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Attendance patterns of patients at a regional hospital casuality department in the Free State Province

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Attendance patterns of patients at a Regional Hospital Casualty Department in the Free State Province

Patrick Mbuyiselo Tsibolane

A Research Report submitted to the Faculty of Health Sciences of the University of the Witwatersrand in partial fulfillment of the requirements for the degree of Master of Public Health (Hospital Management)

Johannesburg 2011

DECLARATION

I, MBUYISELO PATRICK TSIBOLANE, 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 or for any examination at this or any other university.

……..

Signature

Date: November 2011

DEDICATION

The successful completion of this work is dedicated to:

The Almighty for His mercy and blessings in my lifetime

My wife, Yolisa, for her support and love.

My two daughters, Nelisa and Yonela for giving me a reason to strive to be the best I can.

ABSTRACT

Introduction: With the exception of emergency cases most patients should first be seen at the Primary Health Care(PHC) level where a decision is made by a doctor or nurse as to whether they should be referred to a higher level of care or not. Such referral would be referring to a district hospital, from there to a regional hospital then eventually to a central hospital. Over the last five years the argument from Pelonomi Regional Hospital (PRH) casualty department doctors has been growing louder and louder about patients they see which should be seen at PHC level. It was for this reason that this study was found to be necessary in order to put the arguments to a scientific test and be certain that the complaints are valid i.e. Are the majority of patients seen inappropriate for this level of care?

Aim: The aim of this study is to describe the attendance patterns of patients at PRH casualty department. This information will be used to understand the common features in attendance patterns of patients requiring emergency services at the casualty department of PRH.

Methodology: This was a descriptive study undertaken at PRH casualty department. The study included review of routinely collected hospital information on patients' records and registers. No intervention was done for and during this study.

Results: A fifth of the patients (20.6%) seen during the study period were between 20 and 30 years old and the least number (4.8%) were between 6 and 12 years old. Similar proportions of men and women were seen at the casualty department during the study period. The majority (29.2%) of the patients seen during the period of review were seeking medical assistance as a result of trauma and other external causes. Diseases of the respiratory system were the second most common presenting conditions (12.5%). Other common conditions seen during the study period included, diseases of the digestive system (9.6%), endocrine, nutritional and metabolic diseases (8.3%) and diseases of the genitourinary system (7.4%). 74% of patients were self-referred and majority of patients (70%) seen at the casualty department were admitted.

Conclusions: The fact that a significant number of patients seen during the study period were admitted implies that the hypothesis that implies that patients seen at PRH are non-urgent or inappropriate has been proven to be false. While most studies conclude that TB and Pneumonia are the prevalent conditions in Southern African hospitals, fractures are the predominant causes for seeking attention at PRH. This implies that a more comprehensive study should be undertaken in order to eliminate confounding factors such as poor record keeping

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GLOSSARY OF TERMS

Casualty departments/ emergency and accidents department: are units in which critically injured or acutely ill patients who require urgent attention are treated (Ford, 2002).

Clinical diagnosis**:** a diagnosis made on the basis of knowledge obtained by medical history and physical examination alone, without benefit of laboratory tests or x-ray films (Mosby, 2009).

District health system: this is a health care system wherein primary health care and Level 1 health care services are rendered (Gorgen, Kirsch-Wok et al., 2004).

ICD-10 code: the ICD-10 code stands for International Classification of Diseases and related health problems - 10th revision. It is a coding system developed by the World Health Organization (WHO), that translates the written description of medical and health information into codes in a standardized format, e.g. J03.9 is an ICD-10 code for acute tonsillitis and G41.0 - Epilepsy, unspecified(WHO, 2004).

Self-referred patient**:** is any a patient who presents at the casualty department without a referral letter from a health professional at a lower level of care or not brought in by in by Emergency Medical Services (EMS). (Adomakoh, et al.2006)

Triaging: A system of prioritizing the patients who are visiting an A & E department (NZHTA, 1998)

LIST OF ABBREVIATIONS

A & E	ACCIDENT AND EMERGENCY
DHS	DISTRICT HEALTH SERVICES
EMS	EMERGENCY MEDICAL SERVICES
FSDH	FREE STATE DEPARTMENT OF HEALTH
GP	GENERAL PRACTITIONER
ICD-10 CODE	INTERNATIONAL CODE OF DISEASE .10 EDITION
PHC	PRIMARY HEALTH CARE
PRH	PELONOMI REGIONAL HOSPITAL
WHO	WORLD HEALTH ORGANIZATION

CHAPTER 1

INTRODUCTION

The purpose of this study was to describe the attendance patterns of patients at PRH Casualty Department. This information will be used to understand the common features in attendance patterns of patients requiring emergency services at the casualty department of PRH. This introductory chapter covers the background to the study, statement of the problem, its aims and objectives and an outline of the subsequent chapters.

1.1. Background

The Free State Department of Health (FSDH) is providing health services based on the District Health System (DHS). The Free State province is made up of five districts; namely, Motheo, Xhariep, Thabo Mofutsanyana, Fezile Dabi and Lejweleputswa (see Figure 1). According to the DHS, the entry level for health care services is PHC facilities which are made of clinics and community health centers (see Figure 2). District hospitals, which form part of the DHS, accept referrals from the PHC facilities for further handling. District hospitals refer to the regional hospitals patients that need specialist health care services (Gorgen, Kirsch-Wok et al., 2004).



Figure 1.1: FREE STATE DISTRICTS

PRH is a 720-bed level 2 hospital situated in the Motheo District in the Free State province. In addition to being a regional hospital, it has designated tertiary services such as the Trauma Unit, Spinal Unit, Burns Unit, and Isolation Unit. Patients from the Motheo and Xhariep Districts are referred to PRH. National, Botshabelo, Mantsopa, and Dr.J.J. Moroka District Hospitals are in the Motheo District. Embekweni, Stofell Coetzee, and Diamant District hospitals are in the Xhariep District. PRH refers to Universitas Academic Hospital which is about seven kilometers away. All the other hospitals in the Free State refer patients who seek the tertiary services mentioned above to PRH (Gorgen, Kirsch-Wok et al., 2004).

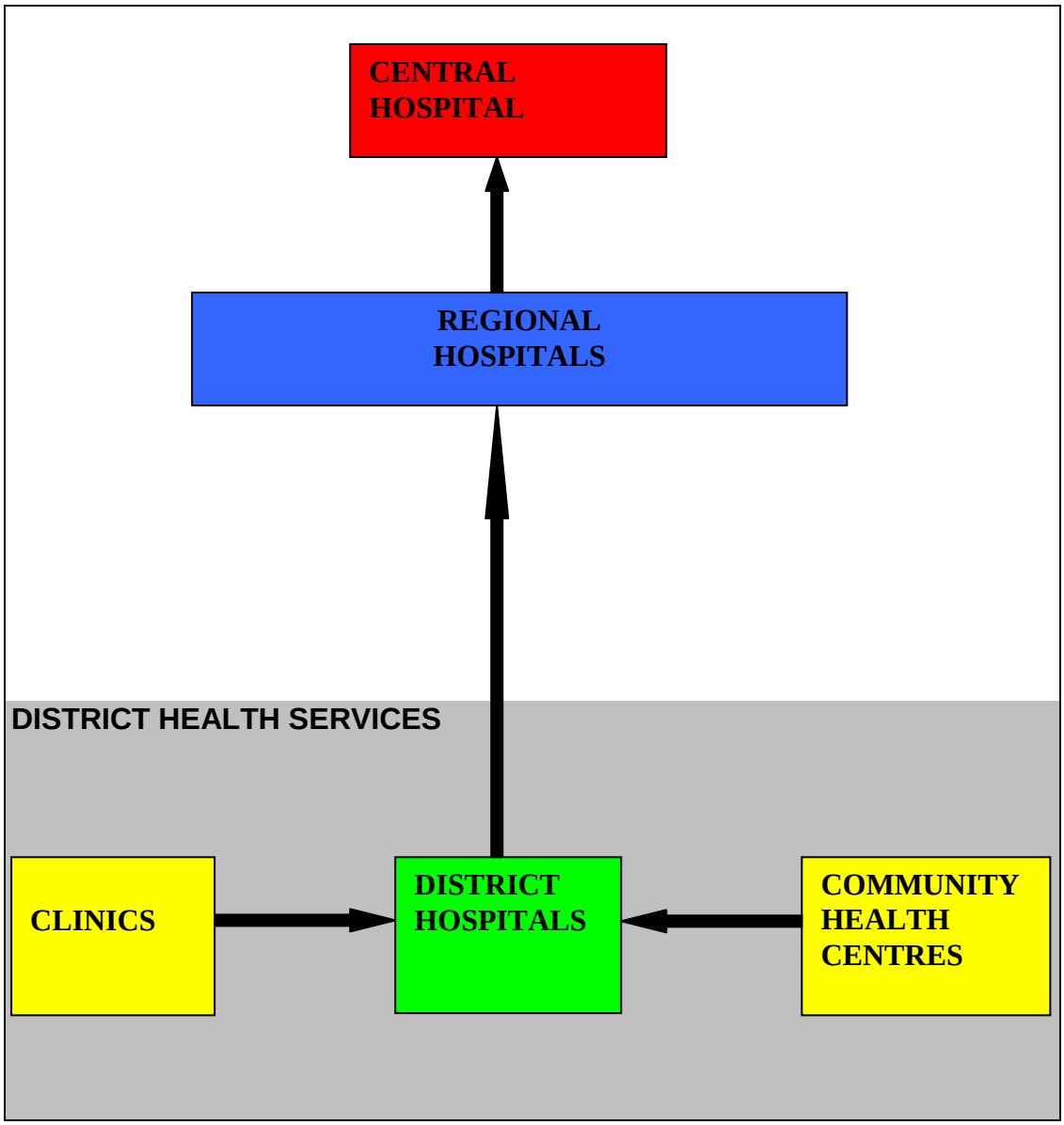


Figure 1.2: FREE STATE PROVINCE HEALTH REFERRAL SYSTEM FLOW DIAGRAM

Any patient not critically ill or acutely ill presenting in the casualty department is regarded as non-urgent. In as much as the casualty department is providing care to patients who are afflicted with life-threatening conditions, there is a tendency to provide care in these areas to patients who for some or other reason are unable to access PHC services. A casualty department is an

integral part of the health system and is usually a central feature of most hospitals. It is intended to provide care for patients with life-threatening conditions such as accidents, trauma, or acute conditions such as heart attacks or respiratory failure (Ford, 2002).

Triaging, which is an internationally recognized way of prioritizing patients according to an order of emergency, plays an important role in a casualty department. This system allows patients who are critically injured or with severe life-threatening conditions to be seen in terms of seriousness of their conditions instead of a first-come-first-served basis. Most patients find this controversial and unacceptable as they feel that they all deserve urgent attention. The triage system, where successfully utilized has been shown to reduce waiting time for those patients who deserve to receive emergency care (Bruijns, Burch, et al. 2008). The triage system does not stop self-referred patients from being treated at the casualty department if their condition warrants the emergency attention (Chan & Chau, 2005).

1.2 The casualty department at PRH

The casualty department at PRH is a 24-hour service rendering emergency care to walking and stretcher patients. Within the casualty there are two departments namely, “Orthopedic and Medical Referral Rooms”. Each of these “rooms” is managed by registrars (specialists on training) of each discipline. Patients referred to these rooms are regarded as being discharged from casualty department.

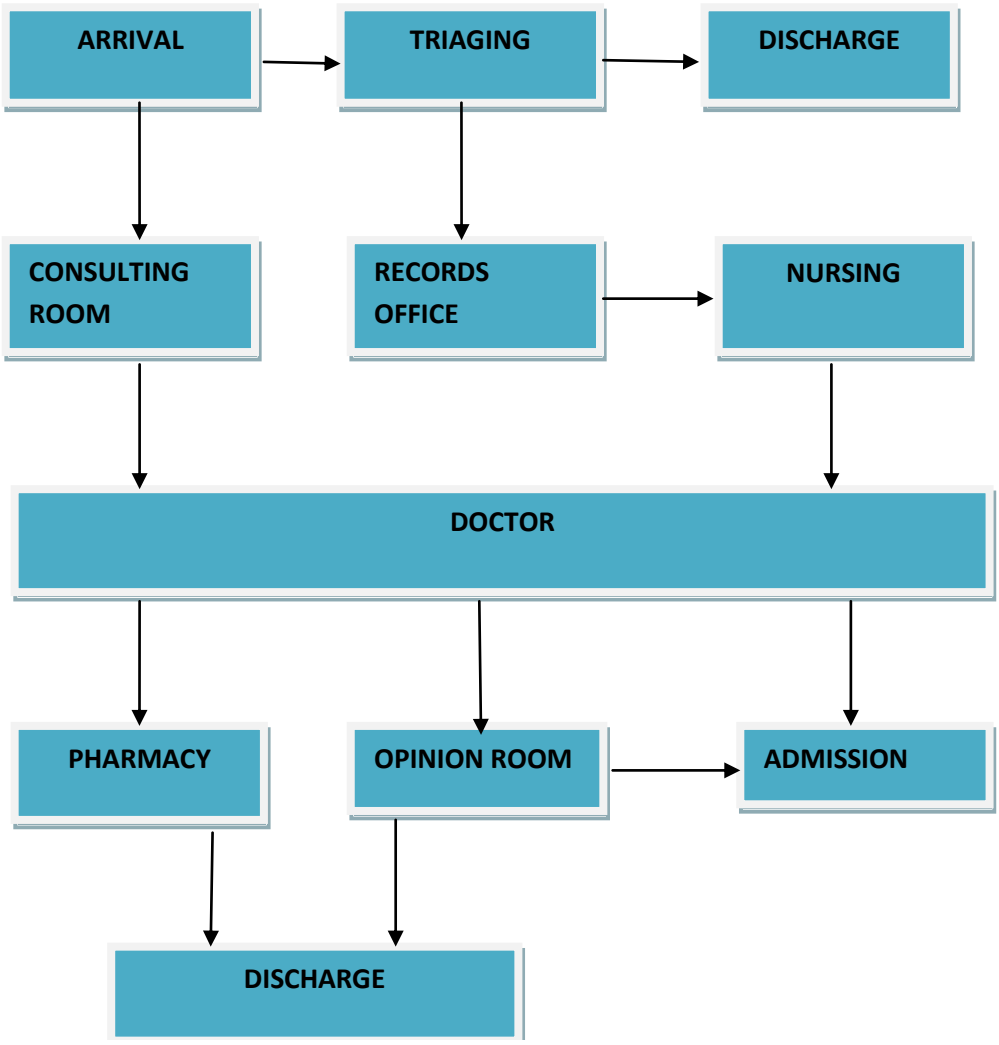


Figure 1.3. PRH CASUALTY FLOW DIAGRAM

1.3 Statement of the problem

The Casualty Department at PRH is experiencing an influx of patients with medical problems that would be more appropriately managed by health care services at PHC facilities. Patients who attend the casualty departments with problems that could be dealt with at local PHC facilities use time and resources of the hospital that could be otherwise used for patients with more urgent needs. Bypassing of PHC facilities has an impact on human and financial resources of the institution. It also has an indirect influence in the patients' complaints about waiting times and affects staff morale as they feel that as highly trained professionals they are rendering services that could be rendered elsewhere. Crowding of the casualty department also affects quality of care, patient mortality, levels of violence by angry patients against staff and reduced access to emergency medical care by deserving patients (Aronsky, Jones, Nathan et al., 2007).

1.4 Aim of the study

The aim of this research is to describe the attendance patterns of patients at PRH Casualty Department. This information will be used to understand the common features in attendance patterns of patients requiring emergency services at the casualty department of PRH.

1.5 Study objectives

1.5.1 To describe the demographics of patients attending the PRH casualty department from 1st February 2008 to 31st July2008

1.5.2 To determine the disease profile(by diagnosis) of patients attending the PRH casualty department during the study period

1.5.3 To determine the proportion of patients who are self-referred as compared to referred patients.

1.5.4 To determine the outcomes (admission, discharge or referral) of patients attending the PRH casualty department during the study period.

1.6 Chapters of the report

The background to the research has been discussed and the objectives defined. The subsequent chapters will cover following areas:

Chapter Two: Literature review

The purpose of the literature review is to give the reader the necessary background to understand the study by citing the investigations and findings of previous researchers and documents the investigator's knowledge and preparation to investigate the problems and to discuss concepts and similar researches done around the topic being studied as well as searching for potential solutions for the research problem.

Chapter Three: Research Methodology

In this chapter the methodology used to conduct this research is explained. It also explains the study setting, study population and methods and tools used for collecting and analysing the data.

Chapter Four: Data Analysis and interpretation of results

This chapter deals with the findings of the collected data based on the objectives and the data is analysed. Where necessary the analysis will be presented in tables, graphs and figures.

Chapter Five: Discussion

In this chapter there is an integration of findings obtained from the analysis of the reviewed literature and the results so as to address the aim and objectives of the study.

Chapter Six: Conclusions and recommendations

Conclusions are drawn based on the study's aims and objectives.
Recommendations to address some of the problems identified in the results are made and areas for further research are cited.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Attendance patterns at specialized hospitals are mainly reflecting problems related to self -referral, non-urgent patients, inappropriate referrals, or overcrowding at casualty/ emergency departments. (Blackman, Blomqvist et al., 2008: Lowly, Kohleer, Nicholl et al., 1994: Harris, Huang, Lwote et al.,: 2008). In developing countries these problems are driven by underlying causes such as lack of drugs and supplies at primary care level, difficulties in recruitment of staff and budgets that favor tertiary hospitals amongst other things (Hensher, 1999).

There is no valid or reliable method that exists to define appropriate use of an A & E department. A notable problem with the literature review is that most of it is based on provision of primary care in the United States of America where health care emphasis has always been on specialist care whereas in the United Kingdom(UK) New Zealand and Australia, PHC is well established(Bodwell, Hider et al., 1998)

Most studies concentrated on eliminating the problem of overcrowding (Harris, Huang, Lwote et al.,: 2008), inappropriate referral (Lowly, Kohleer, Nicholl et al., 1994) or perception of patients (Cross, Goodcare, Cathain et al., 2005)

and health care workers (Bossyns &van Leberghe 2004), whereas this study's aim is to understand this phenomenon and plan health services accordingly.

The literature review is categorized in terms of the global trends in attendance patterns and the variables to be studied namely patient demographics (age, gender), clinical outcomes, disposal (admitted, died, discharged and referred out) and referred or self referred.

2.2 Global trends in attendance patterns at A & E departments

In most of the existing studies in this field the outcomes of investigations are influenced by whether countries are developed or not and what era it was in historical terms as the proposed solutions are influenced by cultural, political environment or affordability.

2.2.1 African

A study in Namibia (Brandt, de Coeyer. et al., 2001) concluded that between 48%-78% of patients from various districts were self referred and used the referral hospitals as the initial points of contact with the health system. This trend is exacerbated by the fact that at nights and weekend the hospitals are the only functioning health facilities in the various districts.

Lack of trust in services closest to them was demonstrated by women living in abject poverty in Tanzania (Galea, Kriek. et al., 2009) who chose to travel 20km or more to seek maternity services in bigger hospitals. Many of them were prepared to risk their health and that of the unborn baby as they could possibly be in labor in the middle of nowhere.

In most studies the outcome on patients who are self -referred mostly ranges between perceived staff incompetency, lack of medicines, lack of equipment, shortage of staff at PHC facilities .Somehow a phenomenon that appears not well researched was described in Niger wherein nurses did not transfer patients to a higher level in order to protect their professional prestige. "Authoritarian attitudes and overconfidence in their own capabilities then substitutes for difficult negotiations with a population that does not think according to the technocratic referral paradigms of division of labour and hierarchy of competence and skills."(Bossyns &van Leberghe 2004).

A study on the workload and utilization of A & E departments in the province of the Western Cape in South Africa (Twomey & Wallis. 2007) concluded that there are clear and predictable patterns of patients' attendance in terms of the day of the week and time of the day. However this trend was not matched by availability of staff during the identified peak periods.

In terms of health facilities and human resources, the Western Cape is a well-resourced province in South Africa and its health outcomes are generally better off than most. However a study carried out at one of the hospitals (De

Villiers, PJT. Marszalek, J .2006), indicated that about 80% who presented at the A & E department were self refereed. This implies that the province is battling with the same problems faced by other health authorities in the country and other developed and developing countries

2.2.2 Middle East and Asian trends

In a study in the Middle East it was found that an increasing number of elderly patients in particular, misused the A & E departments and this adversely affected quality of emergency services and patient satisfaction (Durgam, Karim et al., 2003).

In 2002 Hong Kong implemented what could be described as a bypass penalty which was payable by patients who were not having serious injuries or medical conditions. This was done mainly to discourage the use of A & E departments by non-urgent patients and partly to raise revenue. This resulted in reduced attendance at A & E departments for a while but the health authorities are now faced with a complex case mix and an elderly population and reduced staff numbers which have impact on the quality of the clinical care (Abraham, Graham et al., 2009)

In the Islamic Republic of Iran, a study conducted in 2000(Rasoulynejad, 2000) to determine the reasons for self referral to an A & E department it was found that the attendance trends were influenced by the applicable health insurance system. Cases of self referral were more prevalent (60.5%) from

those citizens using the public sector system compared to those covered by the private sector.

2.2.3 Trends in developed countries

In the USA the attendance patterns at specialist hospitals are characterized by an increased number of rural residents leaving their facilities to seek better care. This is of course made possible by good public transport as compared to developing countries

A study in Canada (Field, Lantz. 2006) concluded that about 49% of patients attended the A& E departments without being referred because they said they required a service that was not available elsewhere and the majority of them indicated that they perceived their conditions to be urgent. This could have been influenced by the level of literacy of the citizenry of Canada.

Overcrowding in A & E departments has been associated with increased mortality in Western Australia (Da Silva, Frazer et al. 2006. The study however conceded that no investigation was done on delay in giving critical care or shortage of staff in order to balance the outcomes of the study

In Australia a significant outcome from a study on key drivers for the increase demand for emergency departments services concluded that the interdependency of supply and demand within the health sysytem need to be always remembered for future planning and forecasting(Booz Allen

Hamilton.2007). The report indicates that the lower is the suppy of general practitioners at primary care level the more will the demand increase on the emergency departments. The importance of this statement may have a beaing on the similarities with the South African situation wherein limited ccess to PHC services could result in demand for higher levels of care.

2.3 Patient demographics

2.3.1 Age

Age is a significant variable when an investigation is intended to yield results that would be used for planning of health care services. In a study in the United States of America it was found that the age group from 50 years and above was significantly less likely to bypass primary health care compared to the 18 to 34 age group (Bellamy, Barnet et al., 2008). This particularly compares well with a study undertaken in GF Jooste Hospital in South Africa, wherein it was concluded that the age group 20 to 30 years was predominating attendance during the study period (De Villiers, Marszalek, 2006).

2.3.2 Gender

Due to the different needs of the different genders it is important to understand which group is dominating attendance especially females whose requirements in a health care setting are more demanding in terms of staff

skills. The South African National HIV Survey, 2008 concluded that the HIV prevalence was significantly higher among females than males. This would hypothetically mean that a higher attendance at casualty would be expected from females than males especially for treatment of opportunistic infections.

The association between younger age and female gender and inappropriate utilization of the A & E departments was found to be highly consistent from previous studies (Carret, Fassa et al., 2009).

2.4 Clinical outcomes

Patients decide which symptoms necessitate them to go directly to the emergency department (Blackman, Blomqvist et al., 2008).This justifies the observation of the final diagnosis as it could indicate whether the same influence is relevant or not.

In Stockholm, Sweden, when a study on the characteristics of non-urgent patients was done it emerged that patients decide, based on their symptoms whether they should bypass the primary care facilities or not. In other words, the study by Bossyns & van Leberghe (2004) in rural Niger came up with an interesting angle to the problem of poor performing referral systems. What the study revealed was that nurses in Niger saw it as losing prestige when they had to refer patients and would rather keep reviewing them at the clinic even if their condition required that they be referred to a specialist hospital. This of course implies that whenever the opportunity arises, if not satisfied, patients

would refer themselves. The significance of this investigation for the author is: to what extent would we have the same phenomenon?

While many reasons could be motivated for, assisting self-referred patients, it is of concern that over-crowding or the influx of patients in a casualty department could lead to increased mortality for patients that deserve to be in the emergency and accident department (Da Silva, Frazer, Sprivulis et al., 2006).

2.5 Referral trends

In a study conducted in rural counties in the United States of America it was found that patients who are self referred are more likely to be associated with living in areas where there are fewer beds. This study will investigate if there are such similarities because patients often lie at PRH while waiting for beds at National District Hospital because they should have been there in the first place (Bellamy, Barnet et al., 2008).

There is also evidence that some so-called inappropriate patients referrals are because of misclassification of patients. This is expected to be a problem within our developing world set – up, with information systems common problems such as incomplete and inaccurate records as to whether the reports on influx of patients at PRH is not in the main as a result of misclassification of patients or not(Lowly, Kohler et al.,1994).

2.6 Disease profile

In Canada (Carret, Fassa et al., 2009) a study on attendance of non-urgent patients at A & E departments found that chest and abdominal pains were the predominating conditions seen. In Hong Kong it emerged that non-urgent patients presented more with respiratory conditions and those that were appropriate for the visits who presented more with circulatory conditions (Chow, Kam et al., 2001).

A study in Cape Town workloads and case mix in emergency departments (Twomey and Wallis. 2007) found that trauma cases were in the majority and about 46% of those were assaults. This is supported by scientific research which concluded that South Africa is one of the most violent countries in the world (Perrott, 2003)

2.7 Conclusion

The literature review has confirmed that attendance patterns at A&E departments are influenced by a variety of factors amongst others perceptions of poor quality of care at PHC, distance between the hospital and referring clinics, staff shortage at the clinics. It is also clear that the factors affecting attendance patterns differ between developed and developing countries. While similarities have also been found across the board, the observed differences suggest that this study is justifiable because the results will be unique to the population due to the different circumstances

CHAPTER 3

METHODOLOGY

3.1. Study design

The study design is a descriptive cross sectional retrospective record review. The data reviewed is from the Meditech Patient Data System. The registers could not be used because they were only for patients who had been through the triage system which meant that they were only for self-referred patients.

3.2. Study setting

At the casualty department at PRH there are usually three medical officers per shift but quite often there are only two doctors on duty. Walking patients are subjected to a Triage system but it is common to find patients brought on a stretcher by EMS but quite capable of walking on their own. The department is very busy during pay days such as the 15th and 30th of the month and during festive season holidays such as Easter and Christmas.

3.3. Study period

The study was conducted on all records of patients who visited the casualty department of PRH between February 2008 and July 2008 at any time of the day or day of the week. The reason for including June and July is because

there attends in winter due to symptoms of common cold and burns but ironically winter also dissuades patients from visiting emergency and accidents departments (Evans, Haug, Jones et al., 2008)

3.4. Study population and sampling

All patients who sought medical care at the casualty department of PRH during the period February 2008 to July 2008 constitute the study population, including those who died in casualty after being admitted.

Approximately 30,000 patients visit the casualty department annually and therefore 15, 000 in six months. An on line calculator was used to calculate the sample (with a 5 % margin of error and a 95% confidence level) was required, a sample size of 375 in total was required (Creative Research System: 2008). This was regarded as sufficient to detect a difference between self- referred and referred patients in terms of their age, gender, and clinical outcomes. As this record review is based on stored electronic information, a method of systematic sampling method was found to be appropriate and therefore every 35th patient registered between February 2008 and July 2008 until the 400th constituted the sample. The reason for exceeding the required sample was to counter records that will be excluded for one reason or another. The period covered summer, autumn and winter and the Easter period to mimic the Christmas time as it is clear that seasonal changes affect volumes at emergency and accidents departments (Evans, Haug,J ones et al., 2008)

3.5. Measurement and data source

The data source was the Meditech Patient Data System. A data-capturing sheet (Annexure A) was used to collect the data. The following variables were captured in the data capturing sheet.

- Demographic information : age and gender
- Diagnosis at the time of separation using the ICD-10 coding system
- Disposal (discharged, died, referred or admitted)

The investigator captured this data.

3.6. Data processing and data analysis

The data was extracted by the investigator from the sample of entries retrieved from the Meditech Patient Data System and captured on the data - capturing sheet. The data was captured on Microsoft Excel 2003 where it was “cleaned’ and then exported to Epi- Info version 3.5.1. The variables were categorized as numerical and categorical. The statistical value was calculated at 95% confidence interval.

3.7. Exclusion criteria

Patients’ records that do not have the following details were regarded as incomplete and excluded from the study:

- Diagnosis

- Treatment/outcome
- Incomplete Demographic details
- Patient Medical file (hardcopy)

3.8. Ethical and legal considerations

Permission to do the study was obtained from the Human Research Ethics Committee (Medical) of the University of the Witwatersrand (MO90941) (see Annexure B) as well as the Free State Department of Health (see Annexure C). All information was entered anonymously in the data collection sheet and patients' confidentiality was safeguarded at all times.

3.9. Validity of the study

The validity of the study was ensured by

i. an objective data collection instrument
ii. consideration of ethical issues
iii. the investigator's experience and qualifications in health care

3.10 Conclusion

The utilization of records as a research tool was always going to be difficult given the current problem of poor record keeping in public health facilities.

However, due to the fact that PRH utilises the Meditech Patient Data system, it was felt that the available records, albeit not complete will assist in carrying out the study.

CHAPTER 4

RESULTS

4.1 Patient demographics

A total of 400 patients were selected by means of systematic sampling for the pupose of the study from the electronic Meditech Patient Information System. However 89 records were excluded from the study due to the following reasons :

- Medical records could not be found (n=20)
- No clinical notes for the recorded visit(n=21)
- No clinical outcome(disposal)(n=9)
- Duplicated names on the Meditech Patient Information System.(n=39). In all duplicated cases with same date, time and diagnosis only one visit was considered.

Patients brought in by Emergency Medical Services (EMS) staff were regarded as being referred.

4.1.1 Age

Age of patients that visited the casualty department (N=311) reflected a Mean of 32.1 (20.7) standard deviation.

The age distribution is reflected in Table 4.1. The age of patients ranges from 8 days minimum to 85 years maximum. The majority of patients (20.6%) seen

during the study period were between 20 and 30 years and the least number (4.8%) were between 6 and 12 years

Table 4.1: Age distribution

AGE	**TOTAL** ***n (%)***
0 - 5yrs	55(17.6%)
6yrs - 12yrs	15(4.8%)
13yrs -19yrs	24(7.7%)
20yrs - 30yrs	64(20.5%)
31yrs - 40yrs	49(15.7%)
41yrs - 50yrs	40(12.8%)
51yrs - 60yrs	27(8.6%)
60yrs and above	37(11.8%)
	TOTAL=311

4.1.2 Gender

The gender distribution of the study sample is outlined in Table 4.2. Similar proportions of men and women were seen at the casualty department during the study period resulting in a female to male ratio of 1:0.99.

Table 4.2: Gender of participants

Gender	Frequency	Percent	95% Conf Limits	
F	154	49.50%	43.80%	55.20%
M	157	50.50%	44.80%	56.20%
Total	311	100.00%		

4.1.3 Age and gender distribution

The age and gender distribution is summarised in Table 4.3

The males in the 0 -5 years age group accounted for most (67.2%) of the patients who visited the casualty department from that age group during the study period. In the 51-60 years age group, 59% of males visited the casualty department.

The largest number of females (58%) who visited the casualty department was in the 13-19 years age group. Females also accounted for 58% of the largest age group (20-30 years) of patients who visited the casualty department.

Table 4.3: Breakdown of age groups and gender

	Female				Males			
Age group	**n**	**%**	**95% CI**		**n**	**%**	**95% CI**	
0-5 yrs	18	11.70%	7.10%	17.80%	37	23.60%	17.20%	31.00%
6-12 yrs	7	4.50%	1.80%	9.10%	8	5.10%	2.20%	9.80%
13-19 yrs	14	9.10%	5.10%	14.80%	10	6.40%	3.10%	11.40%
20-30 yrs	35	22.70%	16.40%	30.20%	30	19.10%	13.30%	26.10%
31-40 yrs	26	16.90%	11.30%	23.80%	22	14.00%	9.00%	20.40%
41-50 yrs	22	14.30%	9.20%	20.80%	18	11.50%	6.90%	17.50%
51-60 yrs	11	7.10%	3.60%	12.40%	16	10.20%	5.90%	16.00%
> 60 yrs	21	13.60%	8.60%	20.10%	16	10.20%	5.90%	16.00%
Total	154	100.00%			157	100.00%		

Statistical test was as follow; Chi Square = 9.9885, df = 7, Probability =0.1892 and that implied that there was no significant difference between age groupings and age distribution.

4.2 Disease profile

The presenting diagnosis was made and recorded during the casualty visit. The most common presenting conditions occurring during the study period are categorised by using the ICD10 Code and outlined in Table 4.4

Almost 30% of the patients seen during the period of review were seeking medical assistance as a result of trauma, poisoning and other external causes and fractures constituted 52% of the cases.

Diseases of the respiratory system were the second most common presenting conditions (12.2%). Other common conditions seen during the study period included, diseases of the digestive system (9.6%), endocrine, nutritional and metabolic diseases (8.3%) and diseases of the genitourinary system (7.4%).

Table 4.4: Presenting conditions

Code	Diagnostic description	Frequency	Percent
A00 - B99	Certain infectious and parasitic diseases	6	1.90%
C00 - D48	Neoplasms	14	4.50%
D50 - D89	Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	3	1.00%
E00 - E99	Endocrine, nutritional and metabolic diseases	26	8.40%
F00 - F99	Mental and behavioral disorders	6	1.90%
G00 - G99	Diseases of the nervous system	15	4.80%
H00 - H59	Diseases of the eye and adnexa	3	1.00%
I00 - I99	Diseases of the circulatory system	22	7.10%
J00 - J99	Diseases of the respiratory system	39	12.50%
K00 - K93	Diseases of the digestive system	30	9.60%
L00 - L99	Diseases of the skin and subcutaneous tissue	5	1.60%
M00 - M99	Diseases of the musculoskeletal system and connective tissue	5	1.60%
N00 - N99	Diseases of the genitourinary system	23	7.40%
O00 - O99	Pregnancy and Childbirth and puerperial disorders	21	6.80%
R00 - R99	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	2	0.60%
S00 - T98	Injury, poisoning and certain other consequences of external causes	91	29.30%
Total		311	100.00%

4.2.1 Age profile for presenting conditions

The age group 0-5 years accounted for 53% of all patients suffering from digestive system diseases and the main condition was gastro enteritis.

The age groups 20-30 years and 31-40 years accounted for 42% of all the patients diagnosed with conditions pertaining to injury, poisoning and other external causes.

The age group 31-40 years also accounted for 67% of patients diganosed with conditions of pregnancy, childbirth and perpuerium.

Conditions of the circulatory system were prevalent in the 60 years and older group of patients.

4.2.2. Gender profile for specific conditions

Table 4.5 tabulates the top five conditions seen during the study period compared by gender. More males were seen for injury - related conditions (61%) and digestive system ailments (67%) compared to females.

There were more females seen for endocrine and meatbollic diseases(63%) than males. Almost an equal number for male and females were seen for respiratory conditions

Table 4.5: Gender profile for top five conditions

ICD 10 CODE	DIAGNOSIS	TOTAL n (%)	MALE n (%)	FEMALE n (%)
S00 – T98	Injury, poisoning and certain other consequences of external causes	92(29.9%)	57(61%)	36(39%)
J00 – J99	Diseases of the respiratory system	38(11.8%)	18(49%)	19(51%)
K00 – K93	Diseases of the digestive system	30(9.6%)	20(67%)	10(33%)
E00 – E90	Endocrine, nutritional and metabolic diseases	26(8.3%)	7(27%)	19(63%)
N00 – N99	Diseases of the genitourinary system	23(7.4%)	10(43%)	13(57%)

4.3 Referral trends

The casualty department at PRH receives referrals from clinics, community health centres and district hospitals in the Motheo and Xhariep districts and other Regional Hospitals in the province. Patients were considered self-referred if they visited the casualty department at PRH without a referral letter or not being brought in by the provincial ambulance. The majority of patients seen during the study as illustrated in Table 4.6 were self referred (73.9%).

Table 4.6: Referral patterns

REFERRAL STATUS	n (%)
Self-referred	230(73.9%)
Referred	81(26%)
TOTAL	**311**

4.3.1 Referral trends compared by age groups

A comparison of self referred patients by age as indicated in Table 4.7 shows that the age groups 20 – 30 yrs (20.4%), 0 - 5yrs (16%) and 31 – 40 yrs (16%) constituted the largest number of self referred patients

Table 4.7: Referral distribution by age

AGE	**REFERRED n=83**	**SELF REFERRED n=230**
0 - 5yrs	18(21.6%)	37(16%)
6yrs - 2yrs	2(2.4%)	13(5.6%)
13yrs - 19yrs	7(8.4%)	17(7.3%)
20yrs - 30yrs	17(20.4%)	47(20.4%)
31yrs - 40yrs	12(14.4%)	37(16%)
41yrs - 50yrs	10(12%)	30(13%)
51yrs - 60yrs	7(8.4%)	20(8.6%)
60yrs and above	9(10.8%)	27(11.7%)
TOTAL	**82**	**228**

4.3.2 Referral trends by gender distribution

As illustrated in Table 4.8, there was no significant difference between males and females in as far as referral trends are concerned.

Table 4.8: Referral trends by gender

	MALE ***n (%)***	***FEMALE*** ***n (%)***
Referred(n=83)	42(50.6%)	41(49.4%)
Self-referred(n=230)	115(50.9%)	113(49.1%)
TOTAL	**157**	**154**

4.3.3 Referral trends compared by diagnoses

Table 4.9 illustrates the referral patterns when compared by the presenting top five conditions. Self-referred patients accounted for 93% of patients diagnosed with neoplasms. Referred patients accounted for 48% of cases presenting with conditions of childbirth and pregnancy.

Table 4.9: Referral patterns for presenting top five conditions

ICD 10 CODE	**DIAGNOSIS**	**TOTAL**	**REFERRED** **n (%)**	**SELF-REFERRED n (%)**
S00 – T98	Injury, poisoning and certain other consequences of external causes	93	21(22.8%)	72(78.2%)
J00 – J99	Diseases of the respiratory system	37	11(29.7%)	26(70.3%)
K00 – K93	Diseases of the digestive system	30	8(26.7%)	22(73.3%)
E00 – E90	Endocrine, nutritional and metabolic diseases	26	7(26.9%)	19(73.1%)
N00 – N99	Diseases of the genitourinary system	23	7(30.4%)	16(69.6%)

4.4. Clinical outcomes

The clinical outcome of the casualty visit was determined by using patient records where available. Table 4.10 summarises clinical outcomes among the 311 patients seen during the study period.

Table 4.10: Clinical outcomes distribution

CLINICAL OUTCOME	**n (%)**
ADMITTED	219(70.4%)
DISCHARGED	72(23.1%)
REFERRED OUT	15(4.8%)
DIED	5(1.6%)
TOTAL	**311**

4.4.1 Admitted

The majority of patients (70.4%) seen at the casualty department were admitted.

4.4.2 Discharged

The percentage of patients discharged after receiving treatment at the PRH Casualty department constituted 23.1% of the patients seen during the study period

4.4.3 Referred out

Patients referred out to the central hospital were 4.8% of the patients seen during the study period.

4.4.4 Died

During the study period only1.6% of patients died in casualty. This low rate of death can be attributed to the fact that only those who died in casualty were considered whereas some patients could have died within 24 hours of being admitted in the wards or referral units of medical and orthopaedics.

Clinical outcomes and age

The age group 41 – 50 years accounted for most (33%) of patients that were discharged during the study period as listed in Table 4.11**.** The age groups 0 - 5years and 20 -30years constituted 38% of all patients that were admitted

Table 4.11: Clinical outcomes compared by age group

AGE	**DIED**	**DISCHARGED**	***ADMITTED***	***REFERRED OUT***
0 - 5yrs	2(40%)	10(13.8%)	42(19.2%)	1(6.6%)
6yrs - 12yrs	0	3(4.2%)	11(5%)	1(6.6%)
13yrs - 19yrs	0	4(5.6%)	19(8.7%)	1(6.6%)
20yrs - 30yrs	1(20%)	19(26.4%)	41(18.7%)	3(20%)
31yrs – 40yrs	0	9(12.5%)	35(15.9%)	5(33.3%)
41yrs -50yrs	0	13(18.1%)	26(11.9%)	0
51yrs -60yrs	1(20%)	7(9.7%)	18 (8.2%)	1(6.6%)
60yrs and above	1(20%)	7(9.7%)	26(11.9%)	3(20%)
TOTALS	**5**	**72**	**219**	**15**

Clinical outcomes and gender distribution

As listed in Table 4.12, females accounted for 64% of patients that were discharged when compared to males during the study period.

Table 4.12: Clinical outcomes compared by gender

CLINICAL OUTCOME	**TOTAL**	**MALES**	**FEMALES**
ADMITTED	219	120(54.7%)	99(45.3%)
DISCHARGED	72	26(36.2%)	46(63.8%)
REFERRED OUT	15	9(60%)	6(40%)
DIED	5	2(40%)	3 (60%)
TOTAL	**311**		

Clinical outcomes compared to referral trends

As indicated in Table 4.13 the majority of patients who were admitted were self-referred. This illustrates that while 70% of patients sampled were admitted 68% of those were self referred and yet even though the number of discharged patients constituted 23 % of the sample, they still made 94.4% of self referred patients.

Table 4.13: Clinical Outcomes compared to referral patterns

OUTCOME	**TOTAL**	**REFERRED n (%)**	**SELF-REFERRED n (%)**
Admitted	219	71(32%)	148(68%)
Discharged	72	4(5.6%)	68(94.4%)
Referred Out	15	6(40%)	9(60%)
Died	5	2(40%)	3(60%)
TOTAL	**311**	**83**	**228**

Clinical outcomes compared by disease profile

35% of all patients admitted presented with conditions related to injuries and other external outcomes.

CHAPTER 5

DISCUSSION

In this chapter the findings of the reviewed literature are integrated with the results obtained from the analysis to address the aim and objectives of the study

5.1 Introduction

As far as could be established by the investigator this study is the first to be related particurlaly to the attendance patterns of the Casualty Department of PRH.The incomplete information on the Meditech Patient Information System resulted in a considerable amount (87 records) being excluded from the study. Many of the patients names were entered up to four times in some cases

5.1 Patient demographics

5.2.1 Age

The ages of patients ranged from 2 days to 85 years with a mean of 32 years. In this study, the age group 0 - 30years accounted for 50.8 % of all clients who attended the PRH casualty department during the study period. This finding is in line with previous studies similar to this one wherein it was found that clients of a younger age have a tendency to utilise A&E departments

inappropriately when compared to their older counterparts(Carret, Fassa et al., 2009), (Graham, Rainer et al., 2009), (Downing & Wilson 2001).
The fact that the younger members of the community were in the majority of patients who attended the PRH casualty department during the study period and the fact that they accounted for the conditions related to injurry poisoning and external casues is in line with research in the developing countries.

5.2.2 Gender

There was no statistical difference in males and females who attended the PRH casualty department during the period of study.In other similar studies(Durgam, Karim, 2003) it was also concluded that there was no statistical difference in the gender of patients attending A & E departments.

5.2.3. Age and gender distribution

Males in the 0 -5 years group accounted for most (67.2%) of the patients who visited the casualty department from that age group during the study period. In the 51-60 years age group, 59% of males visited the casualty department.

The largest number of females (58%) who visited the casualty department was in the 13-19 years age group. Females also accounted for 58% of the largest age group (20-30 years) of patients who visited the casualty department.

5.3. Disease profile

The majority (29.5%) of the patients seen during the period of review were seeking medical assistance as a result of trauma, poisoning and other external causes.

South africa's trauma and violence statistics have been reported as being one of the highest in the world(Hanewinckel, Jongman et al. 2010) and this study concurs with that seeing that the majority of cases (29%) seeking attention at the PRH casualty department were trauma-related.

Diseases of the respiratory system were the second most common presenting condition (12.2%). Other common conditions seen during the study period included, diseases of the digestive system (9.6%), endocrine, nutritional and metabolic diseases (8.3%) and diseases of the genitourinary system (7.4%).

Even though the study was not focusing on the death rate as a major variable it nonetheless was a variable to be measured. Though not much came of it is important to note that the diagnoses may be an indication of chances of death by a patients seeking health services. Therefore it is important to note that the report by STATS SA indicates that Tuberculosis and Pneumonia are the main causes of death whereas the study at PRH reveals that most patients were admitted for fractures more than for any other disease.

5.3.1 Disease profile and age distribution

The age group 0-5 years accounted for 53% of all patients suffering from digestive system diseases and the main condition was gastro enteritis.

The age groups 20-30 years and 31-40 years accounted for 42% of all the patients diagnosed with conditions pertaining to injury, poisoning and other external causes. The age group 31-40 years also accounted for 67% of patients diganosed with conditions of pregnancy, childbirth and perpuerium.

Conditions of the circulatory system were prevalent in the 60 and older group of patients.

5.3.2 Disease profile and gender distribution

There is however a remarkable difference between the genders when it comes to clinical diagnosis. Of the total records reviewed with a clinical diagnosis of injuries caused by external causes, males acccounted for 62% of the total compared to females.

More males were seen for injury related conditions (61%) and digestive system ailments (67%) compared to females.

There were more females seen for endocrine and meatbollic diseases(63%) than males. Almost an equal number for male and females were seen for respiratory conditions

5.3.3 Disease profile and clinical outcomes

35% of all patients admitted presented with conditions related to injuries and other external outcomes.

5.3.4 Disease profile and referral trends

Self-referred patients accounted for 93% of patients diagnosed with neoplasms. Referred patients accounted for 48% of cases presenting with conditions of childbirth and pregnancy.

5.4 Clinical Outcomes

5.4.1 Admitted

The majority of patients (70.4%) seen at the casualty department were admitted.

5.4.2 Discharged

The percentage of patients discharged after receiving treatment at the PRH Casualty department constituted 23.1% 0f the patients seen during the study period

5.4.3 Referred out

Patients referred out to the central hospital were 4.8% of the patients seen during the study period.

5.4.4 Died

During the study period only1.6% of patients died in casualty. This low rate of death can be attributed to the fact that only those who died in casualty were considered whereas some patients could have died within 24 hours of being admitted in the wards or referral units of medical and orthopaedics.

5.5 Referral trends

The fact that 70% of the patients were self referred and such outcomes are in line with the conclusion from related study in South Africa (Wallis & Mulligan. 2010)

The majority of patients (70%) seen at the casualty department were admitted and only 2% died in casualty. 68% of admitted patients were self referred and yet 94.4% of those discharged were also self referred.

5.5.1 Referral trends and age

A comparison of self referred patients by age revealed that the age groups 20 – 30 yrs (20.4%), 0 - 5yrs (16%) and 31 – 40 yrs (16%) constituted the largest number of self referred patients

5.5.2 Referral trends and gender

There was no statistically significant difference between males and females concerning referral trends. This finding is supported by a study in Sweden. (Blackman, Blomqvist et al., 2008) but not by most studies as the females have been found to be the majority in using A & E departments either inappropriately or as non-urgent patients (Carret, Fassa et al., 2009: Esterman, Konkelberg et al., 2003)

5.5.3 Referral trends and diagnoses

70% of patients with fractures were self- referred this is a great concern because it means most of these patients were exposed to further damage to the fractures leading to life=long complications. Self-referred patients accounted for 93% of patients diagnosed with neoplasms. Referred patients accounted for 48% of cases presenting with conditions of childbirth and pregnancy.

5.5.4 Referral trends and clinical outcomes

The majority of patients who were admitted were self-referred. This illustrates that while 70% of patients sampled were admitted 68% of those were self referred and yet even though the number of discharged patients constituted 23 % of the sample, they still made 94.4% of self referred patients.

5.6 Conclusion

It is quite clear that the referral system in as far as the Motheo district is concerend is not effective because the majority of patients seen during the study at period at PRH casualty department were self-referred. It is even more of a concern that 70% of patients with fractures were self referred being trasported to PRH casualty by means of private vehicles . This has a major bearing on the healing of the fractures as most were probably not properly immobilised.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

In this chapter, the results are assessed in relation to the aims of the study, so that appropriate conclusions can be drawn. The limitations of the study are also articulated. Relevant recommendations are made within the context of the findings of the study.

6.2 Conclusions related to the objectives of the study

Considering that the aim of the study was to understand the characteristics of the patients that attend PRH casualty department inorder to plan for them the informationobtained from the study is worth the effort. The main conclusions from the study are as follows:

6.2.1 Demographics of patients attend PRH casualty department

There was no major difference between the number of females and males who attended the PRH casualty department. The study indicates that the younger members of society are the majority of visitors for trauma related conditions at PRH casualty department and the majority of whom are males.

6.2.2 Disease profile of patients attending PRH casualty department

The majority of the patients seen during the period of review were seeking medical assistance as a result of trauma, poisoning and other external causes.

6.2.3 Referral trends

The study suggests that the majority of patients seen at the PRH casualty department were self-reffered.

6.2.4 Clinical outcomes

The findings of the study reflect that most of the patients who were seen at PRH casualty department were afflicted by trauma , poisoning and other external causes. The fact that few patients died in casualty is not a true reflection of the patients‘ clinical outcomes but rather due to the complex csualty sytem at PRH as indicated in Figure 1.3

6.3 Limitations of the study

The following limitations were experienced in conducting this study.

a) Although 400 records were selected by means of systematic sampling, 89 could not be used because they lacked information which could render comparisons with other records unreliable
b) The study was based on visits to the casualty over a period of six months. The six weeks included one month of summer, full autumn and two of winter. A year’s study could have covered all seasons to minimise confounding factors.

6.4 Recommendations

6.4.1 Further research should be done on the accessibility of level 1 service in the Motheo district in order to reduce admission at secondary level

6.4.2 Record keeping and management of the electronic system at PRH need to be reviewed to ensure that training of the various units is embarked upon as amatter of emergency

6.4.3 Further studies should also be conducted on the efficiencies of the EMS as it emerged that 70% of patients with fractures who accesed the services at PRH were not referred or brought in by an ambulance

6.4.4 The Free State Deapartment of Health should seriously review the referral system particularly in as far as the casualty services in the Motheo district are concerned. Its either ,the EMS is strengthened, or the PHC is supported with medical officers or it is accepted that patients are better off attending the PRH casualty department after 16:00 hours and over weekends.

6.5 Conclusion

While the study may not be used to generalise in other similar settings it however has served the purpose of unearthhing information and questions for further research. The recommendations mentioned in this study will assist the Free State DOH in focussing on priorities to ensure that patients are not subjected to long waiting times due to overcrowding and shortage of staff

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ANNEXURE A: ETHICS CLEARANCE CERTIFICATE

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

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
R14/49 Dr Molefe E Kenoshi

CLEARANCE CERTIFICATE	**M090348**
PROJECT	The Admission Trends of Trauma Patients in a South African Tertiary Hospital Over a Three Year Period from April 2005 to March 2008
INVESTIGATORS	Dr Molefe E Kenoshi.
DEPARTMENT	School of Public Health
DATE CONSIDERED	09.03.27
DECISION OF THE COMMITTEE*	Approved unconditionally

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

DATE 09.03.31 **CHAIRPERSON** .....
(Professor PE Cleaton-Jones)

*Guidelines for written 'informed consent' attached where applicable
cc: Supervisor : Prof Shan Naidoo

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 B: APPROVAL FROM POST GRADUATE COMMITTEE

Faculty of Health Sciences
Medical School, 7 York Road, Parktown, 2193
Fax: (011) 717-2119
Tel: (011) 717 2746

Reference: Ms Tania Van Leeve
E-mail: tania.vanleeve@wits.ac.za
22 September 2009
Person No: 0718861G
PAG

Mr MP Tsibolane
P O Box 31213
Fichardt Park
9317
South Africa

Dear Mr Tsibolane

Master of Public Health (Hospital Management): Approval of Title

We have pleasure in advising that your proposal entitled "*Attendance patterns of patients at a Regional Hospital Casualty Department in the Free State between February and July 2008*" has been approved. Please note that any amendments to this title have to be endorsed by the Faculty's higher degrees committee and formally approved.

Yours sincerely

Mrs Sandra Senn
Faculty Registrar
Faculty of Health Sciences

ANNEXURE C: DATA CAPTURING TOOL

	Code	Age	Gender	Attendance Date	Referral Letter(YES/NO)	Diagnosis	Died (YES/NO)	Discharged (YES/NO)	Admitted (YES/NO)	Referred Out (YES/NO)
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										