a desired maternal health service with the limited resources.

RECOMMENDATIONS

The recommendations made below are based on the findings from this study, and recommendations for further or more in depth research are also highlighted.

Information from this study will be utilized for the improvement of the maternal health services, in all health facilities within the district and also for proper allocation of resources (i.e. human, financial and material).

The findings will also be made available to the Provincial Department of Health, to assist in the management of the maternity health services in all of the district hospitals in Northern Cape Province. In addition, information will also be made available to the University of the Witwatersrand for use in future research, as a reference base for students.

It is acknowledged by the researcher that there are many reasons for people to choose to go to the hospital, such as transport. Therefore it is imperative to strengthen resources, including the availability of midwives; medical equipments and essential drugs at the PHC clinic's and CHC's. The bypass fee policy of the district should only be used as the last resort for those patients who bypass the clinics and go straight to the hospital. The bypass policy should also have a provision for those who cannot afford to pay the fee.

The study shows that more than 90% of the women who delivered at Kuruman Hospital were unemployed. This might be because the maternity service for the unemployed women is free. The admission policy at the hospital should be implemented so that those who can pay for the service can be identified and pay according the Uniform Patient Fees policy (UPFS) of SA.

The study in Kenya found that the attitude of personnel influenced patient's decision to use a particular service (Nordberg, 1996); therefore it is recommended that all employees working in any health institutions should have an ongoing training on customer care service and Batho Pele principles.

It is also noticed by the researcher during data collection that some files were missing and information was also missing in some of the files. Good record-keeping does more than support good patient care; it is essential for good patient care. The reasons for poor record-keeping include: lack of awareness of the importance of record-keeping, the lack of information sharing between professions and work units, the tendency to treat records as personal rather than corporate assets, the lack of coordination between paper and electronic information strategies, and the need to maintain confidentiality while legitimately freeing information (Pullen et al, 2006).

It is therefore recommended that the management of the hospital should establish a record committee whose remit includes: the format and quality of records, all records used during in-patient admission contain instructions regarding filing and are designed so that key information is readily identifiable, clear evidence is available of annual audit of record-keeping standards in at least 50% of services and lastly information management training should be provided to all personnel in the hospital, because quality and accurate data enhance good planning (Pullen et al, 2006).

Due to the increase in demand for service at Kuruman hospital, the management should consider increasing number of staff and equipment inorder to meet patient demand in the district.

The referral system should be strengthened by:

- Encouraging the health professionals at the clinics to refer patients properly and with a referral letter.
- Clinic nurses should be informed about the importance of referrals, and given feedback on the loop holes in the referral system. This can be done in the monthly obstetric review meetings. They can also be given feedback on the referrals themselves.

FURTHER RESEARCH

There is a general need to do more research at the primary health care services and the district hospital. The following areas of research are necessary as the findings would assist health workers and the hospital in the improvement of the referral system:

- There is a need to conduct a similar study using a qualitative method, where participants can be engaged in the form of interviews.
- There is a need to conduct research targeting other population of patients using the hospital services such as emergency medical services.
- The workload and the capacity of PHC clinics need to be researched, to evaluate how they match the health needs and demand of the population they serve.
- There is a need to research on the reasons of why women chose to deliver at Kuruman Hospital, than their nearest PHC clinic or CHC's
- Further research is required to establish the reasons for women not utilizing the clinics for maternal services.

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Annexure 1: Health Facilities utilized by women during the study period

Facility Name	Facility
Kuruman	Hospital
Tshwaragano	Hospital
Kagiso	CHC
Camden	CHC
Loopeng	CHC
Cassel	CHC
Olifantshoek	CHC
Bendell	Clinic
Bothetheletsa	Clinic
Bothitong	Clinic
Danielskuil	Clinic
Deben	Clinic
Dingleton	Clinic
Dithakong	Clinic
Ditshipeng	Clinic
Glenred	Clinic
Heuningvlei	Clinic
Kathu	Clinic
Kuruman	Clinic
Logobate	Clinic
Manyeding	Clinic
Metsotsaneng	Clinic
Seodin	Clinic
Tsineng	Clinic
Van Zyl	Clinic
Wrenchville	Clinic

Annexure 2: Nearest facility that does deliveries to place of residence

Town	Number of women	Nearest health facility that does deliveries
Anti- Naomi	4	Kagiso CHC
Bankhara	22	Kuruman Hospital
Batlharos	3	Tshwaragano Hospital
Bendell	3	Bendell clinic
Bodulong	20	Kuruman Hospital
Bothetheletsa	1	Bothetheletsa clinic
Bothitong	3	Bothitong clinic
Cassel	6	Cassel CHC
Churchill	3	Churchill CHC
Colstone	2	Camden CHC
Damrose	3	Camden CHC
Danielskuil	1	Kuruman Hospital
Deben	37	Kuruman Hospital
Deurham	1	Bendell clinic
Dikgweng	2	Seodin clinic
Dikhing	3	Bothitong clinic
Dingleton	11	Kuruman Hospital
Dithakong	17	Dithakong clinic
Ditshoswaneng	1	Seodin clinic
Gadiboe	1	Tsineng clinic
Gakhoe	1	Tsineng clinic
Galotlhare	1	Ditshiping clinic
Gamasepa	1	Manyeding clinic
Gamopedi	1	Maruping clinic
Gamothibi	2	Cassel CHC
Gasehunelo	3	Seodin clinic
Glenred	1	Bothitong clinic
Heuningvlei	1	Heuningvlei clinic
Huison	1	Kamden CHC
Kagung	48	Kamden CHC
Kamden	8	Kamden CHC
Kathu	9	Kuruman Hospital
Khosis	1	Kuruman Hospital
Kokonye	1	Ganyesa Hospital
Kuruman	1	Kuruman Hospital
Lotlhakajaneng	1	Dithakong Clinic

Logaganeng	1	Dithakong Clinic
Madibeng	7	Heuningvlei Clinic
Madularange	1	Kamden CHC
Magojaneng	19	Seodin Clinic
Magwagwe	1	Dithakong Clinic
Mahukubung	1	Maruping Clinic
Maipeing	2	Tsineng Clinic
Maketlele	3	Kamden CHC
Manyeding	5	Manyeding Clinic
Mapoteng	8	Kagiso CHC
Mapoteng – K	1	Kuruman Hospital
Maruping	12	Maruping Clinic
Metsotsaneng	2	Kagiso CHC
Mothibistadt	13	Kagiso CHC
Ncwelengwe	4	Manyeding Clinic
Pudimoe	1	Pudimoe Hospital
Reivilo	1	Reivilo Hospital
Seodin	12	Seodin Clinic
Sesheng	8	Kuruman Hospital
Seven Miles	3	Maruping Clinic
Sprinza	1	Churchill CHC
Suurdeeg	1	Manyeding Clinic
Thamoyanche	1	Seodin Clinic
Tsaelengwe	4	Manyeding Clinic
Tzaneen	1	Kamden CHC
Upington	1	Gordonia Hospital
Van zylsrus	9	Maruping Clinic
Vergenoeg	3	Maruping Clinic
Washington	1	Kamden CHC
Wrenchville	2	Kuruman Hospital
Total	**384**	

Annexure 3: Ethics clearance certificate

Annexure 3: Ethics clearance certificate

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG
Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
R14/49 Ms Dawn Dijong

CLEARANCE CERTIFICATE	**M10831**
PROJECT	To Describe the Patterns of Referrals to the Maternity Section of Kuruman District Hospital 2006-2009
INVESTIGATORS	Ms Dawn Dijong.
DEPARTMENT	School of Public Health
DATE CONSIDERED	27/08/2010
DECISION OF THE COMMITTEE*	Approved unconditionally

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

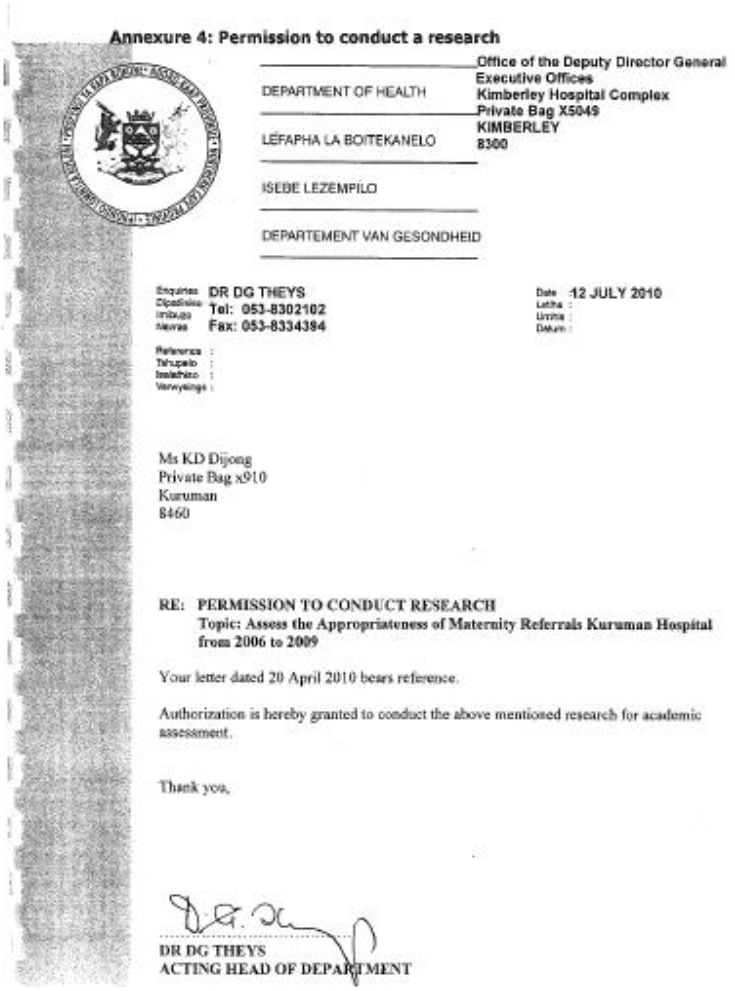
DATE 27/08/2010 **CHAIRPERSON** .....
(Professor PE Cleaton-Jones)

*Guidelines for written 'informed consent' attached where applicable
cc: Supervisor : Dr J Moorman

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University.
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to a completion of a yearly progress report.**
PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES...

Annexure 4: Permission to conduct research



Annexure 4: Permission to conduct a research

DEPARTMENT OF HEALTH
LEFAPHA LA BOITEKANELO
ISEBE LEZEMPILO
DEPARTEMENT VAN GESONDHEID

Office of the Deputy Director General
Executive Offices
Kimberley Hospital Complex
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KIMBERLEY
8300

Enquiries: **DR DG THEYS**
Tel: **053-8302102**
Fax: **053-8334394**

Date: **12 JULY 2010**

Ms KD Dijong
Private Bag x910
Kuruman
8460

RE: PERMISSION TO CONDUCT RESEARCH
Topic: Assess the Appropriateness of Maternity Referrals Kuruman Hospital from 2006 to 2009

Your letter dated 20 April 2010 bears reference.

Authorization is hereby granted to conduct the above mentioned research for academic assessment.

Thank you,

DR DG THEYS
ACTING HEAD OF DEPARTMENT

ANNEXURE 5. TOOL 1: Number of maternity admissions for the study period

MONTH	Admissions 2006	Admission 2007	Admissions 2008	Admissions 2009
JANUARY				
FEBRUARY				
MARCH				
APRIL				
MAY				
JUNE				
JULY				
AUGUST				
SEPTEMBER				
OCTOBER				
NOVEMBER				
DECEMBER				

ANNEXURE 5. TOOL 2. DATA EXTRACTION SHEET

Demographic Information		
Variable	**Options – circle one**	
Age	13 - 18 19 - 25 26 – 35 36 – 49	
Marital Status	Single Married Divorced Widowed	
Education	No education Primary school Secondary school Tertiary	
Ethnicity	Black White Coloured Indian	
Medical aid	Yes No	
Occupation	Employed Self employed Unemployed	
Income level	H0 H1 H2	
Access to facility – inset name of village / town		
Name of residential village / town		
Name of nearest clinic	**Researcher will complete**	
Name of nearest CHC	**Researcher will complete**	
Distance from hospital	**Researcher will complete**	
Obstetric profile		
Parity		
Gravidity		
Booked to deliver at hospital	Yes No	
Place of antenatal care		
Number of ANC visit	1	
	2	
	3	
	4	
	More than 4	
Referral		
Letter in notes	Yes No	

The diagnosis made by the referring facility	Give reason for referral	
Place of referral	PHC	
	CHC	
	Private	
	Not sure	
Final outcome		
Method of delivery	Normal vaginal delivery	
	CS	
	Forceps	
Appropriateness of referral		
Emergency transport used	Yes No	
Time of arrival	Actual time	
Date of arrival	Week day Weekend	
Any medical illness requiring hospital delivery	Asthma	
	Heart disease	
	TB	
	Diabetes	
	Hypertension	
	Other	
	None noted	
Multiple pregnancy	Yes	
	No	
Previous CS	Yes	
	No	
Complication in pregnancy	Give complication	
Complication in delivery	Give complication	
Post partum complication	Give complication	