Reasons Why Women present with late stages of Cervical Cancer at Chris Hani Baragwanath Academic Hospital

By

Dr Langanani Mbodi

Student number: 700776

Supervisor

Dr Yasmin Adam

A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Masters of Medicine in the branch of Obstetrics and Gynaecology

FCOG (SA)

Johannesburg, 2016

DECLARATION

I, *Dr* ***Langanani Mbodi*** declare that this research report is my own work. It is being submitted for the purpose of a degree of Masters of Medicine in the branch of Obstetrics and Gynaecology and as dissertation for the Fellowship of College of Obstetrics & Gynaecology of the Colleges of Medicine of South Africa, and has not been submitted before.

……

…….day of ……., 2016

DEDICATION

I would like to dedicate this project to my wife for all the support tolerance throughout the entire 18 months of planning, data collection and write up.

ACKNOWLEDGEMENTS

I would to greatly thank my supervisor Dr Yasmin Adam for the patience and guidance on this project throughout the journey. I would also like to thank all my fellow registrars at the University of the Witwatersrand Obstetrics and Gynaecology, Chris Hani Baragwanath hospital for the co-operation and assistance in identification and recruitment of patients for the study.

The following people made a much needed input and showed me direction during the infancy stages of this project:-

1. Dr Karlyn Frank
2. Dr Mammie Motiang
3. Dr Thloriso Moagi

The nursing staff and ward clerks at the Chris Hani Baragwanath hospital Gynaecological wards 60 & 61 made patient identification easy and data collection enjoyable at all times. Thank you for your kind assistance

PUBLICATIONS AND PRESENTATIONS ARISING FROM THIS STUDY

The findings of the study have been presented at the following forums:-

1. Chris Hani Baragwanath hospital Obstetrics and Gynaecology Research Meeting: University of the Witwatersrand, 06th February 2015.
2. The Gauteng South Africa Society of Obstetrics and Gynaecology (SASOG/Pfizer) mini symposium: Wanderers club Johannesburg, 21st November 2015.

LIST OF TABLES AND FIGURES

LIST OF ABBREVIATIONS

5-FU	5 Fluoro-Uracil
ART	Anti-Retroviral Treatment
ARVs	Anti-Retrovirals
ASCUS	Atypical Squamous Cells of Undetermined Significance
CD4	Cluster of Differentiation 4
CEO	Chief Executive Officer
CHBAH	Chris Hani Baragwanath Academic Hospital
CHC	Community Health Centres
CMJAH	Charlotte Maxeke Johannesburg Academic Hospital
CT	Commuted Tomography
CXR	Chest Radiography
FBC	Full Blood Count
FIGO	The Féderation Internationale de Gynécologie et d'Obstétrique
GP	General Practitioner
Gy	Gray (Unit of Ionising Radiation)
HAART	Highly Active Anti-Retroviral Treatment
Hb	Haemoglobin
HSIL	High Grade Squamous Intraepithelial Lesion
HIV	Human Immunodeficiency Virus
HPV	Human Papillomavirus
IQR	Interquartile range
LFT	Liver Function Test
LGSIL	Low Grade Squamous Intraepithelial lesion
LLETZ	Large Loop Excision of Transformation Zone

MRI	Magnetic Resonant Imaging
NHLS	National Health Laboratory Services
O&G	Obstetrics and Gynaecology
Pap smear	Papanicolaou Smear
SA	South Africa
SD	Standard Deviation
STD	Sexual Transmitted Diseases
U&E	Urea, creatinine and Electrolytes

ABSTRACT

Background and objectives

Current estimates of the number of new cases of cervical cancer in South Africa suggest that there are about 5743 new cases and 3027 deaths from the disease per year. It is still unclear or poorly defined why women present late.

The purpose of this study was to determine the stages of cervical cancer that women present with at Chris Hani Baragwanath Academic Hospital and to identify factors associated with late presentation.

Methods

This was a prospective study conducted at all the gynecology units of the O& G department at CHBAH in Soweto, Gauteng Province over 12 months period between January and December 2013.

Results

A total of 111 women were recruited into the study. Only 104 women were included in the study. Two (2) women withdrew due to personal reasons. Three (3) women were excluded as their fully histology report could not be retrieved. Two (2) women could not continue with the interview due to pain and discomfort.

The mean age of women was 50.2 years (SD±12.30) with an IQR of 40.50-49.50. The mean ages for stage 1 were 42.22 (SD±10.34), 51.00 (SD±12.54) for stage 2, 51.60 (SD±12.34) for stage 3 and 47.10 (SD±13.35) for stage 4 [p-value of 0.16].

The majority of women (67.31%) in our study are from a poor socio-economic environment with a combined family earning of less than three thousands rand.

Abnormal vaginal bleeding was the commonest reason for consultation (48.54%). 43 women (41.75%) first discussed the problems with their family members for input and advice before consulting any healthcare facility. Almost 48% of women still do not know about Pap smear.

Conclusion

Women with late stages of cervical cancer are more likely to be older than 50 years, come from a low socio-economic background and more likely to have not completed high school. There is an increase in incidences of adeno-carcinoma presenting with stages 3 and 4 of the disease.

Vaginal bleeding remain the commonest symptom and probably a red flag for cervical cancer in post-menopausal women. However, many women delay seeking healthcare in our public health facility even after identifying the signs and symptoms suggestive of cervical cancer. We speculate discussing with family members and seeking opinion could be the result for delayed consultation. There is a need to continued education on cervical cancer warning signs and screening programs.

TABLE OF CONTENTS

CHAPTER 3 RESULTS

CHAPTER 4 DISCUSSION

CHAPTER 1:

1.1 INTRODUCTION

It is saddening that even in this era of advanced healthcare and technology, cervical cancer remains the second most common cancer among women worldwide and the commonest among black women in S.A.[1- 6]

Ironically, cervical cancer is one of the few medical conditions with a precursor lesion which if detected early and treated, can result in a reduction in both incidence and mortality.[1, 7] Most cases, approximately 80% occur in developing countries.[4, 6] The morbidity is also higher in developing world where more than 50% of these women will succumb to their disease within the first year of diagnosis.[1] In Western Europe, North America, and Japan the mortality is down to about 35%.[15] There are many factors such as advanced presentation,[2, 7, 8] co-morbid diseases, and lack of treatment centres[7] which may be responsible for the poorer prognosis in developing countries.[1, 6] Even in the developed world, such countries as Japan and Malaysia, most patients are still presenting at stages IIB, III-IV and a mere 26% present at stage I.[9, 10]

In South Africa the cervical national screening programme has been ongoing for more than 10 years (implemented 2003) but we would expect that there may be an increase in new cases diagnosed at early stages of the disease.[1] The HPV Vaccine school program for children 9 to 12 years has been implemented in 2014 and it is hoped that in the next decade we will start witnessing a decline in cervical cancer caused by this virus. There are no national statistics for Cancer of the cervix since 2004 as there hasn't been a National Cancer Registry. However, the CMJAH Oncology unit managed/saw a total of 330 patients with cervical cancer in 2011. Of these, there were 0.09 % (n=3) of stage 1A, 6.60% (n=22) stage 1B, 3.0% (n=10) stage 2A,

36.9% (n=122) stage 2B, 1.8% (n=06) stage 3A, 44.5% (n=147) stage 3B, 4.8% (n=16) stage 4A, and 1.5% (n=05) stage 4B (information obtained by author from hospital records) There is a dearth of knowledge on the specific stages of cervical cancer and the reasons for late presentation in South Africa.[1]

1.2. HYPOTHESIS

We theorise that although the reasons for late presentation could be multifactorial, in our setting the largest contributors are level of education, poor socio-economic status, lack of information, poor access to healthcare system, and delays in healthcare referral systems once the diagnosis is made. Cervical cancer is an AIDS defining condition and it occurs earlier in women who are HIV positive.

1.3. PROBLEM STATEMENT

Current estimates of the number of new cases of cancer of the cervix in South Africa suggest that there are about 5743 new cases and 3027 deaths from the disease per year.[11] It is not known whether the stage at which women present has been different since the introduction of the national screening program in South Africa. Of all the provinces in South Africa, Gauteng is one of the provinces where screening may have reached 35-40% coverage (personal communication) but still experience problems with late presentation. Furthermore late presentation may be one of the reasons for high mortality in both developed and developing world. It is still unclear or poorly understood why women present late.[1]

The purpose of this study is to define the stages at which women present and find reasons why women in South Africa present at late stages of the disease. One of the goals of cancer management is prevention and if prevention fails, then it is hoped that women will present with early stage disease.

1.4. LITERATURE REVIEW

1.4.1 Introduction

The relationship between cervical cancer and Human Papillomavirus (HPV) as the main causative factor has been well established and high incidences of cervical cancer are associated with persistent infection with this virus.[2, 3, 8, 12] We have illustrated, in the form of a flow diagram on figure 1.1 below, the factors that may influence morbidity and mortality.

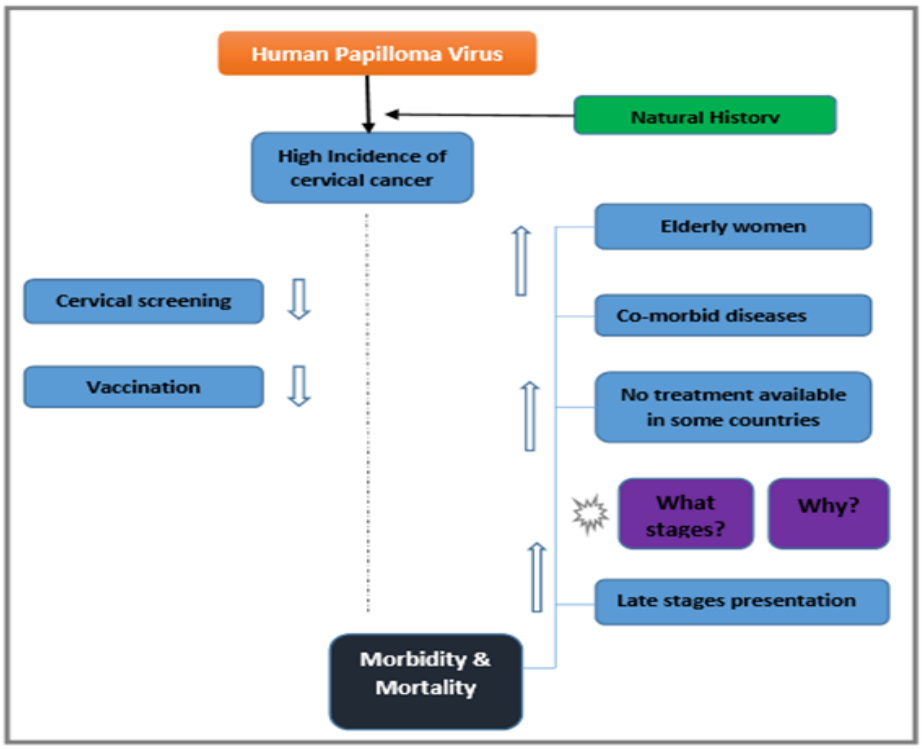

***Figure 1.1**: Factors influencing the morbidity & mortality of HPV associated cervical cancer*

1.4.2 Incidence and mortality

Cervical cancer had an estimated 530 000 new cases in 2008 globally.[1, 11, 13, 14, 15] Developing countries experience the greatest burden at more than 85% of the global cases. In these regions, it accounts for 13% of all female cancers[1, 4, 15] and the highest incidence rates are observed in Sub-Saharan Africa, Melanesia, Latin America and the Caribbean, South Central Asia and South East Asia.[4, 15]

In South Africa, it is estimated that there are 16.84 million women over the age of 15 years who are therefore at risk of cervical cancer (age above 15 years).[10] Globocan in 2011 estimated the South African incidence of cervical cancer to be 23.3 - 32.4 /100 000. [15]

1.4.3 Natural history of cervical cancer

The natural history of cervical cancer has been studied in the past 30-40 years.[11] Persistent infection of the cervix with high-risk types of HPV is associated with progression to cervical dysplasia and cervical carcinoma.[1, 2, 3, 5, 8, 13, 20] It is clear that the major aetiological agents of cervical carcinoma are the oncogenic subtypes of the HPV Recent geographic studies using sensitive polymerase chain reaction (PCR) DNA testing methods to detect a wide spectrum of high risk oncogenic HPV types including 16, 18, 31, 39, 45, 52, and 35 have generally observed HPV prevalence to correlate with the population risks of cervical cancer.[2, 4, 5, 7, 8, 11, 13, 18] It is acknowledged that there are other co-factors such as high parity, tobacco smoking and use of oral contraceptives that probably modify the risks in women infected with HPV.[2, 3, 4, 5, 8, 20] Risk factors known to be associated with invasive cancer include:-

- Low socio-economic class[3, 5, 20]

- Early age at first intercourse[3, 20]
- Increased number of lifetime sexual partners[3, 20]
- Smoking[3, 4, 5, 7, 8, 18, 20]
- Hormonal contraceptive (although currently unclear).[3, 4, 5, 20]

Cervical cancer progresses slowly over decades from pre-invasive cervical intra-epithelial neoplasia to invasive cancer [11, 18] a process that can take between 10 and 30 years; *hence this allows us the opportunity to prevent its progression.*

During this post screening era, incidence rates of cervical carcinoma are now generally low in developed countries with age standardised rates less than 14.5 per 100 000.[1, 4, 14] This pattern is relatively recent, however, before the introduction of screening programs in the 1960's and 1970's, the incidence in most of Europe, North America, Australia and New Zealand was similar to developing countries today.[1] There is substantial decline in cervical cancer incidence and mortality, most clearly observed in parts of (Western Europe and Australia) countries where there are well developed screening programs.[1, 3] Declines are also evident in some developing countries particularly striking in China, where estimated age specific incident ratio (ASIR) in 2002 was 6.8 compared with 7.8 in 1985.[5]

1.4.4 The impact of HIV infection on cervical cancer

It has been well known that HIV infection increases the risk of developing certain cancers and Kaposi sarcoma, Non-Hodgkin lymphoma and Cervical cancer have been classified as AIDS defining disease since 1993.[3] Women infected with HIV have an increased risk of being

infected with HPV. Cervical cancer present 10 years earlier in HIV positive women and HIV positive women are considered to be at higher risk for cervical cancer.[1, 3, 5, 7, 11]

1.4.5 Presenting symptoms

The most common presenting symptom of cervical cancer is abnormal vaginal bleeding or discharge.[5, 6, 18, 19, 20] Abnormal bleeding may take the form of post-coital spotting, inter-menstrual bleeding, menorrhagia, or menopausal bleeding.[5, 6, 19]

Sciatic pain or back pain associated with urinary tract infection, urinary obstruction, (and associated finding of hydronephrosis) may be the symptoms in advanced stages of the disease or with tumour necrosis of the tumour on the pelvic wall.[6, 18, 19]

1.4.6 Staging of cervical cancer

The Féderation Internationale de Gynécologie et d'Obstétrique (FIGO) system of classification (Appendix E) is based on clinical examination essentially of the anatomical extent of disease for all cancers except cervical cancer. The American Joint Committee on cancer (AJCC) staging is based on the premise that cancers of the same anatomic site and histology share similar patterns of growth and similar outcome[6, 16]. It is important to estimate the extent of the disease not only for prognostic purposes but also for treatment planning.[5, 16, 17, 18, and 19].

1.4.7 Commonest Clinical stages at presentation

In a program aimed at reducing by half the proportion of patients who present with advanced stage disease of breast cancer and cervical cancer over a 4 year period (a pilot study of clinical down-staging in Sarawak, Malaysia), it was shown that 70% of cervical cancer were diagnosed as stages III and IV for year 1993.[1, 10] Delay in diagnosing the disease in Malaysia is common due to factors such as frequent reliance on unorthodox medical remedies at initial presentation.[9, 10]

In other studies done on admitted patients at Penang hospital in 1995, 60% were in stages III-IV.[9] The study done in Kuala Lumpur found that 80% of patients with cervical cancer presented at stages IIB-IV [9] and in Sarawak, the proportion of patients with carcinoma of the cervix who presented with stages I and IIA was only 26.3%. The most common stage at presentation being stages III (36.2%).[9] There is a consensus in all these studies that the commonest stages at presentation is FIGO IIB and above.

1.4.8 Commonest reasons for presenting at late stages of the disease

Snyman et al, on their study of reasons why unscreened patients with cervical cancer present with advanced stage disease in Kalafong found that the lack of a cervical cancer screening programme, suboptimal management of symptomatic patients, low levels of literacy and knowledge about cervical cancer and screening are compounding the plight of these patients.[21]

Delay in diagnosing in Malaysia was found to be common due to factors such as frequent reliance on unorthodox medical remedies at initial presentation.[9]

Anorlu R.I et al found that in Lagos, patients' delay in seeking healthcare and healthcare providers' delay in referring patients to a tertiary hospital contributed to the late presentation.[24]

In Zimbabwe, a study done at the Department of Radiology found that late stage tumour at presentation was significantly associated with poorly differentiated tumour histology and no history of prior cervical cancer screening. The odds of presenting with late stage disease in women with a poorly differentiated tumour were 12.97 (95% CI 2.03-82.55; p = 0.007), whilst the odds of late stage presentation in the absence of a history of screening were 11.13 (95% CI 1.33 to 93.21; p = .026).[23]

1.4.9 Mortality related to stage of presentation

The mortality and morbidity of disease is related to stage at presentation and other factors such as age, smoking, co-morbid diseases, invasion of lymphatic and blood vessels, histological types and incomplete excision. [5,6,19] Older patients have a lower survival for any given stage.[6] Table 1.1 below shows that there is marked difference in 5 year survival rate between early stages of cervical cancer and late stages[25].

Cervical cancer survival by FIGO stage

Stage	5 year survival
IA1	94.6%
IA2	92.6%
IB1	80.7%
IB2	79.8%
IIA	76.0%
IIB	73.3%
IIIA	50.5%
IIIB	46.4%
IVA	29.6%
IVB	22.0%

Table 1.1 *Association between FIGO early & late stages of cervical cancer & their 5 year survival)*

(Source: Benedet J, Odicino F, Maisonneuve P, et al. Carcinoma of the Cervix Uteri: Annual report on the results of treatment in Gynaecologic Cancer. J Epidemiol Biostat 2001)

Patients with stage IVB cervical carcinoma are considered candidates for palliative radiation therapy because cure is not attainable.[6] In stage IA1 disease, the risk of residual disease is as high as 33% if margins are positive after surgery (zonisation).[16] Overall 5 year survival by FIGO stages (Annexure E) is 94.6% in stage IA1 and 22.0% in stage IVB.

1.4.10 Management Principles

A). Prevention

i). Primary Prevention

Prophylactic HPV vaccines against certain oncogenic strains are now available and represent an important advance in the fight against cervical cancer as a primary preventive strategy.[8, 12, 13] Currently there are two registered prophylactic vaccines for HPV vaccination; Cervarix (GlaxoSmithKline) protects against HPV types 16 and18 and Gardasil (Merck), which protects against HPV 6, 11, 16 and 18.[1, 8, 12, 13] However generations of women will not be eligible or will not be able to access these vaccines and they will require secondary prevention.

Other important factors in preventing cervical cancer include the reduction of smoking (both active and passive), the use of condoms and male circumcision.[8]

ii). Secondary Prevention

Secondary prevention is aimed at screening of the general population to identify and treat women with cervical cancer precursors.[5, 8, 22] Basic screening can lead to down staging of cervical cancer. The South African National policy on cervical screening allows for three smears in a woman's lifetime taken at 10 year intervals from 30 years of age. The deficiencies of the Pap smear are that it has a lower than expected sensitivity of only 54%.[3, 7] It also has a deficiency of inadequate sample or non-representative tests although this is improved when liquid based cytology is used. The obstacles to an efficient national population-based screening programme are lack of capacity, lack of treating facilities and lack of knowledge in the patient population. The HIV pandemic has also placed a huge burden on screening because the prevalence of precancerous lesions in HIV positive women is between 50 and 70%.[3, 7]

B). Treatment

Treatment of cervical cancer precursors prevents cervical cancer.[1, 5] Treatment of early stages of cervical cancer is associated with reduced morbidity and is cheaper. Treatment has to be individualised, but the following are some of the treatment options: Stage 1a1 may be treated with a cone biopsy and may therefore be fertility sparing. [1, 5] Clear margins and a negative endocervical curettage are however mandatory. In our institution, older patients or patients who have completed their family are treated with a hysterectomy (abdominal or vaginal). Stages 1a2, 1b and some of the 2a tumours may be treated with Radical Hysterectomy with bilateral pelvic lymphadenectomy, clear margins and negative lymph nodes are mandatory [20, 27]. If the lymph nodes are invaded by tumour, post-operative chemo-radiation should be given.[27] Stage 2b and stage 2a not amenable to surgery, or more advanced lesions are treated with a combination of chemotherapy and radiotherapy.[5, 6, 19, 20, 27]

Earlier stage at diagnosis is associated with fewer complications, low cost as well as reduced morbidity.[5]

Concurrent Chemotherapy and Radiation

The main agents that have been used are 5-FU and cis-platinum, and both are also radiation sensitizers.[5, 6, 19] Concurrent chemotherapy offers several theoretical advantages over the neo-adjuvant strategy.[5, 6, 18, 19] These include no delay in the start of definitive radiation and no prolongation of overall treatment time (thus minimizing the theoretical risk of accelerated oncogenic proliferation during the antineoplastic course).[6]

Pelvic radiation dose for stage 2B is 50 Gy in 25 daily fractions, 40 Gy for stage 3b and palliative radiation dose of 20 Gy in two monthly fractions for stage 4 tumours. [27]

1.5. GENERAL OBJECTIVES OF THE STUDY

To determine the stages of cervical cancer that women present with at Chris Hani Baragwanath Academic Hospital (CHBAH) and to identify factors associated with late presentation between January 2013 and December 2013.

1.6. SPECIFIC OBJECTIVES OF THE STUDY

1. To determine the stages of cervical cancer that women present with at CHBAH.
2. To describe the socio-demographic factors
3. To identify the presenting symptoms.
4. To compare the socio-demographic factors, symptoms, co-morbid disease and laboratory parameters of the women with different stages of disease at presentation
5. To investigate whether women are able to recollect when their symptoms first commenced.

CHAPTER 2: SUBJECTS AND METHODS

2.1 STUDY SETTING

The study was conducted at the CHBAH. This is a secondary-tertiary hospital which serves the population of Soweto and Southern Gauteng. Chris Hani Baragwanath Academic Hospital (CHBAH) is situated to the South West of Johannesburg, on the southern border of Soweto. It services about 2 million people and it is a referral centre for 7 Community health centres, in the surrounding areas of Soweto, Orange Farm and Lenasia and receives referrals from 56 clinics as well as district hospital. (South Rand hospital).

CHBAH also take referrals from hospitals outside of the Johannesburg Health District and from outside of Gauteng province.

The women with cervical cancer were admitted by any unit of the gynaecology wards and all worked up for presentation at the combined oncology meeting at the Charlotte Maxeke Johannesburg Academic Hospital (CMJAH) where decision regarding treatment modalities was made.

2.2 STUDY POPULATION

All women have a biopsy to confirm the malignancy and have a complete examination, Chest X-ray, Liver Functions Test (if necessary), Urea &Electrolytes, Full Blood Count, Cystoscopy (if necessary) and an Abdominal Ultrasound. A Computed Tomography (CT) or Magnetic Resonance Imaging (MRI) is performed on selected cases.

All patients diagnosed histologically as cancer of the cervix at the Gynaecology Department at CHBAH were requested to participate in the study after they had been diagnosed and staged. The staging is performed by the senior consultant in the unit and re-examined by another consultant for agreement. The gynaecology department sees approximately 200 cases of cervical cancer per year as either emergencies at admission ward or cold cases seen at follow up clinic.

2.3 SAMPLE SIZE

The study was conducted over a period of twelve (12) months. We had a convenience sample of 111 women due to researcher unavailability at the hospital as a result of scheduled rotation at other hospitals within the Witwatersrand circuit as well as outreach at regional hospitals. The main objective of the study was to describe the stages at presentation and there was therefore no sample calculation done.

Exclusion criteria:

- All patients with histologically proven pre-malignant disease.
- Women with late stage who cannot consent because of advanced disease or any other reason.
- Women with recurrent disease.
- Women diagnosed prior to the onset of the study.

The patients were not re-examined by the researcher.

Recruitment:

All units were asked to refer any woman with cervical cancer diagnosed on histology to the researcher. The researcher then explained the study to the patients. Women were invited to voluntarily take part in the study and permission was requested from them or the next of kin. All women who agreed to form part of the study were given the information pamphlet and they signed consent.

2.4 STUDY DESIGN

This was a prospective, descriptive study for period January 2013 to December 2013, using a record review and, an interview. After the administered interview women were asked when they thought the problem started and this was recorded on tape and at later stage transcribed by the researcher.

2.5 DATA COLLECTION

A questionnaire (Appendix A) was used to interview women. Data was collected from patients' file (part A), patients' interview in the form of close-ended short questions (part B) and at the end, two open-ended questions was asked (part C) and these were recorded and transcribed by the researcher. The information on the data collection sheet included the demographic data, health seeking behaviour, sexual and contraceptive history, social behaviour, cervical cancer screening, HIV status, as well as presenting symptoms. The open

ended questions were recorded on Dictaphone and patients were made aware of such prior to the interview.

During each visit to the gynaecology wards (ward 60 and ward 61) the admission book was checked for newly admitted patients. The record of their admission status, that is, whether they are readmissions or new admissions was checked before the interview took place. Only newly diagnosed patients were recruited. Women who fit the inclusion criteria were then invited to be part of the study and they gave consent in writing. Data was collected as reflected on the data collection sheet. Demographic details not documented on the patient's files were confirmed with the patients. Any results, including histology, were confirmed from the records and if not available were checked on the National Health Laboratory Services (NHLS) database. This included the checking of a previous Pap smear.

The stages at which women presented was recorded as documented on the file and this was confirmed to have been staged by the senior consultant in the unit. The patients were asked about their HIV status, CD 4 level if positive, and whether or not they were taking ARVs as well as the duration in both months and years of taking them. The results of tests such as Haemoglobin, Rapid Plasma Reagan, Renal Function tests, Liver Function tests and Urine Cytology were checked on both patients file and NHLS system if not present in the file.

The hospital file was used to check if weight assessments were done on admission, record of ultrasound scan and chest radiography investigations. The smoking history included the type of nicotine ever used (snuff and cigarette), duration, and whether they are still using or not.

Contraceptive history was about whether they ever used any contraceptive without considering sequential use. This history included the method, regularity of use, duration and

whether still using or not per each method of contraception. In this category, natural method and other less reliable methods were not included.

The main provider was considered to a person who is mainly responsible for payment of major household bills including food, schooling, lights, water and municipal rates. Patients were asked about total family income which included monies from main provider and any other monies from any other source or person who contributes at regular bases.

Accessibility to a healthcare facility was done using method of transport to access this service. A short trip was considered to be the one where one taxi trip is required to reach the facility or a drive of less than 60 minutes if utilising own transport. A long trip was considered to be the one where more than one taxis or a connecting taxi is used to arrive at healthcare facility or a drive of more than 60 minutes in own transport (at normal traffic flow period). If patients could walk to clinic, this was noted as a different category (walking distance).

When patients were asked if they know about Pap smear, it was further described to them "that this is a test used to check for cancer of the mouth of the womb in women". The NHLS system was used to confirm if Pap smear was ever done before the current diagnosis and the results thereof. Patients were asked to elaborate what healthcare workers did after telling them results in an attempt to find out if colposcopy, colposcopy and LLETZ or biopsy was done.

The number of lifetime partners was asked circumstantially by asking first the age of first sexual encounter and whether this was at school, whether this is the person they married or stayed with, whether they were still together in tertiary (if tertiary advanced), if they are still alive, if they dated again after partners demise, if there was a point where they had more than one sexual partner or due to any reason had sexual interactions whilst in a relationship. From

this history, a total number of life partners were calculated. This was due to the fact that elderly patients were hesitant to volunteer a total of lifetime sexual partners.

Patients were asked in an open-ended question what made them consult relating to the current admission. This answer was then categorised into bleeding, pain, abnormal discharge, screening etc. They were also asked to explain what they did first after identifying the symptoms and this was also categorised as well into groups of those women who consulted family, those who consulted healthcare worker (further sub-categorised) as well as alternative medicine and spiritual healers.

2.6 DATA ANALYSIS

Data collected was uploaded onto the excel spread sheet and then transferred to a STATA 10.1 (StataCorp, Texas, US) for statistical analysis. Categorical variables were described using frequencies and percentages and continuous variables were described using means (with standard deviation) and medians with intra quartile ranges (IQR). We only reported the mean if the mean and median were the same. Comparison of categorical variables was made using the Chi^2 or the Fisher test, and continuous variables were compared using the T-test or an Anova test where there was a difference of two (2) means. A $p<0.05$ was taken as statistical significance.

2.7. ETHICAL ISSUES

Patient confidentiality was maintained throughout. No personal details were recorded in the data sheet and each patient was allocated a study number. Informed consent was signed by each patient with an opt-out option (Appendix C).

Ethical clearance was obtained from the Human Research Ethics Committee (M121011) for the University of the Witwatersrand (Appendix D) and from the office of the Chief Executive Officer of the Chris Hani Baragwanath Academic Hospital (Appendix F).

2.8. TOOLS USED

1. A questionnaire: In English but questions were translated to other languages where needed. (the researcher is able to speak eight of the eleven official languages)
2. A voice recorder/Dictaphone(*Sony IC Recorder ICD-UX523F*) : For the open-ended questions

CHAPTER 3: RESULTS

3.1 Introduction

In this chapter I will start by describing the main findings in this study, that is, the proportion of women presenting with different stages of cervical cancer. I will then divide the results into sections; demographics, socio- economic factors, education, contraception, clinical features, co-morbid diseases, sexual history and histology. Variables that significantly related to the stage of disease were identified. I will compare the differences of each variable with the stage of presentation. Finally I will describe the women's explanation of when they thought the disease started and other aspects of health seeking behaviour.

3.2 Results

There were 111 women recruited into the study out of the total 265 (including patients who do not fit into the selection criteria). Two (2) women withdrew from the study during the interview process for personal reasons. Three (3) women were excluded due to missing histology reports that could not be traced. Two (2) women were excluded as they could not proceed with the interview due to pain and discomfort during the interview. Only 104 patients were included in the study. The stages at which these women presented are shown in Table 3.1.

Table 3.1 *Description of the proportion of women presenting with different stages of cervical carcinoma at CHBAH*

Cervical Cancer Stage	Frequency	Percentage (%)
Stage1a	3	2.88
Stage 1b	6	5.77
Stage 2a	5	4.81
Stage 2b	18	17.31
Stage 3a	6	5.77
Stage 3b	56	53.85
Stage 4a	7	6.73
Stage 4b	3	2.88
Total	104	100.00

Demographics:

The mean age was 50.20 years (SD±12.3) and the median was 49 years with an IQR of 40.50-49.50. Their ages ranged between 28 and 81 years. The mean times that a woman was pregnant was 3.85 (SD±2.07) with a range of 1 to 11. The pregnancies reached term in 80.39% and 17.65% had a preterm delivery. The mean interval between children (child spacing) was 4.47 years (SD±2.50).

Most women (n=87 [83.65%]) were non- smokers and 15(14.42%) had smoked or were still smoking. Smoking history was unknown in 2 (1.93%).

A history of ever using snuff was present in 28 (27.18%) women, one woman did not answer the question. Table 3.2 below compares the demographics per staging of cervical cancer.

There were (n=57) 54.81% of women who were main providers within their households and (n=47) 45.19% were not main providers.

There were (n=18) 17.31% of women who had a combined family income of less than R1000 per month, (n=52) 50.00% had a combined income between R1000-R2999, (n=18) 17.31% had family income between R3000-R4999 and (n=16)15.38% had a total family income of more than R5000.

Fifty one women (49.04%) attended school but did not complete matric, (n=17) 16.35% had no formal education, (n=25) 24.04% attended completed primary school but without secondary education, (n=7) 6.73% had secondary education post matric, (n=4) 3.85% had a tertiary qualification either at university, college or FET (Further Education and Training) institution. Table 3.2 below compares the demographics per staging of cervical cancer. There were no statistically significant differences across categories.

CHBAH serves the Soweto Township and surrounding areas. There were 86.41% of women who stayed in the townships and 6.80% from the Johannesburg suburbs. There were an equal percentage of women from the city (excluding suburbs) and informal settlement at 2.91% each. One patient (0.97%) was from the rural/farm area. Figure 3.1 below shows the distribution of patients per residential locations. (This is excluding patients from outside Soweto townships and outside of Gauteng province who are either referred or “immigrate” for healthcare reasons.

Table 3.2 *The demographics of women per stages of cervical cancer*

Cervical Cancer Stages	**Stage 1 n=9 (8.65%)**	**Stage 2 n=23 (22.12%)**	**Stage 3 n=62(59.62%**	**Stage 4 n=10 (9.61%)**	**p-value**
Age: Mean= 50.2 years (SD±12.3)	42.22 (SD±10.34)	51.00 (SD±12.54)	51.60 (SD±12.34)	47.10 (SD±13.35)	p=0.16 (anova)
Pregnancy History					
Number of pregnancies Mean= 3.85 (SD±2.07)	2.89 (SD±1.54)	3.30 (SD±1.69)	4.18 (SD±1.99)	4.00 (SD±3.33)	p=016 (anova)
Gestation at delivery**					
Term	5 (55.56%)	21 (91.30%)	47 (81.03%)	9 (90.00%)	p=0.12 FE*
Preterm	4 (44.44%)	2 (8.70%)	11 (18.97%)	1 (10.00%)	
Pregnancy outcome***					
Live birth	6 (66.67%)	19 (82.61%)	49 (80.33%)	9 (90%)	p=0.05 FE*
IUFD	1(11.11%)	2 (8.70%)	0	1 (10.00)	
Miscarriages	2 (22.22%)	2 (8.70%)	12 (19.67%)	0	
Cigarette smoke (ever smoked)******					
Yes=15	2 (22.22%)	5 (21.74%)	5 (8.33%)	3 (30%)	p=0.09
No=87	7 (77.78%)	18 (78.26%)	55 (91.67%)	7 (70%)	
Snuff use (ever used)					
Yes	0	5 (21.74%)	22 (35.48%)	1 (10.00%)	p=0.08 FE*
No	8 (100%)	18 (78.26%)	40 (64.52%)	9 (90.00%)	
Family income in SA Rands					
<1000 n=18 (17.31)	2 (22.22%)	2 (8.70%)	12 (19.35%)	2 (20.00%)	p=0.44 FE*
1000-2999 n=52(50.00%)	2 (22.22%)	12 (52.17)	34(54.84%)	4 (40.00%)	
3000-4999 n=18 (17.31%)	3 (33.33%)	5 (21.74%)	9 (14.52%)	1 (10.00%)	

>5000 n=16 (15.38%)	2 (22.22%)	4 (17.39%)	7 (11.29%)	3 (20.00%)	
Education					
No school n= 17 (16.35%)	1 (11.11%)	0 (0.00%)	13 (20.97%)	3 (30%)	p=0.07
Primary school only n= 25 (24.04%)	1 (11.11%)	7 (30.43%)	16 (25.81%)	1 (10.00%)	
Secondary (no matric) n=51 (49.04%)	6 (66.67%)	13 (56.52%)	28 (45.16%)	4 (40.00%)	
Matric n=7 (6.73%)	1 (11.11%)	3 (13.04%)	3 (4.84%)	0	
Tertiary n= 4 (3.85%)	0	0	2 (3.23%)	2 (20.00%)	

FE= Fishers Exact.* ** = 2 women were unsure and 2 were nulliparous *= 1 woman did not answer ****= 2 women declined to comment.

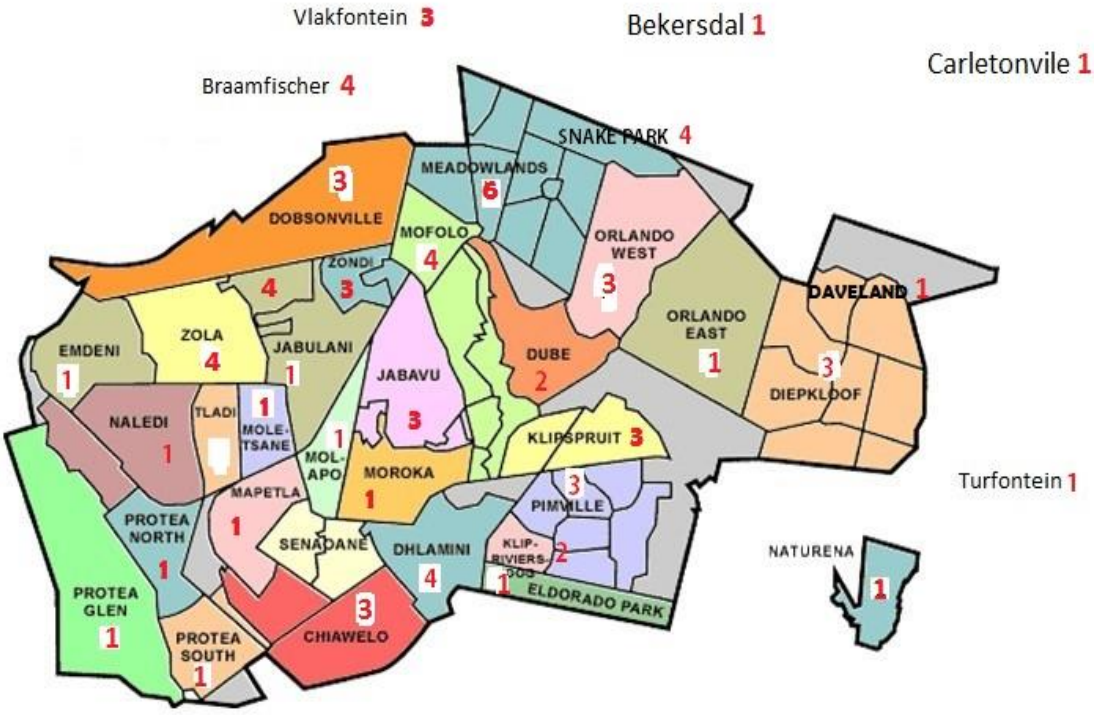

Figure 3.1 *Geographical distribution in Soweto and surrounding areas of 88 of the 104 women included in the study*. (Map downloaded from: www.sahistory.org.za/soweto-map-webgif)

Contraception:

There were 32.69% (n=36) of women had ever used combined hormonal oral contraceptive and the mean age for starting was 23.11 years (SD±7.52). Ever use of Medroxyprogesterone acetate injectable contraceptive was used in 50.49% (n =52) women, with a mean age at first use of 22.40 years (SD±10.73). The mean duration of use was 5.16 years (SD± 6.29). Norethisterone enantate was used in 17 (16.35%) women, with the mean age at first use of 21.83 years (SD± 9.68). The mean duration of Norethisterone enantate use was 5.28 (SD±4.02).

The use of progesterone only contraceptives pill was 3.88% with a mean age at first use of 28 years (SD± 4.08). The mean duration use was a mean of 5.75 years (SD±7.50). There were (n=7) 6.80% of women who used intrauterine contraceptive devices (IUCDs) with the mean age at use of 23.12 years (SD±11.83). Women who used IUCDs used it for an average of 4.57 years (SD±6.85). There were (n= 41) 39.42% who said that they used condoms as barrier contraceptives. The mean age of first use of condom was 27.36 years (SD±14.71). The proportion of women who used condoms consistently were (n=15) 36.59% whereas (n=26) 63.41% admitted to interrupted use. Women who used condoms used them for a mean duration of 5.75 years (SD±4.50). The use of contraceptives per cervical cancer stage is described on table 3. There were no statistically significant differences between the stages of cervical cancer and contraceptive type.

Table 3.3 *A comparison of ever use of contraception (and type) with different stages of cervical cancer.*

Contraceptive (inclusive)	**Stage 1 n=9**	**Stage 2 n=23**	**Stage 3 n=62**	**Stage 4 n=10**	**p-value**
Yes (ever used)	0	5 (21.74%)	22 (35.48%)	1 (10.00%)	p=0.08 FE*
no	8 (100%)	18 (78.26%)	40 (64.52%)	9 (90.00%)	
COC n=34	3(33.33%	8 (34.78%)	20 (32.26%)	3 (30.00%)	p=1 FE*
POP n=4	1 (11.11%)	1 (4.55%)	2 (3.23%)	0	P=0.41 FE*
IUCD n=7	1 (11.11%)	2 (9.09%)	4 (6.45%)	0	P= 0.66
Condom n=41	5 (55.56%)	10 (43.48%)	21 (33.87%)	5 (50.00%	p=0.47
DMPA n=52 (50.49%)	6 (66.67%)	12 (52.17%)	30 (49.18%)	4 (40.00%)	p=0.73
Norethisterone enantate	2 (22.22%)	3 (13.04%)	9 (14.52%)	3 (30.00%)	p=0.52
Ever used hormonal contraception 72 (69.23%)	8 (88.89%)	15 (65.22%)	41 (66.13%)	8 (80.00%)	p=0.52

**FE= Fischer Exact. (The total number of contraceptive use per stage of disease add beyond total number on specific stage of disease due to some women having used multiple methods).*

Clinical features:

The mean haemoglobin level on these women on admission was 10.2g/dl (SD± 2.8). The haemoglobin ranged between 3.3g/dl and 16.6g/dl. The median haemoglobin was 10.5, (IQR= 8.15g/dl-12.35g/dl). The table below compares the mean haemoglobin (g/dl) on admission per cervical cancer stage.

Of the 104 women included in the study, only 92 women were weighed and their mean weight was 67.5kgs (SD± 18.5). The weight ranged between 32kgs and 120kgs. Six (6) women were not weighed because they were very ill on admission and no reasons documented for the other six (6) who were not weighed.

There were only 6 women who were tested for syphilis on admission using the Rapid Plasma Reagent (RPR) or Treponema Pallidum Hem-Agglutinin (TPHA) test. There were (n=1)16.6% of those who were tested positive.

The renal function tests were done on 102 women on admission. The mean urea level was 5.7 mmol/L (SD±8.0). [Normal ranges according to the National Health Laboratory services (NHLS) are 2.1 to 7.1]. The range was 1.70 to 58.00. The mean creatinine was 119.4 umol/L (SD±227.8). The serum creatinine ranges were 36 umol/L and 1542 umol/L. (normal ranges 49-90). Liver function tests were only done on 28 women. Over (n=26) 92.9% of them had normal findings and (n=2) 7.1% had deranged liver function tests. Urine cytology tests were done on 2 women whom bladder involvement was clinically suspected. One of the two women (50%) whom urine cytology was done had bladder spread diagnosed on urine cytology. The differences between these clinical parameters are shown in the table below.

Table 3.4 *Comparison of clinical parameters during the admission period through the four clinical stages in women with cervical cancer*

Parameter	**Stage 1 n=9 (8.65%)**	**Stage 2 n=23(22.11%)**	**Stage 3 n=62(59.62%)**	**Stage 4 n=10(9.62%)**	**p-value**
Haemoglobin (g/dl)	12.25 (SD±2.36)	11.25 (SD±2.98)	9.63 (SD±2.71)	9.85 (SD±2.16)	P=0.01 anova
Weight (kg)	74.67 (SD±20.30)	71.69 (SD±16.56)	65.24 (SD±19.02)	62.29 (SD±17.01)	p=0.29
Urea (mmol/l)	3.58 (SD±1.52)	4.15 (SD±2.07)	6.69 (SD±10.02)	6.05 (SD±6.22)	p=0.52 anova
Creatinine (*u*mol/l)	64 (SD±16.	66.65(SD±22.63)	141.62(271.88)	157.4 (SD±285.23)	p=0.46

Renal Ultrasound was performed on 100 women in whom 35 (35%) had either bilateral, unilateral hydronephrosis or hydro ureter.

A chest radiograph was available in 97 women. Of these 88 (95.88%) had a normal study, 2(2.06%) had lung metastases and 2(2.06%) had a pleural effusion or collapse.

HIV:

There were (n=52) 50.49% who were HIV negative and (n=51) 49.51% who were confirmed to be infected with the HIV. One woman refused to be tested. The mean CD4 count for the 51 women who were HIV positive was 403.80 (SD±223.30) [lowest CD4 was 24 and highest was 1000].

Sixteen women (32.65%) were not on Highly Active Anti-Retroviral (ARVs) whilst 33 (67.35%) were on treatment. The mean duration for HAART was 49.1 months (SD± 39.90). The minimum duration for HAART was one month and the maximum being 132 months.

Table 3.5 *A comparison of HIV, CD4, and HAART use in the different stages of cervical cancer*

HIV status & HAART use	**Stage 1 n=9 (8.41%)**	**Stage 2 n=23 (21.50%)**	**Stage 3 n=61 (58.65%)**	**Stage 4 n=10 (9.35%)**	**p-value**
Positive	6 (66.67%)	11(47.83%)	30 (49.18%)	4 (40.00%)	p=0.73 FE*
Negative	3 (33.33%)	12 (52.17%)	31 (50.82%)	6 (60.00%)	
CD4 (if HIV positive	512 (SD±338.31)	375 (SD±160.55)	364 (SD±199.35)	587.00(SD±294.55)	p=0.19 anova
use of HAART n=33 (67.35%)	2 (40%)	7 (70%)	21 (70)	3 (75%)	p=0.61 FE*

No treatment n=16 (32.65%)	3(60%)	3 (30%)	9 (30%)	1 (25%)	
Duration of HAART in months n=33	60 (SD±69.30)	39.29 (SD±27.81)	48.42 (SD±42.06)	70 (SD±45.03)	p=0.73 anova

**FE= Fischer Exact. There was one woman who had stage 3 of the disease who declined to test for HIV*

Sexual History:

The mean age for coitarche was 17.81 years (SD± 3.33). The mean number of life partners was 4.06 (SD±3.26). There were 29 women (27.88%) who said they had had a sexually transmitted infection (STIs), 72(69.90%) denied having had STIs and 3(1.94%) declined to comment.

Table 3.6 *The sexual lifestyle and STDs in women with cervical cancer at different stages of the disease*

Parameters	**Stage 1 n=9 (8.65%)**	**Stage 2 n=23 (22.11%)**	**Stage 3 n=62 (59.62%)**	**Stage 4 n=10 (9.62%)**	**p-value**
Sexual History					
Coitarche	18.22 (SD±0.83)	18.09 (SD±2.83)	17.45 (SD±2.85)	18.70 (SD±6.83)	p=0.66
Life-time partners	3.33 (SD±1.80)	3.91 (SD±3.03)	3.93 (SD±3.28)	5.8 (SD±4.42)	p=0.34 anova
History of STD					
no	7 (77.78)	15 (18.18)	44 (73.33%)	6 (60%)	p=0.79 FE*
yes	2 (22.22)	7 31.82%)	16 (26.67%)	4 (40%)	

*FE= Fishers Exact

Histology:

Squamous cell carcinoma was the commonest histological type making up (n=91) 87.50% of the cancers. Adenocarcinoma accounted for (n= 7) 6.73% and (n=2) 1.92% were adenoid cystic carcinoma and serous carcinoma. Adenocarcinoma only occurred in patients with stage 3 and 4 disease (Table 3.7). Histological grading was not reported on (n=19) 18.27 % on the histology report, (n=6) 5.77% were well differentiated, (n=65) 62.50 % were moderately differentiated, (n=13) 12.50 % were poorly differentiated and (n=1) 0.96 % were heterologous and categorised as other(s). On all the four stages, the highest histological cell types were those of the squamous cell as shown on table 3.7 below.

Table 3.7 *The percentages of histological types of cervical cancer. (The histological type classified as "other" included adeno-cystic carcinoma and papillary serous carcinoma)*

Histological types	**Stage 1 n=9 (8.65%)**	**Stage 2 n=23 (22.11%)**	**Stage 3 n=62 (59.62%)**	**Stage 4 n=10 (9.62%)**	**p-value**
Squamous	8 (88.89%)	20(86.96)	55(88.71%	8 (80%)	p=0.22 FE*
Adenocarcinoma	0	0	5 (8.0%)	2 (20%)	
Adeno-squamous	1	2	1	0	
Other	0	1	1	0	

**FE= Fischer Exact*

Health seeking behaviour:

There were (n=74) 71.15% of women who stayed a walking distance from the clinics or healthcare facilities, (n=27) 25.96% needed to use a transport to access clinics or healthcare

facilities although the trip was perceived as short, (n=3) 2.88% of women used a transport for one long trip or two trips to access clinic or healthcare facility.

A third (1/3) of the study population, (n=78) 75%, knew what a Pap smear was and (n=26) 25% did not know. However only (n=55) 52.88% had done Pap smear before. The mean time that the last Pap was performed was 61.2 months (SD±87.30). Of the 53 patients who had done Pap smear before the current diagnosis of malignancy, (n=16) 30.19% had a normal cytology, (n=28) 50.94% had an abnormal cytology. The abnormal cytology included LGSIL (n=2), HGSIL (n=21), ASCUS (n=3), and Invasive cancer (n=2). The intervention after abnormal Pap smear was mostly punch biopsy with (n=11) 34.38%. Colposcopy & LLETZ was done in (n=10) 31.25% of women whereas colposcopy alone was done on (n=2) 6.25% of women with abnormal Pap smear. There was a (n=5) 15.3% of women who were uncertain as to what intervention was done and (n=4) 12.50% defaulted the follow up booking for intervention.

The mean age for coitarche was 17.81 years (SD±3.33). The mean number of life partners was 4.06 (SD±3.26). There were (n=29) 28% women who said that they had had a sexually transmitted infection (STIs), (n=72) 69.90% denied having had STIs and (n=2) 1.94% declined to comment.

Table 3.8 *The screening of women, knowledge about Pap smear and Pap smear results at least six months before admission*

Pap Smear	**Stage 1 n=9 (8.65%)**	**Stage 2 n=23 (22.11%)**	**Stage 3 n=62 (59.62%)**	**Stage 4 n=10 (9.62%)**	**p-value**
Do you know what a Pap smear is?					
No n=26 (25%)	1 (11.11%)	4(17.39%)	17 (27.42%)	4 (40.00%)	p=0.42 FE*
Yes n=78 (75%)	8 (88.89%)	19 (82.61%)	45 (72.58%)	6 (60.00%)	

Have you done a Pap smear before the current?					
Yes	7 (77.78%)	12 (52.17%)	30 (48.39%)	6 (60%)	P=0.41 FE*
Last pap period (months)	33.16 (SD±30.66)	88.08 (SD±112.21)	65.73 (SD±89.49)	13.17 (SD±11.41)	p=0.31
Last pap results					
normal	3(42.86)	3 (25%)	9 (32.14%)	1 (16.67%)	P=0.70 (FE*
abnormal	3 (42.86%)	8 (66.67%)	12 (42.86%)	4 (66.67%)	
unknown	1 (14.29%)	1 (8.33%)	6 (21.43%)	0	
inconclusive	0	0	1 (3.57%)	1 (16.67%)	

**FE= Fishers Exact*

There was one patient who declined to comment on reasons for consulting. Of the 103 that commented, the commonest reason for health seeking/consultation during period when cervical cancer was diagnosed in these women was abnormal vaginal bleeding at (n=50) 48.54% followed by bleeding and pain at (n=27) 26.21%. There were (n=12) 11.65% of women who consulted due to pain only and there was an equal percentage, (n=5) 4.85%, for those who visited health facility for screening as well as for vaginal discharge only. There were (n=2) 1.94% of women who consulted due to non-specific symptoms and (n=2)1.94% who consulted due to vaginal discharge with pains. Reason for consultation per cervical cancer stage is shown on table 3.9 below.

Table 3.9 *A comparison of reasons for consultation with stages of cervical cancer at presentation of the 103 women.*

Reason for consultation	**Stage 1 n=9 (8.65%)**	**Stage 2 n=23 (22.11%)**	**Stage 3 n=62 (59.62%)**	**Stage 4 n=10 (9.655%)**		**p-value**
Screening (No symptoms)	2 (22.22%)	1 (4.35%)	2 (3.28%)	0	**5**	p=0.26 FE*

Bleeding only	6 (66.67%)	15 (65.22%)	26 (42.62%)	3(30.00%)	**50**	
Pain only	0	1 (4.35%)	8 (13.11%)	3 (30.00%)	**12**	
Discharge only	0	0	5 (8.20%)	0	**5**	
Bleeding and pain	1 (11.11%)	6 (26.09%)	17 (27.87%)	3(30.00%)	**27**	
Discharge and pain	0	0	1 (1.64%)	1(10.00%)	**2**	
Non specific	0	0	2 (3.28)	0	**2**	
TOTAL					**103**	
No answer	0	0	1	0	1	

**FE= Fishers Exact. (Bleeding includes post coital bleeding, intermestural bleedinga and post menopausal bleeding). One patient with stage 3 of the disease did not answer)*

Symptoms experienced before consultation:

In the six months period before consultation, women reported to have had multiple symptoms.

When asked about experiencing per vaginal discharge six months prior to the interview, (n=64) 62.14% reported to have had it and (n=39) 37.86% denied having discharge. The discharge was reported to have been noticed for an average period of 6.74 months (SD±4.87). The discharge was described to be yellowish by (n=28) 43.75% of women, whitish by (n=20) 31.25% of women, brown by (n=14) 21.88% of women and red by (n=2) 3.13% of women. The discharge was also described as offensive by (n=59) 92.19% of women whereas (n=5) 7.81% reported it to be non-offensive.

When asked about experiencing pain in the past six months prior to the interview, (n=84) 81.55% reported to have experienced it and (n=19) 18.45% denied having had pain. The mean duration of painful stimuli was 7.94 months (SD±7.82). The pain was graded as mild by (n=9)

10.71% of women, moderate by (n=47) 55.95% and severe by (n=28) 33.33% of women. There were (n=76) 90.48% who reported that the pain had not been improving since first experience and (n=8) 9.52% reported improvement. The highest pain scoring was seven (7 out of 10) at 18.60% of total scores from 0 to 10.

Abnormal vaginal bleeding (post coital, intermenstrual and postmenopausal) in the six months prior to the interview was experienced by (n=92) 89.32% and (n=11)10.68% had not had any bleeding. Dyspareunia in the six months prior to the interview, was present in (n=40) 39.22% of women and (n=1) 0.98% did not comment. The average duration of the dyspareunia on those who experience it was 9.58 months(SD±7.70) The dyspareunia was graded mild by women (n=8) 19.51%, moderate by (n=15) 36.59% of women and severe by (n=18) 43.90% of women.

Weight loss was experienced by (n=18) 80.58%, these women noticed the weight loss on average 6.96 months (SD±6.56) months prior to the interview. Night sweats was experienced by (n=18) 17.48%. The mean duration for these night sweats was 7.88 months (SD±7.96).

Attitudes, perception and knowledge about disease:

When asked about the immediate action taken after noticing the symptoms (in an open ended-question on Section C of the questionnaire), (n=43) 41.75% of women indicated that their first action or response was to discuss with family or a family member, (n=29) 28.16% consulted the hospital or clinic first, (n=14) 13.59% consulted a private general practitioner, (n=12) 11.65% consulted a traditional healer or faith healer, (n=3) 2.91% decided to just observe the condition and (n=2) 1.94% did not answer.

There were (n=89) 86.41% women who consulted with a health worker for other health problems not related to cervical cancer in the past year. Of those, (n=43) 47.78% consulted at clinic or hospital, (n=16) 17.78% consulted for health care reasons at multiple sectors, (n=12) 13.33% at the private general practitioner, (n=10) 11.11% at traditional healer, (n=7) 7.78% at faith healers, (n=2) 2.22% at alternative medical care givers such as acupuncturists.

When asked if they perceive or thought the problems (presenting signs and symptoms) they had was a major problem, (n=50) 49.51% replied yes, (n=49) 47.57% did not see it as a major problem and (n=3) 2.91% declined to comment. There was one woman (0, 97%) who was not certain.

Cancer was thought to have started when the first symptoms were experienced by (n=53) 51.46% and (n=14) 13.59% thought the cancer started before the symptoms. There were (n=36) 34.95% of women who indicated that they did not think “they can know” when the cancer started. Women who reported to have been told about Pap smear before the current diagnosis were (n=49) 47.57%. Of these women, (n=41) 83.67% were told by healthcare workers, (n=5) 10.20% learned about Pap smear from their community, (n=2) 4.08% were told by a family member, (n=1) 2.04% learned about the test from the media. There were (n=54) 52.43% of women who denied ever been told about the Pap smear before.

CHAPTER 4: DISCUSSION

4.1 Introduction

In this section I will be discussing the findings of the study and the trends in comparisons with local/regional and internationally published similar studies per variable.

4.2 Commonest presenting stages

The commonest stages at presentation in our study is stage IIIB with 53.85% of cervical cancers followed by stage IIB with 17.31%. The overall comparison of early stages (IA to IIA) versus late stages (IIB to IVB) shows that 13.54% presents at early stages of the disease whereas 86.54% presented at late stages. These findings are comparable with international studies done in Sarawak (Malaysia),[9, 10] Penang hospital in 1995, [9] and Kuala Lumpur[9] as well as local study done at Kalafong Hospital in Pretoria by Snyman et al [21] where the commonest stage was IIIB with 56.5%. These findings show an unchanged trend when compared with patients seen at Charlotte Maxeke Combined Gynaecology Oncology unit in 2011(n=330 where 86% of patients presented at late stages and 14% presented early (0.9% were stage IA, 6.6% stage IB, 3.0% stage IIA, 36.9% stage IIB, 1.8% IIIA, 44.5% IIIB, 4.8% stage IVA and 1.5% were stage IVB) (unpublished statistics). It may be that this is the stage at which women become symptomatic, but this was not tested in this study.

Most of the tumours, n= 65 (62.50%) in our study were moderately differentiated. There were only n=13 (12.50%) which were poorly differentiated tumours. This is contrary to a study in the

Southern African region (Zimbabwe) that found that late stage tumours were more likely to be poorly differentiated. The odds of presenting with late stage disease in women with a poorly differentiated tumour were 12.97 (95% CI 2.03 to 82.55; p = 0.007). [24]

Most tumours (87.50%) were squamous cell carcinoma. We found that in our study population, adenocarcinoma cervical cancers commonly presented at stage 3 and stage 4. Adenocarcinomas were only found in stage 3 (80.0%) [n= 5] and 4 (20.0%) [n= 2] cervical cancer. It may be that the aggressive nature of these tumours results in advanced disease when detected. There has been a steady increase of adenocarcinoma in the world. Currently adenocarcinoma constitute 15 to 20 percentage of cervical cancers. Our rate (6.70%) is lower than expected.

4.3 Demographics

4.3.1 Age

In our study, the mean age for women with cervical cancer was 50.2 years. This is similar to publications in current literature that suggest the mean age for cervical cancer is 51.4 years. Moodley et al found that there was a difference in the mean age in HIV positive women and HIV negative women. Their mean age of HIV-positive patients was 15 years younger than that of the HIV-negative patients even though 40% of women are HIV positive.[28]

4.3.2 Socio-economic status

The majority of women in our study are of low socio-economic class. More than 60% (67.31%) of these women's households had a total combined monthly income of less than R3000.00. Even though these women were poor, many of them were still able to access health care at either public or private facilities (general practitioner). It has been found that low household income and lack of education play a major role in disease burden and favours progression of chronic diseases including cancer. Even though we did not look into the long term health seeking behaviour, in our study, socio-economic status did not appear to be associated with lack of consultation for health related problems. There was also no association between family income and late stage presentation.

4.4 Factors associated with the commonest presenting stage of the study, stage 3.

The commonest overall presenting stage on our study is stage 3(as discussed in section 4.2 above) with 56 (53.85 %) women (Table 3.2). However, there were no statistical significance with any of the factors (demographic factors including contraceptive use etc.).

The factors associated with stage 3 were the mean admission haemoglobin of 9.64 g/dl (SD ±2.71) that was significantly lower (Table 3.4). The mean weight of 65.2kg (SD±19.02) and the use of combined oral contraceptives of 32.26% per total stage 3 women compared to other contraceptive methods did not differ from other stages (Table 3.3 and 3.4). These women (women who presented at stage 3) were also found to be of low educational status with n= 13 (20.97%) who never attended school, n= 16 (25.81%) who only had primary school education and n= 28 (45.42%) who only had secondary education. The educational level between the different stages, however, did not differ significantly.

In SA screening coverage is between 20% and 40%. In our study, thirty (30) of the women who presented at stage 3 had a Pap smear done a mean 65.73 (SD±89.49) months before the interview and 9 (nine) had normal Pap smear what were the other results. This in comparison with the mean period since last Pap smear of 33.16 months (SD±30.66) for stage 1 and 88.08 months (SD±112.21) for stage 2. However six (6) of the stage 4 women did a Pap smear a mean 13.17 months (SD±11.41) and 1 (one) had a normal Pap smear. Perhaps these women required a biopsy and not a Pap smear at time of visit. Stage 3 patients were also associated with a high proportion of women who have never done a cervical screening test, Pap smear. Seventeen (17) [27.42%] of stage 3 patients had never had a Pap smear. No significant relationship between screening and stage of disease were found (Table 3.8).

Early age of coitarche is a risk factor for cervical cancer, but was not shown to be statistically different between the different stages in this study. The age at coitarche in our study is in keeping with that of the national South African average age, the Western African region as well that in European countries. [29, 30, 31]

The association between lifetime partners and cervical cancer is known.[3, 20] There was a trend of increased number of lifetime partners in stage 4 as compared to stage 1 (5.8 life partners (SD±4.42) and 3.33 partners (SD±1.80) respectively) with an almost two fold increase in late stages. Although there was no statistically significant difference in lifetime partners through the stages, this trend was in keeping with current literature.[3, 20]

Increase in parity is a risk factor for presenting in advanced stages of cervical cancer. This was a finding in our study although not statistically different across the stages. All these factors are in keeping with local and international studies on cervical cancer studies.

We found that the majority of patients' cervical cancer could easily access public healthcare facility. With this behaviour, it is expected that many patients will present at precancerous lesions or operable stages of cervical cancer (1a to 2a). There were 74 (71.15%) women who stayed a walking distance from the clinics, 27 (25.96%) women who required to travel to access the clinic although the trip was short and considered affordable. There were only 3 (2.88%) women in this study who stayed far from the health facility and had to travel a long distance or have two linked trips.

4.5 Preferred area for first consultation after identifying symptoms related to cervical cancer

Contrary to findings by Anorlu RI et al [24] who found that 60.71% of patients who presented in late stages of cervical cancer first went to consult at private hospitals, in our study 13.33% of patients consulted GP practices first, 11.11% consulted with traditional healers, 7.78% first consulted with faith healers and 2.2% opted to alternative medicine before consulting our public healthcare services. The inclusive percentage of patients who opted to seek medical consultation outside public healthcare facilities for symptoms related to cervical cancer was 34.42%. There were 47.78% that consulted public clinics and hospitals first as well as 17.78% that had multiple facilities consultations before seeking healthcare at our institution. So it is interesting that all of the women consulted some practitioner.

However, 43 women (41.75%) discussed the problems with their family members first for an opinion before consulting any healthcare facility. Although family support is associated with good coping, it has been associated with late stage presentation in a study done in Kenya by Were EO and Buziba NG[26] on health seeking behaviour of cervical cancer patients. We speculate

that on our study, discussing with family could have delayed consultation. We did not look at how long it took from the time of consultation with other providers to presentation at this hospital.

4.6 Presenting Symptoms

The commonest reason for consultation at either public healthcare facilities or other centres was abnormal vaginal bleeding only (48.54%). These findings were similar to a study done by Anorlu RI et al.[24] A local study at Kalafong hospital in Pretoria also found that 74% of unscreened patients presented with bleeding either as menorrhagia, inter-menstrual bleeding or post-menopausal bleeding.[21] The second commonest reason was a combination of both vaginal bleeding (including post coital bleeding) and abdominal pains (26.21%) followed by abdominal pain only 11.65%. Vaginal discharge (4.85%) and non-specific symptoms (1.94%) accounted for the rest of the reasons why women presented to a health care provider.

4.7 Patients' perception of onset of disease

Although women were informed during the interview that cervical abnormal changes (pre-malignant) that may result in cancerous lesions start way before the symptoms appear, 53 (51.46%) women seem to think that cervical cancer started at the time the symptoms were observed. Only a tenth, 14 (13.59%) women seem to think that the cancer started before the symptoms. This raises the need for continued education on the importance of cervical cancer screening and prevention of progression of precancerous lesions to malignancy. It also suggests

that one of the reasons this cancer presents late is because it remain silent or asymptomatic for a long time.

4.8 Screening and knowledge about cervical cancer screening tests

In this era of easy access to information from all types of media as well as in view of that the fact the majority of patients in our study had easy access to healthcare facilities, it is expected that almost everyone will know more about Pap smear and had at least done a test. However, in our study, n=26 (25%) of women still did not know what a Pap smear was. This is considered alarmingly high and further raises question about how health education is dispensed. Only n= 49 (47.57%) reports to have been told about Pap smear test before the diagnosing cytology. However, of these women, n= 41 (83.67%) were educated about the test by a healthcare worker.

The 55 women who had done a Pap smear before the current diagnosis of malignancy did so a mean 61.2 months (5.1 years) prior to current diagnosis. This is below the 10 years period recommended in the national cervical cancer screening program. This finding suggest that there may be a need to review the screening interval in an attempt to reduce late stages presentation.

4.9 Strengths of the Study

This was a prospective study over a twelve month period. All the patients were seen and interviewed by the researcher himself.

The researcher was able to directly communicate with the women in her preferred or spoken language without a need for a translator.

The data collection sheet had an open ended question at the end that aimed to affirm what was asked previously with close ended questions.

4.10. Limitations of the Study

The study population was a convenience sample and women were only interviewed on the days that the researcher was at CHBAH.

We did not compare sub stages of cervical cancer in many variables due to a small study population.

This was not a multi-centre study and was limited to one hospital, CHBAH. The findings could be biased due to a limited pool and lack of comparison and as such demographics could not be compared across the population.

There could have been responder/recall bias when women were asked questions relating to sexual lifestyle such as coitarche and lifetime partners as many of our patients were older and showed hesitance in responding to these specific questions.

There were women who could not be recruited into the study due to an administrative error (incomplete information) and some of the data could not be traced when the admission procedure was done manually due to hospital admission IT system failure.

We did not look into the total number of people per household when asking about affordability and hence the total income per family may not directly translate to financial affordability.

CHAPTER 5: RECOMMENDATIONS AND IMPLICATIONS FOR PRACTICE AND RESEARCH

Education for women regarding abnormal vaginal bleeding as “warning signs” of cervical pathology is very important and should be emphasised at all times when teaching about cervical screening and prevention.

The questions that need to be answered are: Are women consulting at these healthcare facilities even when they are at walking distance? Are women screened for cervical cancer utilising the current guidelines with every opportunity when they consult with a healthcare worker? And lastly, are women taking the opportunity to request a Pap smear test themselves?

We did not explore more as to the women’s reasons for consulting the general practitioner, traditional healer, alternative medicine practitioners and faith healers first before consulting at a public healthcare facility. This requires further enquiry hence is an area for further research.

The commonest reason for health seeking/consultation during period when cervical cancer was diagnosed in these women was abnormal per vaginal bleeding. We therefore recommend that women who have abnormal bleeding and a normal cervix should have a Pap smear even if they have had a screening Pap smear on the period covered by the national screening guidelines. They should not wait for the ten (10) years as suggested by the cervical cancer screening guidelines.

A further study is needed to review the effectiveness of the current screening program’s interval. In our study 55.88% of women had done a Pap smear 6.1 years before the diagnosis of cervical cancer. We suggest that there may be a need to reduce the screening interval from 10 years to 5 years.

CHAPTER 6: CONCLUSION

Less than 30% (29.91%) of women presented with early stage disease and 70.10% presented with a stage 3b and above. The 5 year survival of women with late stages is 50.50%-22.00%. The mean age of women with stage 1 was 42.22, stage 2 was 51.00, stage 3 was 51.60 and stage 4 was 47.10 years. The mean age for women with stage 1 was a decade lower compared to other stages. Women with late stage disease were of low socio-economic status and low educational status. The demographic distribution of late stages of cervical cancer shows that there is an increase in late stage presentation in women above 50 years of age.

The majority of women (41.75%) opted to discuss the problem with family members first after identifying symptoms that could be related to cervical cancer and hence delayed seeking healthcare assistance.

The majority of women (86.41%) had consulted for healthcare in the 12 months prior to the study. Of these, 47.78% consulted at the public clinics/hospital and only 13.33% consulted at the GP and remainder consulted at traditional healers/faith healers etc.

Squamous cell carcinoma is the commonest histological type and moderate differentiation being the commonest grading. However, there is an increasing incidence of adeno-carcinoma with n=5 (8.0%) in stage 3 and n=2 (20%) in stage 4.

There appears to be a consensus that the current screening method (cytology) and screening interval for cervical cancer are not effective for various reasons and may play a role in women presenting at late stage disease. Vaginal bleeding remain the commonest sign and probably a red flag for cervical cancer in post-menopausal women.

CHAPTER 7: REFERENCES

1. Moodley J. Cervical cancer in Southern Africa: The Challenges. South Afr J Gynaecol Oncol 2009; 1: 11-13
2. South African Human Papillomavirus Advisory Board Cervical Cancer and Human Papillomavirus: Testing for Human Papillomavirus in the diagnosis and follow up of cervical neoplasia. 2010
3. National Health Laboratory Services. Incidence of Histologically Diagnosed Cancer in South Africa, 1998-1999 National Cancer Registry. Published by the National Cancer Registry of South Africa, Johannesburg. December 2004. Available from: www.cansa.org.za/unique/cansa/files/stats98 Accessed 28th January 2012
4. Parkin DM, Bray F, Ferlay J and Pisani P. Global Cancer Statistics, 2002. *CA Cancer J Clin* 2005; 55;74-108
5. Scott JR, Gibbs RS, Karlan BY, Haney AF. Danforth's Obstetrics and Gynaecology. 9th edition. Williams & Wilkins publishers; 2003
6. Berek JS, Hacker NF. Practical Gynaecological Oncology. 3rd edition. Lippincott Williams & Wilkins Publishers; 2000
7. South African Human Papillomavirus Advisory Board. Cervical Cancer and Human Papillomavirus: South African Guidelines for Screening and Testing. South Afr J Gynaecol Oncol. 2010; 2(1): 23-26
8. South African Human Papillomavirus Advisory Board. Prophylactic Human Papillomavirus (HPV) vaccination against cervical cancer. 2010
9. Lim GCC. Overview of Cancer in Malaysia. Jn J Clin Oncol 2002; 32 (Supplement): S37-S42.doi: 10.1093/jjco/hye132. Available from: http://m.jjco.oxfordjournals.org/content/32/suppl_1/S37.full
10. Devi BCR, Tang TS, Corbex M. Reducing by half the percentage of late-stage presentation for breast and cervix cancer over 4 years: a pilot study of clinical down staging in Sarawak, Malaysia. Annal Onc. 2002; 18 (7) : 1172-1176
11. National Policy of the Department of Health for the Prevention of Cervical Cancer in South Africa: Draft One, September 22nd, 2011

12. Sheridan A, White J. U.K Department of Health. Annual HPV Vaccine coverage in England. 2009/2010. Accessed 21 February 2012. Available from: http://www.dh.gov.uk/en/
13. Australian Institute of Health and Welfare. Cervical Screening in Australia 2008-2009. The Australian Institute of Health and Welfare and the Australian Government Department of Health and Ageing for the National Cancer Screening Programme (October 2011): Cancer Series Number 61. Available from: www.aihw.gov.au/WorkArea/DownloadAsset. Accessed 12th January 2012
14. De Kubber M, Peters A, Soeters R. Investigating Cervical Cancer Awareness: Perceptions of the female Cancer Programme in Mdantsane, South Africa. South Afr J Gynaecol Oncol 2011; 3(2): 70-72
15. Jemal A, Brey F, Center MM, Ferlay J, Ward E, Forman D. Global Cancer Statistics. CA Cancer J Clin. 2011 March/April; 61(2) 69-90
16. Greene FL; Page DL, Fleming ID, Fritz A, Balch CM, Haller DG, Morrow M. AJCC Cancer Staging Handbook. 6th edition. New York: Springer; 2002
17. Benedet JL, Pecorelli MD, Hacker NF. Staging classification and clinical practice guidelines of gynaecologic cancer. FIGO Committee on gynaecologic oncology. Elsevier; September 2000
18. Shivnani AT, Rimel BJ, Schink J. Cancer of the Cervix: Current Management and New Approaches: Oncology. 2006 November 1; 20(12)
19. Sellors JW, Sankaranarayanan R. Colposcopy and treatment of cervical intraepithelial neoplasia: A beginners' manual. IARC. Lyon; 2003
20. Berek JS. Norvask Gynaecology. 13th edition. Lippincott Williams & Wilkins Publishers; 2002
21. Snyman LC, Herbst U. Reasons why unscreened patients with cervical cancer present with advanced stage disease. South Afr J Gynaecol Oncol 2013;5(1):16-20
22. Cervical Cancer facts and figures. Public Health Agency of Canada. Accessed 18 January 2012. Available from: www.phac-aspc-gc.ca/cd-mc/cancer/cervical_cancer_figures-cancer_du_col_uterus-eng.php

23. Ndlovu N, Kambarami R. Factors associated with tumour stage at presentation in invasive cervical cancer. Cent Afr J Med. 2003 Sep-Oct; 49(9-10):107-11. Available from: http://www.ncbi.nlm.nih.gov/pubmed/15298465
24. Anorlu RI, Orakwue CO, Oyeneyin L, Abudu OO. Late presentation of patients with cervical cancer to a tertiary hospital in Lagos: what is responsible? Eur J Gynaecol Oncol. 2004; 25(6):729-32. Available from:*http://www.ncbi.nlm.nih.gov/pubmed/15597852*
25. *Benedet J, Odicino F, Maisonneuve P, et al. Carcinoma of the Cervix Uteri: Annual report on the results of treatment in Gynaecologic Cancer. J Epidemiol Biostat 2001; 6:7-43.*
26. Were EO, Buziba NG. Presentation and health care seeking behaviour of patients with cervical cancer seen at Moi Teaching and Referral Hospital, Eldoret, Kenya**.** East Afr Med J. 2001 Feb; 78(2):55-9.
27. Smith T. Protocol for Treatment of Gynaecological Oncology. Department of Obstetrics and Gynaecology, Oncology Group. 10th edition University of the Witwatersrand; 2014
28. Moodley M, Moodley J, Kleinschmidt I. (2001), Invasive cervical cancer and human immunodeficiency virus (HIV) infection: a South African perspective. Int J Gynecol Cancer, 11: 194–197
29. Adam Y, McIntire JA, De Bryn G. Incidence of cytological abnormalities within 24 months of a normal cervical smear in Soweto, South Africa. S Afr Med J. 2013; 103(1):34-39
30. Durowade KA, Osagbemi GK, Salaudeen AG, Musa OI, Akande TM et al. Prevalence and risk factors of cervical cancer among women in an urban community of Kwara State, North Central Nigeria. J. Prev Med Hyg 2012; 53: 213-219
31. Edgardh K. Sexual behaviour and early coitarche in a national sample of 17 year old Swedish girls *Sex Transm Inf* 2000;76:98–102

CHAPTER 8: APPENDICES

8.1 Appendix A : Data Sheet

PART A: INFORMATION FROM THE FILE

Stage at Presentation

1	2	3	4	4	5	6	7	8	9
1a	1b	2a	2b	3a	3b	4a	4b	Other	Unknown

Histology

Type	1	2	3	4	0
	Squamous	Adenocarcinoma	Adeno-squamous	Other	No report
Grading	1	2	3	4	0
	Well	Moderate	Poor	Other	No report

Age (in years)

HIV positive:

1	0	Blank
Yes	No	Not tested

Last CD4 Count

Value			Unknown
Date (Year/Month			

ARVs treatment

1	0	Blank
Yes	No	Not certain

Period on ARVs (in months/years)

Months			
Years			

Other tests/assessments on admission

Test/Screen	Results/values	Pending
Haemoglobin		
Weight		
WR/RPR		
U&E		
LFT		
Urine Cytology		
Sonar kidneys/ bladder/ liver		
Cystoscopy		
CXR		

PART B: INFORMATION FROM PATIENT INTERVIEW

	Yes =1	No = 2	No answer =3
	CIGARETTE	SNUFF	
Have you ever used?			
Do you still use/smoke?			
If no, How long have you stopped (years)?			
How many times per day?			
How many cigarettes per day?			
Period of use all together			

Have you ever used contraceptives?

Yes= 1	No= 0	Not answered= 3	Age when starting
	Have you ever used	If yes, how long in years	(in years)
C.O.C			
Depo Provera			
Nuristherone			
P.O.P			
I.U.C.D			
Condoms			

Are you the main provider at home?

1	0
Yes	No

How much was your household income in past 5 years (in South African Rands)

1	2	3	4
Less than R1000	R1000-R2999	R3000-R4999	R5000 and above

What is your highest level of education?

1	2	3	4	0
Primary	Secondary (no matric)	Secondary (completed matric)	Tertiary	No formal education

How easy is it for you to access clinic or healthcare facility?

1	2	3
Walking distance	By taxi/vehicle(short trip)	By taxi/vehicle(long trip)

Residential address

Do you know what a Pap smear is?

1	0	Dot
Yes	No	Uncertain

Have you had a Pap smear before the current diagnosis?

1	2	Dot

Yes	No	Uncertain

Previous Pap smear period (in months/years)

Months					
Years					

Results of last Pap smear

1	2
Normal	Abnormal

If abnormal was it..?

1	2	3	4	5
LGSIL	HGSIL	Invasive Carcinoma	Other (indicate)	Don't know results

If the Pap smear was abnormal, was there further intervention done after the Pap smear results?

1	2	3	4
Colposcopy	Colposcopy & LLETZ	Punch Biopsy (No colposcopy)	Uncertain

Now I am going to ask you very personal questions which may make you feel uncomfortable. You don't have to answer if you do not feel like doing so.

How old were you when you had sexual intercourse for the first time (in years)

Age			Not answered

How many sexual partners in total have you had in your life?

Number			Not answered

Have you had sexual transmitted diseases before?

1	0	2	Dot
Yes	No	Uncertain	Not answered

Please tell me how many times you have been pregnant and what was the outcome?

	1	2	3	4	5	>5	Not answered
Year							
Duration (months)							
Outcome							

I am now going to ask you questions about your medical symptoms at this admission.

What was it that alerted you to the fact there may be something wrong, that then brought you to the hospital?

Did you have any of the following in the last 6 months?

	1	2	3	4	5	6
	Abnormal vaginal discharge	Pain	Abnormal bleeding	Dyspareunia	Weight loss	Night sweats
When did it start?(in months)						
mild						
moderate						
severe						
Is it improving?						
Is it getting worse?						
For how long has it been?						
What colour is the discharge						
Offensive discharge						
Non offensive discharge						

Pain Assessment Scale

0 Mild	5 Moderate	Severe 10

What did you do after identifying the above-mentioned problem(s)?

Have you been to a doctor/ health worker/ traditional health worker in the last year- if so what did you consult about?

Where did you consult?

1	2	3	4	Dot
Traditional healer	Faith healers	Alternative medicine	Other	Not answered

Did you consider this problem major?

1	0	2	Dot
Yes	No	Not certain	Not answered

PART C: OPEN-ENDED QUESTION

I would like to now start my recorder before I ask you the next question

A. *You have been diagnosed with cancer, is that true? Cervical cancer is a slow growing cancer and takes a long time to develop and to show itself.... But I would like to ask you, when do you think the problem actually began?*

Reply*……*
……
……
……
……
……
……
……
……
……

B. Has anyone told you about cancer of the cervix and the tests used to check for it?

Reply*……*
……
……
……
……
……
……
……
……
……
……
……
……

8.2 Appendix B : Patient Information

My name *is* ***Dr. Langanani Mbodi.*** I am a doctor in this hospital and I am training to become a specialist in Obstetrics and Gynaecology. As part of my training I am required to do a research project. I also work in theatre, labour ward, antenatal clinic and gynaecology department as part of my training. I have noticed that many patients with cancer of the cervix come to our hospital when the disease has spread and hence I am doing a study to find out some of the reasons for that and to identify ways of helping people with cancer to be diagnosed early and treated accordingly.

I request you to take part in this study by giving me permission to obtain some of the information from your file as well as answer a few questions that I will ask you. I will also record some of your responses at the end.

During the study there will be no examination done on you, no procedures such as taking blood and no new medication will be given to you.

Please be informed that by taking part in the study you will not benefit directly, the standard of care you receive will be the same as other patient, your information and identity will remain confidential and your names will not be used on the data collection sheet. If at any point during or after the interview you no longer wish to continue you are welcome to withdraw and there will be on ill-effects.

You can contact my supervisor Dr Y. Adam (Chris Hani Baragwanath Academic Hospital) or myself (telephone number 011 9338156)

You can also contact the Human Research Ethics Committee on (011) 7171234 if you wish to get more information.

If you are willing to take part in this study, kindly sign that you understood all that has been explained to you and that you are willing to take part in the study.

8.3 Appendix C : Patient Consent Form

Consent form

To be completed by participant or responsible person

I voluntarily agree to participate in the research study described to me as per attached information form. I had some chance of asking questions about the research.

_____	_____	_____	_____
(Print name)	(Capacity)	(Date)	(Signature)

To be completed by the researcher/person obtaining consent

I have discussed the proposed research with this patient or the responsible person, and in my opinion, this participant or responsible person understands what the research entails and is capable of freely consenting to participate in this research.

_____	_____	_____	_____
(Print name)	(Capacity)	(Date)	(Signature)

8.4 Appendix D : Ethics Clearance

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

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
R14/49 Dr Langanani Mbodi

CLEARANCE CERTIFICATE	M121011
PROJECT	Why do Women Present with Late Stages of Cervical Cancer at CH Baragwanath Academic Hospital
INVESTIGATORS	Dr Langanani Mbodi.
DEPARTMENT	Department of Obstetrics & Gynaecology
DATE CONSIDERED	26/10/2012
DECISION OF THE COMMITTEE*	Approved unconditionally

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

DATE 21/11/2012 CHAIRPERSON .....
(Professor PE Cleaton-Jones)

*Guidelines for written 'informed consent' attached where applicable
cc: Supervisor : Dr Yasmin Adam

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...

8.5 Appendix E : FIGO Staging of Cervical Cancer

IA1 Confined to the cervix, diagnosed only by microscopy with invasion of < 3 mm in depth and lateral spread < 7 mm

IA2 Confined to the cervix, diagnosed with microscopy with invasion of > 3 mm and < 5 mm with lateral spread < 7mm

IB1 Clinically visible lesion or greater than A2, < 4 cm in greatest dimension

IB2 Clinically visible lesion, > 4 cm in greatest dimension

IIA1 Involvement of the upper two-thirds of the vagina, without parametrial invasion, < 4 cm in greatest dimension

IIA2 > 4 cm in greatest dimension

IIB With parametrial involvement

IIIA Involvement of the lower third of the vagina. Sentence incomplete No extension to the pelvic sidewall but

IIIB Extension into the pelvic sidewall or hydronephrosis or non-functioning kidney.

IVA Spread of the tumor into adjacent pelvic organs.

IVB Spread to distant organs.

8.6 Appendix F : Chris Hani Baragwanath Academic Hospital Permission

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

MEDICAL ADVISORY COMMITTEE
CHRIS HANI BARAGWANATH ACADEMIC HOSPITAL

PERMISSION TO CONDUCT RESEARCH

Date: 25 September 2012

TITLE OF PROJECT: Why do women present with late stages of cervical cancer at Chris Hani Baragwanath Academic Hospital

UNIVERSITY: Witwatersrand

Principal Investigator: Dr L Mbodi

Department: Obstetrics and Gynaecology

Supervisor (If relevant): Dr Y Adams

Permission Head Department (where research conducted): Yes

Date of start of proposed study: October 2012
Date of completion of data collection: September 2013

The Medical Advisory Committee recommends that the said research be conducted at Chris Hani Baragwanath Hospital. The CEO /management of Chris Hani Baragwanath Hospital is accordingly informed and the study is subject to:-

- Permission having been granted by the Committee for Research on Human Subjects of the University of the Witwatersrand.
- the Hospital will not incur extra costs as a result of the research being conducted on its patients within the hospital
- the MAC will be informed of any serious adverse events as soon as they occur
- permission is granted for the duration of the Ethics Committee approval.

.....
Recommended
(On behalf of the MAC)
Date: 25 September 2012

.....
Approved/Not Approved
Hospital Management
Date: 02/10/12