

**CLIENTS' UTILIZATION AND PERCEIVED LEVEL OF SATISFACTION
WITH SERVICES RECEIVED AT THE CERVICAL CANCER
SCREENING CLINIC, UNIVERSITY COLLEGE HOSPITAL,
IBADAN, NIGERIA**

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DEDICATION

This work is dedicated to God the Almighty, the Alpha and Omega, the beginning and the end, for sustaining me through out the period of MPH programme. I am grateful for His love and help.

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ABSTRACT

Cervical Cancer (CC) is a major problem of public health importance especially for women from the developing countries. Cervical cancer screening is an important public health measure because when detected early can be treated. The cervical cancer screening clinic of University College Hospital (UCH) had been opened since 2003, but clients' level of satisfaction had not been assessed. This study therefore, assessed clients' level of satisfaction with services received at the CC Screening Clinic, U C H, Ibadan.

The study adopted a descriptive cross-sectional survey. All the 254 clients who visited the clinic for Pap smear during the three months period of the study were invited to participate in the study. However only 160 clients consented to participate in the study (63% response rate) A validated questionnaire was used to obtain data from the respondents using an exit-interview approach. Data were analyzed using descriptive and Chi-square statistics.

The respondents' mean age was 42 ± 10.2 years. More than half of the respondents (56.3%) had tertiary education, 29.4% had secondary education while 8.8% had primary education. Most of the respondents (65.0%) had heard about cervical screening prior to their referral to the clinic. Their overall mean knowledge score of cervical cancer was 8.2 ± 0.94 out of 16 points. Respondents' with higher education had higher mean knowledge score 8.5 ± 0.92 than those with lower education 6.4 ± 0.89 . Only 23.8% had previously done a Pap smear, 75.6% had never while 0.6% was not sure. The reason adduced by 66.9% of those who had never had the Pap smear was lack of awareness about the existence of the clinic. Most of the respondents (66.3%) were referred from the clinics in UCH and other health facilities, 26.3% were referred by friends and relations, 5.6% from religious institutions

and 1.9% were self-referred. A majority (93.8%) of respondents expressed satisfaction with the services received in the clinic. The level of satisfaction with the components of the services of the clinic were as follows: Courtesy of reception at the waiting area (86.9%), quality of information on CC (54.4%), quality of information provided on Pap smear (59.4%), privacy (98.1%), counseling (58.1%), prompt attention (88.8%), method of sterilization of instruments (92.5%), perceived competence of the health workers (95.6%) and (63.1%) test fee. Few clients (6.9%) reported dissatisfaction with delay in obtaining result, pain during test (1.3%) and power failure (1.9%). All the respondents claimed that the health workers addressed them politely. More clients with tertiary education (55.3%) reported satisfaction with services than those with secondary (31.8%), and primary education (8.2%). More clients (59.3%) within 40-49 years age range reported higher level of satisfaction than clients with age range, 50 years and above (55.3%), 30-39 years (50.0%).

High level of service satisfaction with low self referral for CC screening services was documented, but previous service utilization was observed to be low. Health education strategies such as increased community awareness and motivation through communication materials should be put in place to sustain the quality of the services at the clinic for high demand.

Keywords: Pap smear, cervical cancer screening services, Clients' satisfaction, Clients' utilization, women's health.

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Certification

I certify that this work was carried out by OLANIYI, Esther O. in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan under my supervision.



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GLOSSARY OF ABBREVIATION

ACCP	Alliance for Cervical Cancer prevention
ACOG	American College of Obstetricians and Gynecology
ACS	American Cancer Society
ASCUS	Atypical squamous cells of undetermined significance
CCS	Canadian Cancer Society
CDC	Center for Disease Control and Prevention
CIN	Cervical Intraepithelial Neoplasia
DNA	Deoxyribonucleic Acid
DVI	Direct Visual Inspection
FMOH	Federal Ministry of Health
HIV	Human Immunodeficiency Virus
HPV	Human Papilloma Virus
HSIL	High-grade squamous intraepithelial lesion
IARC	International Agency for Research on Cancer
LBC	Liquid-based cytology
LEEP	Loop electrosurgical excision procedure
LSIL	Low –grade squamous intraepithelial lesion
NCI	National Cancer Institute
NHS	National Health Service
PAHO	Pan American Health Organization
PATH	Program for appropriate Technology in Health
SEER	Surveillance, Epidemiology, and End Result Program
VIA	Visual Inspection with Acetic Acid
VIAM	Magnified Visual Inspection with Acetic Acid
VILI	Visual Inspection with Lugol's Iodine
WHO	World Health Organization

OPERATIONAL DEFINITIONS

Cervical cancer	Name given to a disease characterized by the growth of abnormal cells in the cervix, detected by Pap smear done in the cervical screening clinic, U.C.H, Ibadan.
Human Papilloma Virus(HPV)	A virus that can be sexually transmitted and it is often without signs, can slowly cause changes on the cervix that result in Cancer in patients at the cervical cancer screening clinic,U.C.H, Ibadan.
Pap Smear	Also called Pap test, cervical smear, or cervical cytology. A screening test designed to detect abnormal cells in the cervix done at the cervical cancer screening clinic, U.C.H, Ibadan.
HPV Infections	Infection with the Human Papilloma Virus, a risk factor of cervical cancer in patients at cervical cancer screening clinic,U.C.H, Ibadan
Epidemiology of cervical cancer	The study of prevalence and spread of cervical cancer in a community
Carcinogens	Any cancer - producing substances, risk factor for cervical cancer in patients at the cervical cancer screening clinic, U.C.H, Ibadan.
Prognosis	A forecast of the outcome of cervical cancer as produced and indicated by the test conducted in the cervical screening clinic.U.C.H, Ibadan.

CHAPTER ONE

INTRODUCTION

1.1 Background Information

Cancer is one of the primary causes of morbidity and mortality recorded among individuals worldwide. Globally, 10.9 million new cases of cancer were diagnosed and 6.7 million people were reported to have died of the disease in 2002 (Parkin , Ferlay , Hamdi-Cherif , Sitas , Thomas , Wabinga ,Whelan, 2003). Carcinoma of the cervix is not only a major public health challenge throughout the world but also, the second most common malignancy in women worldwide after breast carcinoma and the most common genital tract malignancy in female (Adefuye, 2006) Each year an estimated half a million cases are diagnosed with 80% occurring in less-developed countries that have access to less than 5% of global cancer treatment resources (Parkin, 2000). Despite being a preventable disease, cervical cancer claims the lives of almost half a million women worldwide each year (Ferlay , Bray , Pisani , Parkin , 2004). A conservative estimate of the global prevalence (based on the number of patients still alive 5 years after the diagnosis) suggests that each year there are about 1.4 million cases of clinically recognized cervical cancer. In 2004, over one million Americans were diagnosed and more than 550 000 died from the disease (Colditz and Stein, 2004). It is also likely that 3-7 million women worldwide may have high grade dysplasia. (Ferlay, 2000) Again an estimated 1.37 million Americans were diagnosed with cancer in 2005, of which an estimated 1500 died each day. (Jemal, Murray, Ward, Samuels, Tiwari , Ghafoor , Feuer, Thun, 2005).

The annual age-standardized incidence of cervical cancer in Ibadan in 1998-1999 was 19.9 per 100 000 (Parkin, Ferlay, Hamdi-Cherif , Sitas , Thomas , Wabinga ,Whelan , 2003) Of all the gynecological malignancies recorded in the country, carcinoma of the cervix remains a leading cause of cancer death among females in Nigeria and Cancer of the cervix remains a vicious killer of women till date (Ogunbode and Ayinde, 2005) Cervical cancer is thought to be associated with certain strains of a sexually transmitted virus(Human papilloma virus).Human papilloma virus infection is easily transmitted among women in their twenties and thirties and there is no therapy that eliminate the

underlining infections.(Sherrish, Herdman, Elias,2001). Current estimates among these groups indicate that every year, 9922 women are diagnosed with cervical cancer and 8030 die from the disease. About 24.8% of women in the general population are estimated to harbour cervical HPV infection at a given time, (WHO/ICO Information Centre on HPV and Cervical Cancer (HPV Information Centre) 2007) Unfortunately, these death are avoidable because these disease is preventable provided its pre invasive precursors are detected early enough and promptly treated as is widely done in developed countries. Sadly however, in the past few years in Nigeria, the total number of cases recorded yearly has steadily been on the increase (Emovon, 2004) Cervical cancer has a prolonged phase of pre malignancy called cervical intraepithelial Neoplasia (CIN). This coupled with the accessibility of the cervix, is responsible for the successful screening that has succeeded in reducing the prevalence of the tumor (Sawayua, Brown, Washington, Garber, 2001).

Primary prevention for cervical cancer is aimed at reducing human papilloma virus infection. (Sherrish, Herdman, Elias, 2001) However, there is only little awareness concerning sexual behaviors and hazards of cervical cancer at the disposal of people in Nigeria (Ayinde and Omigbodun, 2003). Cervical cytology using Papanicolaou (Pap) smear is one of the most effective screening techniques currently being used for prevention of cervical cancer. (Sawaywa, 2001) The Papanicolaou (Pap) test is used internationally as a screening test to detect abnormal changes in the cells of the cervix that may lead to cervical cancer. Screening has been shown to be effective in reducing cervical cancer incidence and has been given an 'A' rating by the US Preventive Services Task Force. This indicates that there is good evidence that cervical screening improves health outcome and affirm that its benefits substantially outweigh harms (US Department of Health and Human Services, 2005) Organized screening has contributed to a decline in cervical cancer incidence and mortality in developed countries for over 50 years. Women in developing countries are yet to profit extensively from the benefits of screening programs (Eduardo, et al, 2001).Although cytology screening is being carried out in some developing countries, there are no well organized programmes and the testing is often of poor quality and performed inadequately and inefficiently among the population

(Sankaranayanan, Budukh, and Rajkumar. 2001). This was illustrated in a 2004 report which showed that only three radiotherapy units were available in Nigeria to serve a population of about 130 million. (Dawotola and Olaseinde, 2004) Delays in screening, especially of most women at highest risk and treatment arise from a number of reasons that include cultural constraints (e.g. emotional distress with having male doctors perform tests) and poor governmental funding for medical facilities. (Adewole, 2008)

It is therefore essential that cervical cancer prevention efforts eliminate the most critical barriers that affect women's participation, as well as identify and foster conditions that support their use of services (Bingham, Bishop, Coffey, Winkler, Bradley, Dzuba, Agurto, 2003) Clients satisfaction is an important component of the quality of medical care in the clients-centered preventive health care. (Bordly, 2002) Studies showed that client satisfaction is an important determinant of the choice of health facility clients would want to attend (Bernhart, Wiadnyana, Wihardjo, Pohan, 1999) Care givers technical skill and interpersonal skill such as waiting time for appointment as well as helpfulness and communication of staffs, emergency responses and facility's appearance all immensely contribute to patient satisfaction (Sultz and Young, 2004). However, little work has been done on assessment of utilization and clients' perceived level of satisfaction with services in Nigeria, especially at the Exxon Mobil supported cytology clinic, University College Hospital (UCH) Ibadan, Nigeria. This study was conducted to address the observed gap and use data generated in the process to provide solutions to observed lapses.

1.2 Statement of Problem

Despite the known pre-invasive and implementation of cervical screening programs, cervical cancer has remained a major health problem especially in the developing world and Nigeria in particular (Harris, Burk, Palefsky, Massad, Bang, Anastos, Minkoff, 2005). Worldwide, cervical cancer claims the lives of 231 000 women annually, over 80% of whom live in developing countries (Alliance for Cervical Cancer Prevention, ACCP, 2004). The developing countries accounted for 370 000 out of 466,000 cases of cervical cancer that were estimated to have occurred in the world in the year 2000 (Ferlay, et al, 2000). In most of these countries, cervical cancer is the leading cause of cancer deaths among women. Many African women stand the risk of developing cervical cancer and dying, while many others may have it without knowing whilst still others may have died from the disease due to poor knowledge on its diagnosis and management. (Ogun, 2006) Nigeria is a country in West Africa where the incidence rate of cervical cancer is high, about 250/100,000 (Mandong and Ujah, 2003), and if a one-time screen over one year were to be conducted women of reproductive age, 8000 new invasive cervical cancers would be detected (Adewole, 2008).

Cancer of cervix is the commonest malignancy of the female genital tract in Nigeria and accounts for about 74.4% of all cancers. Each year, at least 15,000 women are confirmed to have cancer of the cervix in Nigeria (Emovon, 2004). Reports from the International Network for Cancer Treatment and Research (INCTR) show that the estimated number of cases per year in Nigeria is predicted to be 100,000 cases per year. (Sankaranayanan, 2001) The total number of annual deaths from cancer in Nigeria is approximately 53,064 (Durosinmi, 2004). The Ibadan cancer registry reported that cancer of the cervix constitutes 21.3% of all female malignancies with about 5-6 new cases seen every week (Akinremi, 2004) Data from Ilorin in Nigeria reported carcinoma of the cervix as the commonest tumour among the females and constituted 63.1 % of histological confirmed gynecological cancers(Ijaiya, Aboyeji , Buhari , 2006) A study of cervical smear by Anorlu , Abdul-Kareem , Abudu and Oyekan (2003) in an urban population in Lagos revealed a high prevalence of abnormal cervical smears (Anorlu, Abdul-Kareem , Abudu, Oyekan,2004) In Ibadan, a southwestern city in Nigeria, assessment of the prevalence of

papillomavirus infection in women, also reported a high prevalence of High-risk Human Papilloma Virus(HPV). (Thomas, Herrero, Omigbodun, Ojemakinde, Ajayi , Fawole , Oladepo, Smith, Arslan , Muñoz , Snijders , Meijer , Franceschi, 2004) Another study in Maiduguri, North Eastern part of Nigeria is consistent with other findings that cervical cancer is the commonest cancer of the female genital tract and that there was a steep rise in reported cases of cervical cancer within the period of study, January 1st 1991 and December 31st 2000. (Kyari, Nggada , Mairiga ,2004) A summary of the 1996 to 1998 cancer registries report showed that cervical cancer had a relative ratio frequency of 23.1% (Ogunbiyi, 2000)). Cervical cancer can threaten the lives of women, create long-term problems for families, and challenge health care systems. Deaths associated with cervical cancer are the most telling indicator of the disease's impact on women, their families, and their communities (Ferlay, Bray, Pisani, and Parkin, 2001, GLOBOCAN 2002). Average years of potential life lost from cervical cancer are 25.3 (SEER Cancer Statistics Review 1975-2000, National Cancer Institute (NCI)).

Cervical cancer screening is a problem in Nigeria as very few women are screened for cervical cancer. It is estimated that only 10 per cent of female physicians in Nigeria have ever had a Pap smear (Adewole, 2008). Ezem, (2007), reported self- utilization of Pap test services among women in Owerri, South –Eastern Nigeria, to be low, as well as the screening uptake due to a combination of inappropriate beliefs, misapprehension, and deficient knowledge (Ezem, 2007). The concept of screening for cancer and its preemptive treatment is available in Nigeria, but generally located in the hospital setting, a place where one goes when ill and the facilities are underdeveloped and there is also dismal utilization of available services as very few women are screened for cervical cancer. (Adesina, Babarinsa, Fawole , Oladokun , Adeniji , Adewole , 2003) Worse still, clinical services for cancer are grossly inadequate and poorly distributed. Only a few centers have functioning radiotherapy equipment. Radiologic services are generally available, but access is seriously limited by high cost. (Adebamowo, 2008) Though, a Consultative Committee on National Cancer Control exists to formulate policy guidelines relating to the prevention and management of cancer in Nigeria, there exist also societies such as the Nigerian Cancer Society, the Society of Oncology and Cancer Research of

Nigeria, the Society for the Study of Pain, and the Palliative Care Initiative, as well as patient advocacy groups that are active in promoting cancer control and prevention. (Adebamowo, 2007) To impact on the challenge of cervical cancer in the country, an organization - Operation Stop Cervical Cancer Nigeria (SCCAN) - a joint effort of MD Anderson Cancer Center, the British Columbia Cancer Agency, Rice University Department of Bioengineering, and the University of Ibadan School of Medicine, in 2006, sought to improve the screening and treatment of cervical cancer in the women of Nigeria. (Adewole, 2008)

Regular screening has meant that pre cancerous changes and early stage cervical cancers have been detected and treated early. Cervical screening is saving 5,000 lives each year in the UK by preventing cervical cancer. (Cancer Research UK 2007). Continuous utilization of preventive services such as Pap smear depends mainly on clients being satisfied with care and services provided. Where Pap smear screening is well organized and women are screened at regular intervals, cervical cancer incidence can be reduced dramatically. Without access to viable programs, women from poor communities generally seek care only when they develop symptoms and the cancer is advanced and difficult to treat (Ferlay, Bray, Pisani, Parkin, and GLOBOCAN 2002). The lack of effective screening services which satisfied the clients is one of the major reasons for the sharply higher cervical cancer rates in the developing countries. (Bingham, Abwao, Luchemo, 2001) Services rendered at the cytology clinic include pelvic examination, pap smear, colposcopy, Loop Electro Surgical Excision Procedure (LEEP) and cervical biopsy. Pap smear test is recommended for sexually active women every three years after initial screening with normal result.

This study, therefore assessed the clients pattern of utilization, factors influencing utilization and perceived level of satisfaction with the services received at the cervical cancer screening clinic (ExxonMobil supported Cytology Clinic) U.C.H.

1.3 Justification and Rationale of study

The Cytology unit, department of Obstetrics and Gynecology, University College Hospital (UCH) was established in the year, 2003. Various efforts have been invested in the sustenance of the unit in terms of finance, medical personnel's, facilities and equipments. Increased cervical screening rate has been observed since the unit was established, but the factors that account for the increase are not known. Also clients' knowledge of cervical cancer and cervical cancer screening has not been explored. Furthermore clients' level or extent of derived satisfaction with the use of services and factors that drive utilization are unknown. Of importance is what aspects of service clients are satisfied or dissatisfied with. This study was therefore undertaken to provide answers to these questions, the result of which would be used to improve the management and services provided by the health workers in the clinic. The evidence generated would be used to inform policy decisions by the cervical cancer prevention research team.

1.4 Research Questions

The study will also provide answers to the following questions:

1. What do clients understand by 'cervical cancer'?
2. What do clients understand by 'pap smear'?
3. What factors motivate clients' to assess Pap smear services at U.C.H Exxon Mobil supported cytology unit?
4. What factors determine clients' level of satisfaction with the services they received at ExxonMobil Cytology supported Clinic in U.C.H?
5. What are clients perceived level of satisfaction with services at the cytology clinic?

1.5 Broad objective

The broad objective of this study was to assess client's utilization and perceived level of satisfaction with services received at the cervical cancer screening (Cytology) clinic in University College Hospital, Ibadan.

1.5.1 Specific Objectives of the Study

The specific objectives of the study were to:

1. Describe the demographic characteristics of clients attending the cytology clinic U.C.H, Ibadan.
2. Determine the level of awareness and source of information on cervical cancer and cervical cancer screening.
3. Assess clients knowledge of cervical cancer and cervical cancer screening (Pap smear)
4. Identify perceived reasons which motivate clients to utilize cervical screening services at the cytology clinic U.C.H, Ibadan.
5. Assess clients' perceived level of satisfaction with actual services received at Exxon Mobil supported cytology clinic, U.C.H, Ibadan.

1.6 Hypothesis

There is no significant relationship between:

1. The age of the clients and knowledge of cervical cancer.
2. Educational level of clients and knowledge of cervical cancer.
3. Educational level of clients and perceived level of satisfaction with services at the cytology clinic.
4. Age of clients and perceived level of satisfaction with services at the cytology clinic.

CHAPTER TWO

LITERATURE REVIEW

2.1 Cancer

Cancer (malignant neoplasm) is a class of diseases in which a group of cells display uncontrolled growth (division beyond the normal limits), invasion (intrusion on and destruction of adjacent tissues), and sometimes metastasis (spread to other locations in the body via lymph or blood). These three malignant properties of cancer differentiate them from benign tumors, which are self-limited, do not invade or metastasize. Most cancers form a tumor but some, like leukemia, do not. (American Cancer Society, 2007) Nearly all cancers are caused by abnormalities in the genetic material of the transformed cells. These abnormalities may be due to the effects of carcinogens, such as tobacco smoke, radiation, chemicals, or infectious agents. Other cancer-promoting genetic abnormalities may be randomly acquired through errors in DNA replication, or are inherited, and thus present in all cells from birth. The heritability of cancers is usually affected by complex interactions between carcinogens and the host's genome. New aspects of the genetics of cancer pathogenesis, such as Deoxy Ribonucleic Acid (DNA), methylation, and micro Ribonucleic Acid (RNAs) are increasingly recognized as important. (Kleinman, Liao, 2001).

Genetic abnormalities found in cancer typically affect two general classes of genes. Cancer-promoting oncogenes are typically activated in cancer cells, giving those cells new properties, such as hyperactive growth and division, protection against programmed cell death, loss of respect for normal tissue boundaries, and the ability to become established in diverse tissue environments. Tumor suppressor genes are then inactivated in cancer cells, resulting in the loss of normal functions in those cells, such as accurate DNA replication, control over the cell cycle, orientation and adhesion within tissues, and interaction with protective cells of the immune system. (Ferlay, et al., GLOBOCAN, 2002)

2.1.1 Cancer Epidemiology

Worldwide there were around 11 million new cases of cancer in 2002 and a quarter of these were in Europe. Cancer is the number one fear of the British public, topping the list over Alzheimer's, heart attack and terrorism. (Cancer Research UK, 2008) According to the American Cancer Society, 7.6 million people died from cancer in the world during 2007. (American Cancer Society, 2007). In the United States and other developed countries, cancer is presently responsible for about 25% of all deaths. On a yearly basis, 0.5% of the population is diagnosed with cancer. Cancer is on the high in the health agenda of nations throughout the world, in developing countries as well as in developed countries (Jemal, Murray, Ward, Samuels, Tiwari, Ghafoor, Feuer, Thun, 2005). Cancer can develop at any age but is most common in older people. Around one per cent of cancers occur in children, teenagers and young adults, the risk of disease for most varieties increases with age (Cancer Research UK, 2007). In some Western countries, such as the United States of America (USA) and the United Kingdom (UK) cancer is reported to have overtaken cardiovascular disease as the leading cause of death. There are around 285,000 new cases of cancer diagnosed each year in the UK. More than 1 in 3 people will develop some form of cancer during their lifetime. With tobacco smoking becoming more common in various Third World countries, lung cancer incidence has increased in a parallel fashion. (Jemal, et al, 2005)

Overall cancer incidence rates have increased by one quarter since 1975 but have remained fairly stable over the past decade. Half of the people diagnosed with cancer now survive for more than five years. The average ten-year cancer survival rate has doubled over the last 30 years. More than seven out of every ten children with cancer are now successfully treated. Around two-third of cancer deaths occur in people aged 65 years and above. There are more than 150,000 cancer deaths in the UK every year though overall death rate has fallen by 10% over the last decade. (Cancer Research, UK, 2008) Moreover, cancer accounts for nearly one-quarter of deaths in the United States and this is exceeded only by heart diseases. In 2005, there were 559,312 cancer deaths in the US. Despite a continuing decline in the cancer death rate from 2004 to 2005, the recorded number of cancer deaths increased by 3,592 in men and 1,832 in women, resulting in a

total increase of 5,424 cancer deaths. (American Cancer Society, 2008) The death rate from all cancers cases globally has decreased by 2.6% per year among men and by 1.8% per year among women since 2002 with notable decrease observation since 1991 in men and since 1992 in women. Compared to the peak rates in 1990 for men and 1991 for women, the cancer death rate for all sites combined in 2004 was 18.4% lower in men and 10.5% lower in women. (Surveillance, Epidemiology, and End Results (SEER) Program, 2007) Cancer death rates are higher in men than women in every racial and ethnic group. African American men and women have higher rates of cancer mortality than their counterparts in every other racial and ethnic group. Asian American and Pacific Islander men and women have the lowest cancer death rates, about half the rate of African American men and women, respectively. African Americans have higher cancer death rates than whites for numerous cancer sites. (Surveillance, Epidemiology, and End Results Program, 1975-2004, 2007) Overall, cancer death rates are higher in African American men than white men and in African American women than white women. However, from 1995 to 2004, the cancer death rate has been declining faster in African American men than white men.

The WHO Technical Report No. 804 of 1990 reported that over 50% of cancer victims live in the poorer nations, which have less than 10% of the resources for cancer care and control. With a population of nearly 140 million people, the West African nation of Nigeria accounts for approximately 20% of the entire African population. (Adebamowo, 2007) Cancer is a major health problem in Nigeria, as it is in other parts of Africa. Unfortunately, the relevance of cancer as a health problem has been underplayed or totally neglected by all agencies that have been advising on and/or financing health projects in Africa over the years. (Adebamowo, 2007) The burden of cancer in Nigeria is appreciable. According to the World Health Organization, there is an estimated 100,000 new cancer cases in the country each year although observers believe the figure could be as high as 500,000 new cases annually by the year 2010. It is feared that by the year 2020, cancer incidence for Nigerian males and females may have risen to 90.7/100,000 and 100.9/100,000 respectively. It is also anticipated that by 2020, death rates from cancer in Nigerian males and females would have reached 72.7/100,000 and 76/100,000

respectively. (Adebamowo, 2007, International Association of Cancer Registries, IACR, 2008) Even then the World Health Organization recently predicted that global cancer rates could further increase by 50 per cent to 15 million new cases in the year 2020. This is the gloomy prediction by the 2008 World Cancer Report - a 351-page, comprehensive global examination of the disease to date issued by the IARC - part of the World Health Organization (WHO). Nigeria is the most populous country in Sub-Saharan Africa, with approximately 117 million inhabitants, a life expectancy at birth of 50.6 years in men and 52.6 years in women. The per capita total expenditure on health totals US\$8m per year (<http://www.who.int/>). This amount is grossly inadequate to meet the health challenge of the nation. There is no doubt that cancer is a serious public health problem in Nigeria (Durosinmi, 2008) Cancer is a diverse class of diseases which differ widely in their causes and biology. The common thread in all known cancers is the acquisition of abnormalities in the genetic material of the cancer cell and its progeny. Research into the pathogenesis of cancer can be divided into three broad areas of focus. The first area of research focuses on the agents and events which cause or facilitate genetic changes in cells destined to become cancer. Second, it is important to uncover the precise nature of the genetic damage, and the genes which are affected by it. The third focus is on the consequences of those genetic changes on the biology of the cell, both in generating the defining properties of a cancer cell, and in facilitating additional genetic events, leading to further progression of the cancer. (American Cancer Society, 2007)

2.1.2 Types of Cancer

The most common cancers in Nigeria are carcinoma of the uterine cervix and breast found in women and liver and prostate cancers in men. Cancer registration started in 1960 and a National Headquarters of Cancer Registries in Nigeria was established in 1990; however, this institution is currently dormant. (Adebamowo, 2007) Cancer is a diverse kind of diseases. There are more than 100 different types of cancer. Not all tumors are cancerous; tumors can be benign or malignant.

- Benign tumors are not cancerous. They can often be removed, and, in most cases, they do not reoccur. Cells in benign tumors do not spread to other parts of the body.

- Malignant tumors are cancerous. Cells in these tumors can invade nearby tissues and spread to other parts of the body. (National Cancer Institute, 2008)

Cancer types can be grouped into broader categories. The main category of cancer includes:

- Carcinoma - cancer that begins in the skin or in tissues that line or cover internal organs.
- Sarcoma - cancer that begins in bone, cartilage, fat, muscle, blood vessels, or other connective or supportive tissue.
- Leukemia - cancer that starts in blood-forming tissue such as the bone marrow and causes large numbers of abnormal blood cells to be produced and enter the blood.
- Lymphoma and myeloma - cancers that begin in the cells of the immune system.
- Central nervous system cancers - cancers that begin in the tissues of the brain and spinal cord. (National Cancer Institute,2008)

2.1.3 Pathophysiology of cancer

Cancer is fundamentally a disease of regulation of tissue growth. In order for a normal cell to transform into a cancer cell, genes which regulate cell growth and differentiate it must be altered. Genetic changes can occur at many levels, from gain or loss of entire chromosomes to a mutation affecting a single DNA nucleotide. There are two broad categories of genes which are affected by these changes. Oncogenes may be normal genes which are expressed at inappropriately high levels, or altered genes which have novel properties. In either case, expression of these genes promotes the malignant phenotype of cancer cells. Tumor suppressor genes are genes which inhibit cell division, survival, or other properties of cancer cells. Tumor suppressor genes are often disabled by cancer-promoting genetic changes. Typically, changes in many genes are required to transform a normal cell into a cancer cell. (Matoba, Kang , Patino , Wragg , Boehm , Gavrilova , Hurley , Bunz , Hwang, 2006).

2.1.4 Pathogenesis of cancer

i. Chemical carcinogens

Cancer pathogenesis is traceable back to DNA mutations that impact cell growth and metastasis. Substances that cause DNA mutation are known as mutagens, and mutagens that cause cancers are known as carcinogens. There are some particular substances linked to specific types of cancer e.g. Tobacco smoking is associated with lung cancer and bladder cancer while prolonged exposure to asbestos fibers is associated with mesothelioma. (Kleinman, 2001) Such chemicals are thought to promote cancers rate of mitosis through their stimulating effect. Faster rates of mitosis leaves less time for repair enzymes to repair damaged DNA during DNA replication and this increases the likelihood of a genetic mistake. A mistake made during mitosis can lead to the daughter cells receiving the wrong number of chromosomes. (Cancer Research UK, 2007).

Decades of research have demonstrated the strong association between tobacco usage and cancers of many sites, making it perhaps, the most important human carcinogen. Hundreds of epidemiological studies have confirmed this association. Further support comes from the fact that lung cancer death rates in the United States have mirrored smoking patterns, with increase in smoking followed by dramatic increases in lung cancer death rates and, more recently, decreases in smoking was followed by decreases in lung cancer death rates in men. (WHO, 2006)

ii. Ionizing radiation

Sources of ionizing radiation, such as radon gas, can cause cancer. Prolonged exposure to ultraviolet radiation from the sun can lead to melanoma and other skin malignancies. Radiation from mobile phones has been conjectured for some time as a cause but this theory has not gained mainstream support. (Grange, Stanford, Stanford, 2002)

iii. Infectious diseases

Some cancers can be caused by infection with pathogens. (Pagano , Blaser , Buendia , 2004) Many cancers originate from viral infection; this is especially true in animals such as birds. In humans, viruses are responsible for 15% of cancers infection worldwide. The main viruses associated with human cancers are human papillomavirus, hepatitis B and hepatitis C virus, Epstein-Barr virus, and human T-lymphotropic virus. Experimental and

epidemiological data imply a causative role for viruses and they appear to be the second most important risk factor for cancer development in humans, exceeded only by tobacco usage. (Peter and Beglinger, 2007)

The mode of virally-induced tumors can be divided into two, acutely-transforming or slowly -transforming. In acutely transforming viruses, the virus carries an overactive oncogene called viral-oncogene (v-onc), and the infected cell is transformed as soon as v-onc is expressed. In contrast, in slowly-transforming viruses, the virus genome is inserts near a proto-oncogene in the host genome. The viral promoter or other transcription regulation elements then cause over expression of that proto-oncogene. This induces uncontrolled cell division and because the site of insertion is not specific to proto-oncogenes as chances of insertion near any proto-oncogene are low, slowly-transforming viruses will cause tumors much longer after infection than the acutely-transforming viruses. (Peter and Beglinger, 2007)

Hepatitis viruses, including hepatitis B and hepatitis C, can induce a chronic viral infection that leads to liver cancer at 0.47% of hepatitis B patients per year and at 1.4% of hepatitis C carriers per year (especially in Asia, less so in North America) Liver cirrhosis, whether from chronic viral hepatitis infection or alcoholism, is associated with the development of liver cancer, and the combination of cirrhosis and viral hepatitis presents the highest risk of liver cancer development. Worldwide, liver cancer is one of the most common and most deadly cancers due to a huge burden of viral hepatitis transmission and disease. In addition to viruses, connection between bacteria and certain cancers has been noted. The most prominent example is the link between chronic infection of the wall of the stomach with *Helicobacter pylori* and gastric cancer. Although only a minority of those infected with *Helicobacter* go on to develop cancer, since this pathogen is quite common, it is probably responsible for the majority of these cancers. (Wang, Yuan, Hunt, 2007)

iv. **Hormonal imbalances**

Some hormones can act in a similar manner to non-mutagenic carcinogens in that they may stimulate excessive cell growth. A well-established example is the role of hyperestrogenic states in promoting endometrial cancer. (Wood and Harrington, 2005)

Immune system dysfunction

HIV is associated with a number of malignancies, including Kaposi's sarcoma, non-Hodgkin's lymphoma, and HPV associated malignancies such as anal cancer and cervical cancer. AIDS-defining illnesses have long included these diagnoses. The increased incidence of malignancies in HIV patients points to the breakdown of immune surveillance as a possible etiology of (Wood and Harrington, 2005) other immune deficiency state (e.g. common variable immunodeficiency and IgA deficiency) which is also associated with increased risk of malignancy. (Mellemkjaer, Hammarstrom, Andersen, 2002)

v. **Heredity**

Most forms of cancer are "sporadic", and have no basis in heredity. There are, however, a number of recognized syndromes of cancer with a hereditary component, often a defective tumor suppressor allele. Examples are:

- Certain inherited mutations in the genes BRCA1 and BRCA2 are associated with an elevated risk of breast cancer and ovarian cancer.
- Tumors of various endocrine organs in multiple endocrine neoplasia (MEN types 1, 2a, 2b)
- Li-Fraumeni syndrome (various tumors such as osteosarcoma, breast cancer, soft tissue sarcoma, brain tumors) due to mutations of p53
- Turcot syndrome (brain tumors and colonic polyposis)
- Familial adenomatous polyposis, an inherited mutation of the APC gene that leads to early onset of colon carcinoma.
- Hereditary nonpolyposis colorectal cancer (HNPCC, also known as Lynch syndrome) can include familial cases of colon cancer, uterine cancer, gastric cancer, and ovarian cancer, without a preponderance of colon polyps.

- Retinoblastoma, when occurring in young children, is due to a hereditary mutation in the retinoblastoma gene.

Down syndrome patients, who have an extra chromosome 21, are known to develop malignancies such as leukemia and testicular cancer, though the reasons for this difference are not well understood. (Mellenkjaer, Hammarstrom and Andersen, 2002)

vi. **Other causes**

A few types of cancer in non-humans have been found to be caused by the tumor cells themselves. This phenomenon seen in dogs with Sticker's sarcoma and is known as canine transmissible venereal tumor. The closest known analogue to this in humans is individuals who have developed cancer from tumors hiding inside organ transplants. (Murgia, Pritchard, Kim, Fassati, Weiss, 2006)

2.2 Cancer of the Cervix

This is the cancer that forms in the tissue of the cervix (the organ connecting the uterus and vaginal). The disease results from the abnormal growth and division of cells at the opening of the uterus or womb the area known as the cervix. The main underlying cause is the Human Papillomavirus (HPV), a sexually transmitted infection that is often without symptoms. No cure exists for HPV infection, and while it remains stable or becomes undetectable in most cases, HPV can lead to precancerous conditions that progress to cancer over time. (National Cancer Institute, 2005) While women may contract HPV at early age, cervical cancer is most likely to develop in women who are above 35 years, and if not detected and treated in its early stages, the disease is nearly always fatal. (Alliance for Cervical Cancer Prevention, ACCP, 2003) Cervical cancer is an important public health problem for adult women worldwide especially in developing countries in South and Central America, sub-Saharan Africa, and south and south-east of Asia, with about 500,000 cases occurring annually (Onajole, et al, 2004). About 80% of cases occur in developing countries, where it is often the most common cancer among women. Cancer of the cervix is apparent at the age of 25 leveling around age 50 and peaks at ages between 45 – 55 years. Each year, about 48 000 new cases of cervical cancer are reported in South America (Ferlay et al, 2002). The vast majority of cervical cancer cases are

caused by infection with certain subtypes of human Papilloma virus (HPV), a sexually transmitted virus that infects cells and may result in precancerous lesions and invasive cancer. Developing countries accounted for 370 000 out of a total of 466 000 cases of cervical cancer that were estimated to occur in the world in the year 2000 (Ferlay et al. Globocan 2000.)

Worldwide, cervical cancer claims the lives of 231 000 women annually. A conservative estimate of the global prevalence suggests that each year there are 1.4 million cases of clinically recognized cervical cancer. It is also likely that 3–7 million women worldwide may have high grade dysplasia (Wabinga et al, 2000). Data from around the world clearly demonstrated that cervical cancer has a disproportionate impact on the health of women in developing countries. Women in developing countries account for about 85 percent of both the yearly cases of cervical cancer (estimated at 493,000 cases worldwide) and the yearly deaths from cervical cancer (estimated at 273,500 deaths worldwide). In 2003 there were 24,105 new registrations of carcinoma of the cervix in the UK. Most (22,033) (91%) cases are registered in women under 45, with peak incidence in the 25-29 age group. In 2004, 2,726 new cases of cervical cancer were diagnosed in the UK, making it the twelfth most common cancer in women and accounting for around 2% of all female cancers. (Office for National Statistics, England, 2007; Scottish Health Statistics, 2007; Welsh Cancer Intelligence and Surveillance Unit, 2004; Northern Ireland Cancer Registry, 2004)

In affluent societies, like US, cervical carcinoma is associated with the poor. Statistics showed higher rates among the poor, the elderly and minority patients. Barnum and Greenberg, (2004) did stress a strong socioeconomic gradient, about poorer countries and poorer groups of women that these countries stand the highest risk. Cervical cancer equally affects the low income women in most developing countries and remains the number-one cause of cancer-related deaths among women. (Ferlay et al, 2002, Globocan 2002). In Africa, cancer of the cervix is the most common genital tract cancer (Lake Wood Pathology Associates, 2001), the second leading cause of death for women worldwide but the leading cause of death from cancer among women in developing countries. The incidence in sub-Saharan Africa is among the highest worldwide, with

age-standardized rates of 35.7 per 100 000 in Bamako and Mali, while 41.7 per 100 000 cases are reported in Kyadondo, Uganda (Parkin , Bray , Ferlay , Pisani, 2002) Nigeria has a population of 36.59 million women aged 15 years and above who are at risk of developing cervical cancer. Current estimates indicate that every year, 9,922 women are diagnosed with cervical cancer and 8030 die from the disease. Cervical cancer ranks the second most frequent cancer in women in Nigeria, and about 24.8% of the women in the general population are estimated to harbour cervical HPV infection at a given time. (WHO/ICO Information Centre on HPV and Cervical Cancer, 2007)

There are two main types of histological malignant lesion. Around two third of cervical cancers are squamous cell carcinoma (SCC) of about 70%. Adenocarcinoma is the next most common histology (around 15%); a further 15% are poorly specified carcinomas (Quinn, et al., 2001). Vizcaino et al, 2000 reported an increase in adenocarcinoma and a downward trend in SCC in many countries worldwide. It is possible that this increase is due to increased awareness and referrals for diagnosis of abnormal glandular cells of unknown significance (Office for National Statistics, England, 2007; Scottish Health Statistics, 2007; Welsh Cancer Intelligence and Surveillance Unit, 2004; Northern Ireland Cancer Registry, 2004). A review of the problems of cervical cancer in Nigeria typified by data from a tertiary hospital over a 9-year period of 146 cases of cervical cancer studied, on the other hand, showed that squamous cell carcinoma was predominant (97%) of cases (Onwudiegwu , Bako and Oyewumi, 1999) and this is consistent with findings in another study in Northern Nigeria which showed that the 70 consecutive patients with histologically confirmed cervical cancer have Squamous cell carcinoma as the commonest histology.(Adewuyi, Shittu and Rafindadi 2008)

2.2.1 Pathology of cervical cancer

Cervical cancer results from the abnormal growth and division of cells at the opening of the uterus, an area known as the cervix. The main underlying cause is the human papillomavirus (HPV), a common and often undetectable sexually transmitted infection that women may contract when they are young. Currently, there is no cure for HPV infection; most infections are transient and resolve without medical intervention in two to four years (American Cancer Society, ACS, 2005). Ferlay et al, Globocan 2002 reported that more than 50 known types of HPV can affect the genital area, and of these, a handful can cause abnormal cell changes in the cervix. A study in Ibadan, Nigeria, "Prevalence of papillomavirus infection in women" a total of 32 different HPV types were identified with an HPV prevalence of 26.3% overall and 24.8% among women without cervical lesions. In all, 33.5% of infections involved more than one HPV type. HPV prevalence was high not only among young women, but also in middle and old age. (Thomas, Herrero, Omigbodun, Ojemakinde, Ajayi, Fawole, Oladepo, Smith', Arslan, Muñoz, Snijders, Meijer and Franceschi, 2004) Most mild cervical abnormalities regress or do not progress, particularly in women under age 35.

When the abnormalities persist over time and become severe, the cells develop into cancer cells. Progression from HPV infection to cancer can take up to 30 years. (Ferlay et al, Globocan 2002) Women generally contract HPV in their teens, 20s, or 30s, and cervical cancer can develop 20 years or more after HPV infection. About 80 percent to 90 percent of confirmed cervical cancer cases occur among women age 35 or older, according to data from cancer registries in developing countries (National Cancer Institute NCI, 2004). Preventing deaths from cervical cancer is straightforward. If precancerous changes in cervical tissue are identified early and successfully treated, the abnormal tissue will not develop into cervical cancer. Health services can reduce illness and death from cancer by screening women for precancerous changes (an optimum age is 35 to 40), testing for the presence of HPV if possible, and destroying or removing abnormal tissue. (National Cancer Institute, 2005)

2.2.2 Risk factors for cervical cancer

i. Human papilloma virus (HPV)

Almost all cervical cancers contain traces of the human papilloma virus (HPV), which is also causative in the cellular changes that bring about abnormal squamous cells of uncertain significance (ASC-US), Low-grade squamous intraepithelial lesions (LGSILs) and High-grade squamous intraepithelial lesions (HGSILs). It is thought to infect basal cells within the cervical epithelium gaining access via minor trauma, or at the squamocolumnar junction (Cooper et al, 2003).

There are two sub-types of HPV:

- Low risk - associated with cutaneous infection (such as warts) (HPV 6, 11, 40, 42, 43, 44);
 - High risk - associated with infections of the genital tract (HPV 16, 18, 31, 33, 35, 45);
- HPV 16, 18, 31 and 45 account for about 80 per cent of cervical cancers. About 75 per cent of people of reproductive age have been infected with HPV. (Cooper et al, 2003)

In Nigeria, High-risk HPV types predominate, most notably HPV 16, 31, 35 and 58. The most commonly found HPV types, in either single or multiple infections, were HPV 42 (an LR type, 41 women), HPV 16 (30 women), and HPV 35 (30 women), but the type distribution varied by cervical findings. Human papillomavirus 42 was never found in single infections in women with cervical abnormalities. (Thomas et al, 2004)

Primary infection occurs mostly in young adults, and a large percentage of people will be infected by the age of 30 years. Exposure and prolonged infection with the Human Papilloma Virus (HPV) has a high correlation with the subsequent development of cervical cancer. It is estimated that approximately 20% of sexually active women are infected with HPV, of these, 90% of the infections will be transient while the other 10% will persist for five years or longer. (Center for Disease Control, CDC, 2005a)

Other factors thought to be associated with Cancer of the cervix:

ii. Marital and sexual factors:

The epidemiologists have noted that risk of cervical cancer is strongly influenced by sexual behavior. This has led to discovery of the role of HPV infection. Studies have shown increased risk due to marriage at young age, onset of regular sex at an early age <20yrs, multiple lifetime number of sexual partners. (NCI, 2000) HPV exposure is associated with early initiation of sexual intercourse, multiple sex partners, and unprotected sex (Center for Disease Control and Prevention, CDC, 2005a). On the contrary, Thomas et al, 2004 reported age at first intercourse (below 20 years of age in 49.3% of study women) seemed unrelated to HPV prevalence. (Thomas et al, 2004)

iii. The role of the male sexual partner:

In most studies, the husbands of the cervical cancer patients were found to report more sexual partners, history of various genital infections like venereal warts, gonorrhoea and herpes simplex genitalis compared to husbands of control subjects. (Miller, Blumenthal and Blanchard 2004)

The most important risk factor identified for the acquisition of HPV is number of sexual partners (Helmerhorst and Meijer, 2002). Adewuyi, Shittu, Rafindadi, (2008) reported low socioeconomic level, early age at first sexual intercourse and multiple sexual partners as sociodemographic factors placing women at high risk of developing cervical cancer in northern Nigeria. (Adewuyi, Shittu, Rafindadi, 2008)

iv. Gynecological and obstetric events:

Multiparity with short intervals between pregnancies (<2 yrs) has been consistently shown to increase the risk of SIL (squamous intra-epithelial lesion) and cervical cancer. (Smith, Green, de Gonzalez, 2003) A Nigerian study revealed a steady rise in the incidence of cervical cancer with increase in parity as grandmultiparous women had the highest incidence 119 (80.9%) out of 236 confirmed gynecological cancers. (Ijaiya, Aboyeji, Olatinwo, Buhari, 2002) There is little evidence to show that the risk of cervical cancer is affected by age at menarche and menopause, characteristics of menses or personal hygiene (Smith, Green, de Gonzalez, 2003)

v. **Contraceptive methods:**

Recent research is showing that long-term users of oral contraceptives are at excess risk for cervical cancer. The risk may be stronger for adenocarcinoma than squamous cell neoplasm (Smith, Green, de Gonzalez, 2003). This could possibly explain the surveys showing increasing rates of cervical adenocarcinoma among young women. Some studies found an elevated risk among HPV positive women who used oral contraceptives (Miller, Blumenthal and Blanchard, 2004, Smith, et.al, 2003). It's presumed that oral contraceptives promote the activity of HPV infection, use of (combined oral contraceptives) COCs for five years or more appears to speed up the development of persistent HPV infection into cervical cancer. (Family Planning: A Global Handbook for Providers, 2007). However, regular users of barrier methods of contraception (condom or diaphragm) have been found to have lower risk of cervical cancer (Hildesheim, Herrero, Castle, Wacholder, Bratti, Sherman, Lorinez, Burk, Morales, 2001). Onoviran, Dada and Adewole, (1998) concluded that the use of the barrier form of contraception and spermicidal should be encouraged in family planning clinics as they have potential to prevent cervical cancer (Onoviran, Dada and Adewole, 1998).

While use of oral contraceptives has been implicated as a risk factor for cervical carcinoma, detailed studies otherwise suggest that it is not the hormonal influence that imparts risk, but rather the fact that oral contraceptive users have more sexual experiences. (Center for Disease Control and Prevention, CDC, 2005b) On the contrary, in a study of Cervical cancer management in Zaria, Nigeria, majority of the patients (89.80%) studied were reported to have never used contraceptives, 2.04% had used pills in the past, 6.12% had used injectables, and 2.04% had used the IUCD in the past. (Sule and Shehu, 2007). However, World Health Organization, (2002) identified the use of oral contraceptives as a risk factor for cervical cancer. (WHO, 2002)

vi. Genetic factors:

Some reports suggest that a familial tendency does exist between cervical cancer and genetic factors but there is still little attention to it (Hornig, Hu . Wu, Huang, Lin, Huang, Lai, Chu, 2004). Whether this tendency reflects environmental or genetic factors is unknown.

vii. Dietary factors:

Micronutrients (e.g. carotenoids, vitamin C and folate) are thought to have a protective effect to cervical cancer by promoting the regression of low grade squamous intra-epithelial lesion (SIL). Some components of fruits and vegetables have been suggested to be protective too (Hernandez, McDuffie, Wilkens , Kamemoto , Goodman , 2003).

viii. Smoking:

Some case control studies and a cohort investigation have demonstrated increased risk of cervical cancer and SIL among smokers even after controlling for most other risk factors. However, the smoking effect is restricted to squamous cell carcinoma and not among other histological types (Clifford , Polesel , Rickenbach , Dal Maso , Keiser , Kofler , Rapiti , 2005) Smoking is strongly associated with high risk of cervical HPV infection because of correlation between smoking and sexual behavior .Therefore, HPV status can confound studies of smoking and cervical cancer. Women who smoke are twice as likely to get cervical cancer. Exposure to second-hand smoke also increases the risk of developing cervical cancer (Clifford, Polesel, Rickenbach , Dal Maso , Keiser , Kofler , Rapiti , 2005)

ix. Infections other than HPV:

HPV may not be the only agent involved in causation of cervical cancer. Of the other agents examined, most attention has been focused on herpes simplex virus type 2 (HSV-2) and Chlamydia to increase the risk (Smith, Herrero , Bosetti , Bosch , Eluf-Neto , Castellsague , Meijer, Van den Brule, Franceshi , Ashley , 2002) HIV infection is another viral infection which has been found to increase the risk of high grade lesions of the cervix and thus increasing risk of cancer of the cervix too. The effect is much higher among patients with both HIV and HPV (possible interaction). This may explain why the younger women are reporting with advanced cancer of the cervix. (Ellerbrock , Chiasson , Bush , 2003)

x. Lack of regular cervical cancer screening

Lack of regular cervical cancer screening is also associated with a greater risk of developing and dying from invasive cervical cancer. Women who have never had a Pap test or had their last Pap test more than 5 years ago are at higher risk for developing and dying from invasive cervical cancer (NCI, 2005b)

2.2.3 Cervical cancer metastasis

The main pathways for the spread of invasive cervical cancer consist of the following: (1) microscopic spread into the vaginal mucosa beyond a visible or palpable tumor; (2) extension into the endometrium or myometrium of the corpus; (3) direct extension into the parametrium and, in advanced stages, into the adjacent structures; and (4) spread into the regional pelvic lymph nodes and, potentially, into the retroperitoneal, inguinal, or thoracic lymph nodes. (Faysal, 2008) Most of the abnormal changes occur in the squamous-columnar junction though it may occur at any point across the cervix. The pre-invasive form of the lesion is known as cervical Intra-epithelial Neoplasm (CIN). Cervical Intra-epithelial Neoplasm (CIN) is a continuous spectrum of disease which includes carcinoma in situ (CIS) and Dysplasia. Carcinoma in situ (CIS) is a lesion in which all or most of the epithelium show the cellular features of carcinoma. Dysplasia is another category of squamous epithelium pathology of lesser degree than CIS. (Faysal, 2008)

2.2.4 Course and Prognosis

Prognosis depends on the stage of the cancer. With treatment, the 5-year relative survival rate for the earliest stage of invasive cervical cancer is 92% and the overall (all stages combined) 5-year survival rate is about 72%. (American Cancer Society, 2008) With treatment, 80 to 90% of women with stage I cancer and 50 to 65% of those with stage II cancer are alive 5 years after diagnosis. Only 25 to 35% of women with stage III cancer and 15% or fewer of those with stage IV cancer are alive after 5 years. (Canavan and, Doshi 2000) According to the International Federation of Gynecology and Obstetrics, survival improves when radiotherapy is combined with cisplatin-based chemotherapy (American Cancer Society, 2008)

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Prognosis depends on the stage of the cancer. With treatment, the 5-year relative survival rate for the earliest stage of invasive cervical cancer is 92% and the overall (all stages combined) 5-year survival rate is about 72%. (American Cancer Society, 2008) With treatment, 80 to 90% of women with stage I cancer and 50 to 65% of those with stage II cancer are alive 5 years after diagnosis. Only 25 to 35% of women with stage III cancer and 15% or fewer of those with stage IV cancer are alive after 5 years. (Canavan and, Doshi 2000) According to the International Federation of Gynecology and Obstetrics, survival improves when radiotherapy is combined with cisplatin-based chemotherapy (American Cancer Society, 2008)

As the cancer metastasizes to other parts of the body, prognosis drops dramatically because treatment of local lesions is generally more effective than whole body treatments such as chemotherapy. Interval evaluation of the patient after therapy is imperative. Recurrent cervical cancer detected at its earliest stages might be successfully treated with surgery, radiation, chemotherapy, or a combination of the three. Thirty-five percent of patients with invasive cervical cancer have persistent or recurrent disease after treatment. (Canavan and Doshi, 2000)

2.3 Four components of cervical cancer control

Within a national cancer control programme, there are four basic components of cervical cancer control identified which are primary prevention which means prevention of HPV infection and cofactors known to increase the risk of cervical cancer through education and awareness to reduce high-risk sexual behaviors and implementation of locally appropriate strategies to change behaviors. (World Health Organization 2006) Secondly, early detection through increased awareness and organized screening programmes as well as the development and introduction of an effective and affordable HPV vaccine. (World Health Organization 2006) Thirdly, diagnosis, treatment and follow-up of patients who are positive on screening, to ensure that they are being diagnosed and the disease appropriately managed. Lastly, palliative care for advanced disease which includes symptomatic relief for bleeding, pain and other symptoms of advanced cancer and for the side-effects caused by some treatments (World Health Organization 2006)

2.3.1 Education and Awareness

According to the US National Cancer Institute's 2005 Health Information National Trends survey, only 40% of American women surveyed had heard of human papillomavirus (HPV) infection and only 20% had heard of its link to cervical cancer. (Tiro, Meissner, Kobrin, Chollette, 2007). The main strategy is public enlightenment through media houses, schools, health visits and teaching at the various clinics in the hospital that involve women. Health workers should inform the population about the role of multiple sexual partners in the development of cervical cancer and are to be

encouraged to have good sexual habits and hygienic. (Onoviran, Dada and Adewole, 1998) On the contrary, health professionals themselves need to be properly informed about cervical cancer and Pap smears as inadequate knowledge of cervical cancer and pap smear was reported in a study of 144 female health professionals at two referral hospitals with facilities for Pap smear that only greater proportion of doctors (100%) knew the purpose of a Pap smear compared to 59.2% of nurses, 50% of pharmacists and 48.1% of laboratory scientists. (Anya,Oshi ,Nwosu , Anya ,2005) Another study of the cervical cancer screening practices of 503 general practitioners in two urban and two rural areas of Lagos state revealed that only 60 (11.9%) of the general practitioners ever educate and informed their patients about cervical cancer screening and female doctors did this more often than their male counterparts. (Anorlu, Ribiu, Abudu, Ola, 2007) Cervical cancer should be accorded the same awareness and attention as HIV, malaria, TB and childhood immunizations. (Anorlu, et al, 2007)

2.3.2 Secondary Prevention

Early detection includes: organized screening programmes, targeting the appropriate age group and with effective links between all levels of care(WHO, 2004) The widespread introduction of the Papanicolaou test or Pap smear for cervical cancer screening has been credited with dramatically reducing the incidence and mortality of cervical cancer in developed countries. Abnormal Pap smear results suggest the presence of cervical intraepithelial neoplasia (pre-malignant changes in the cervix) before a cancer has developed, allowing for further workup. (Canava and Doshi 2000).Education for health care providers and women in the target group, stressing the benefits of screening, the age at which cervical cancer most commonly occurs, and its signs and symptoms.(WHO, 2004) The American Cancer Society recommends that cervical cancer screening should begin approximately three years after the onset of vaginal intercourse and/or no later than twenty-one years of age (Saslow, Runowicz, Solomon, 2002).Most study in Nigeria identified poor cervical screening programmes. Ogun, (2006) identified non existence of a national cervical cytology screening, lack of political-will and funding, poor advocacy and poor manpower as the causes of the continuous high prevalence of cervical cancer in Nigeria. (Ogun, 2006) Omigbodun and Ayinde, (2005) in their study also attributed

contribution of cervical cancer to morbidity and mortality among women in resource-poor nations as a result of lack of coordinated cervical screening program, often Papanicolaou's smear-based. Gynecologists in developing countries like Nigeria appear to have mostly inappropriate preferences regarding management of women with cervical intraepithelial neoplasia (CIN). (Omigbodun, Ayinde, 2005) Likewise, in a study of the cervical cancer screening practices of 503 general practitioners in Lagos, a total of 89 (17.8%) had facilities for Pap smears but only 27(5.4%) screened their patients, just 6 out of 27 (22.2%) did routine screening and 21 (77.8%) did selective screening.(Anorlu, Ribiu, Abudu and Ola, 2007) Another study in Nigeria, revealed lack of physicians' referrals for pap smear and ignorance about location of cervical cancer screening service centers as most frequent reasons for failure of pap smear utilization.(Adefuye , 2006) Marital factors like early marriage, early age at first pregnancy and grandmultiparity identified to significantly influenced the occurrence of cervical dyskaryosis may be valuable in developing a risk score that could target women at higher risk of developing cervical dyskaryosis. (Audu, El-Nafaty, Khalil and Otubu, 2001) and available Pap smear services should be publicized and made more affordable. (Anya,Oshi ,Nwosu and Anya , 2005)

2.4 Screening

Screening is a strategy used in a population to detect a disease in individuals without signs or symptoms of that disease. Screening tests are performed on those without any clinical indication of disease. The intention of screening is to identify disease in a community early, thus enabling earlier intervention and management with the hope to reducing mortality and suffering from a disease. A test used in a screening program, especially for a disease with low incidence, must have good specificity in addition to acceptable sensitivity. (UK National Screening Committee, 2003) If there are symptoms or abnormal findings on examination, screen positive persons are then subjected to diagnostic test for further investigation or treatment regimen. The principal screening test for cervical cancer is the Pap smear. The major benefit of the Pap test is to detect changes on the cervix before they become cancerous. (William, 2007)

Introduction of screening programs in populations naive to cervical cancer screening

reduces cervical cancer rates by 60% to 90% within three years of implementation, reduction of mortality and morbidity with introduction of screening with the Pap test is consistent (Ries, Eisner, Kosary, 2000) United States statistics, 2008, estimated that 11,070 cases of invasive cervical cancer will be diagnosed and that 3,870 women will die of the disease. (American Cancer Society, 2008): These rates have been improving steadily, with a 70% drop between 1950 and 1970 and a 40% drop between 1970 and 1999. (Ries , Melbert , Krapcho , Stinchcomb , Howlader , Horner , Mariotto , Miller , Feuer , Altekruse , Lewis , Clegg , Eisner MP, Reichman , Edwards , 2007) This improvement has been attributed largely to screening with the Papanicolaou test.). The American Cancer Society (Shingleton , Patrick , Johnston , Smith, 1995) and the American College of Obstetricians and Gynecologists recommend that screening begin at the age of 18 years, regardless of whether a woman is sexually active or not. (American College of Obstetricians and Gynecologists, ACOG, 2000), however, the American Academy of Family Physicians, the Canadian Task Force on Preventive Health Care, the American College of Preventive Medicine, and the U.S. Preventive Services Task Force supported that screening should be initiated when women become sexually active. (National Guideline Clearinghouse, 2001)The World Health Organization (2002) therefore, recommended that in low resource settings, the aim should be to screen every woman once in her lifetime-at 40 years.

Frequency of screening should be increased to 'once every 10 years' and then 'once every 5 years' for women 35-55 years of age. The frequency could be increased based on resources (WHO, 2002) Currently in Nigeria, less than 10% of women are screened, no national policy and no widespread cervical screening for women. (Babarinsa and Adewole, 1998, Ajayi and Adewole, 1998.) Only 10 per cent of female physicians in Nigeria have ever had a Pap smear. (Adewole, 2008) Majority (60%) of population in rural areas have no access to cervical screening. (lecture delivered by Dr. A.A.F. Banjo, Consultant Pathologist, University of Lagos at a Workshop on Breast and Cervical Cancer Prevention organized by Medical Women Association of Nigeria, Lagos Branch, and University of Michigan in 2004) In September 21, 2007, the World Health Organization (WHO) supported Nigeria in a national scale-up of capacity in Inspection

with Acetic acid (VIA) and Cryotherapy techniques, so as to detect cervical cancer early. Ninety one participants from across the country made-up of 24 consultant obstetricians/gynecologists, 55 newly qualified basic Midwives and 12 other community health care providers and nurse-midwives were trained in VIA and Cryotherapy techniques.(WHO, 2007)

2.4.1 Screening Methods

The common possible screening methods for cervical cancer are:

i. **Screening by cervical cytology:**

This is a laboratory test developed in the 1940s by Dr. George Papanicolaou 1940s to detect abnormal cell changes in the cervical cell. It is the one effective screening test for cervical cancer and its precursors because it is safe, inexpensive, widely available and can usually detect abnormal cervical cells (dysplasia) long before the disease becomes invasive or progressive.(Saslow et al, 2002) It is considered to be a very specific test for high-grade precancerous lesions or cancer. It is estimated to have a mean sensitivity of 58% and a mean specificity of 69%. Estimated sensitivity of conventional cytology (for high-grade lesions) vary greatly in individual studies, by as much as 30–87% (mean, 47%) (Nanda, McCrory, Myers, 2000) Pap smear screening has been effective in preventing cervical cancer in places where the coverage and quality of services are high and where Pap tests are provided at regular intervals. The Pap smear is generally reliable in identifying women who do not have precancer. However, the test misses some women who do have abnormal cells. Studies have shown that only 20 percent to 50 percent of women with precancer are correctly identified. Thus, Pap smear screening needs to be repeated over time to ensure that precancer cases are not missed. (Nanda et al, 2000)

ii. **Visual inspection with acetic acid application (VIA)**

This involves swabbing the cervix with 3-5% acetic acid (vinegar) solution prior to visual examination for presence of disease (acetowhite lesion). VIA is a simple and inexpensive test, which can be provided by trained paramedical personnel (such as midwives, nurses and other health workers) with a short training. Its accuracy at detecting

cervical neoplasia has been extensively studied and found to be satisfactory. (Gaffikin, Ahmed, Chen, McGrath and Blumenthal. 2003) There is evidence from a randomised trial that screening using visual inspection with 4% acetic acid (VIA), in the presence of effective treatment for the lesions found, is effective in reducing incidence and mortality from cervical cancer. 31 343 women were screened using VIA. Among these, 1874 women were diagnosed with precancerous lesions, and 72% received treatment; 167 cervical cancer cases and 83 cervical cancer deaths were observed compared with 158 cases and 92 deaths in the control group during 2000-06 (i.e. women receiving the VIA screening were 25% less likely to be diagnosed with cervical cancer than those who did not and were 35% less likely to die from it). (Sankaranarayanan, 2007)

iii. **Visual inspection with magnification (VIAM)**

This screening method involves the visualization of cervix under low magnification(x2-4) after application of acetic acid to visualize the acetowhite changes in the cervix. It was hypothesized that low- level magnification could reduce the proportion of false positive identification without significant reduction in sensitivity. Hand-held devices with built-in source to view cervix in community settings - a special lightweight monocular telescope called gynoscope (PATH 2000) and a magnivisualizer (Parashari, Singh, Sehgal, Satyanarayana, Sodhani , Gupta, 2000)

However, Denny,et al,2002,reported in a study of 2754 women in South Africa under the Alliance for Cervical Cancer Prevention (ACCP) portfolio using both VIA and VIAM, that magnification did not improve the performance over and above naked eye visualization.

iv. **Visual inspection after application of Lugol's iodine (VILI)**

VILI is the visualization of cervix with naked eye after application of Lugol's iodine. On liberal application of Lugol's iodine over the cervix and vagina, the normal squamous epithelium (that contains glycogen) will be strongly stained almost black or dark brown. On the other hand, columnar epithelium lacks glycogen and does not stain with iodine. Likewise, immature metaplasia, dysplastic epithelium or atrophic epithelium also does not stain. Normally invasive cancer does not contain glycogen and does not stain, but

some invasive cancers do contain some glycogen and may stain. Thus VILI is considered positive if any area of the cervix or growth turned yellow (non-uptake areas). In a study conducted in 11 centers in India and Africa, VILI had a greater sensitivity (91%) compared to VIA (75%). (Sankaranarayanan Basu, Wesley, Mahe, Keita, Mbalawa , 2004)

v. Clinical Down Staging

Clinical downstaging consists of screening for cancer using clinical approaches to detect the disease earlier, ideally before the appearance of symptoms. Clinical downstaging is intended to make use of the available health care resources in an area to improve the stage distribution of diagnosed cases. (World Health Organization, 1996) Downstaging includes (i) training of health professionals at all levels to be alert to the signs and symptoms of cancer and (ii) instituting campaigns to make the public aware of the symptoms of the disease and of the benefits of early diagnosis. It involves checking the cervix during a speculum examination to detect early stage cancer. The aim is to serve as mechanism for detecting the disease at an early stage in asymptomatic women, to improve their diagnosis. It can also be used to selectively screen women who would require a Pap smear, where the facility is available and referring patients for treatment when screened positive. (Nazeer, 2003)

vi. Screening Using Tests for HPV

Nanda, McCrory and Myers et al, 2000 said six studies prior to 2002 examined the role of HPV as a primary screening test, in conditions of low prevalence of high-grade squamous intraepithelial lesions (HSIL) typical of primary care practice, the USPSTF estimated sensitivity of testing for HPV using Hybrid Capture II for HSIL at 82 percent; specificity, 78 percent; positive predictive value, 18 percent; and negative predictive value, 99 percent. The estimated sensitivity of testing for HPV using Hybrid Capture II for LSIL was 66 percent; specificity, 91 percent; positive predictive value, 26 percent; and negative predictive value, 98 percent. Similar results were reported in a recent study in Planned Parenthood clinics: both Hybrid Capture II and PCR testing were more sensitive than liquid-based cytology (88-91 percent vs 61 percent) but were less specific (73-79

percent vs 82 percent). (Payne, Chilcott, McGoogan, 2000) The benefits of HPV testing as an alternative or adjunct to primary Pap screening have not yet been tested in prospective studies. HPV testing may have a role in primary screening if it can reliably distinguish between women who would benefit from more intensive Pap testing (more frequent, different technologies, or extended over longer periods) and women for whom screening can be less intensive or even discontinued. There are few data on the potential harms of HPV testing, which may include anxiety or stigmatization among infected women and affects on relationships with sexual partners. (Broadstock, 2000)

vii. Colposcopy and biopsy

Colposcopy is the magnified inspection of the cervix, the vagina, and the vulva using a lighted magnifying instrument called colposcope (National Cancer Institute, 2005). The colposcope is inserted into the vagina to magnify the region for thorough inspection. Acetic acid solution is then applied to turn abnormal areas yellow or white. Small portion of this abnormal area is removed for biopsy. It is highly sensitive but has low specificity; therefore, it is not a good screening tool. However, colposcopy is a good diagnostic tool to identify abnormalities of the epithelium and vessels that are the hallmark of pre-invasive and invasive disease. (Singer, Albert & Monaghan, John, 2000)

viii. Loop Electrosurgical Excision Procedure (LEEP)

LEEP is an excisional procedure that removes the cervical squamous columnar junction using a thin wire loop connected to a high-frequency low-voltage alternating current. Abnormal cells are removed by cutting and coagulation. LEEP offers the advantage of excising the entire lesion, allowing a complete histological assessment to ensure the removal of all abnormal tissue, and low risk of affecting childbearing ability. (Saslow et al, 2002) LEEP can be used as a diagnostic tool and/or a treatment procedure. Studies indicate it is 91% to 98% effective in treating cervical intraepithelial lesions. (Hawkins, Joellen, 2000)

ix. Cervicography

Cervicography is a technique (developed in 1981 by National Testing Laboratories) that includes visualization and photography of the cervical region for examination of atypical lesions. This is accomplished by the use of specialized equipment that combines a high-intensity strobe with a camera and macro lens, allowing high-quality colposcopic-type photographs of the cervix. The cervix is panted with an acetic acid solution in order to photograph the cervix. The film is then developed into a slide and evaluated by a physician. Cervicography has the capacity to evaluate the ectocervical transformation zone but is unable to evaluate the endocervical canal (Denny, Kuhn, Pollack, Wainwright, Wright, 2000). Schneider et al. (2002) investigated the optimal performance of cervicography from the group of 8460 women participating in the Guanacase Project. In this study, arbitrated cervicography demonstrated an overall sensitivity of 64% and specificity of 94% for the detection of high-grade lesions or cancer (Schneider , Burke , Wright , Spitzer , Chatterjee , Wacholder , Herrero , Bratti , Greenberg , Hildesheim , Sherman, Morales , Hutchinson , Alfaro , Lorincz , Schiffman . 2002) Ferris et al., 2001 also studied the efficacy of cervicography in identifying cervical cancer precursor lesions ,the sensitivity of cervicography to identify a cervical intraepithelial neoplasia (CIN) 3 lesion was 79% and would have required referral of 42% of women for colposcopy, thus concluded that cervicography performed moderately well at detecting CIN 2 or CIN 3 in study participants. The sensitivity of cervicography was better for younger womenss. (Ferris, Schiffman , Litaker, 2001)

x. Speculoscopy

Speculoscopy is a visual examination of the cervix and upper part of the vagina that uses a hand-held, blue-white chemiluminescent light source attached to the upper speculum blade. The vagina and cervix are washed with 3% to 5% acetic acid using a large cotton swab or gauze square. After about 1 minute, the cervix is examined using the lower-powered optical magnification source and the small, disposable blue light. Dehydration of the cell's cytoplasm by the acetic acid makes dysplastic, neoplastic or atypical cells appear white when chemilluminated. The test results are interpreted as positive or negative based on the presence or absence of acetowhite lesions. Speculoscopy is always

performed as an adjunct to Pap smear screening and is never used alone. The combined Pap smear and speculoscopy procedure takes approximately two to three minutes. (Yu , Kuo , Yen , 2003) Overall, results of the reviewed studies suggest that when speculoscopy is added to the conventional Pap test for cervical cancer screening, a higher percentage of patients with biopsy-proven cervical pathology are identified compared with use of the Pap testing alone. For Pap test and speculoscopy combined, sensitivities and specificities ranged from 93% to 100% and 23% to 88%, respectively. However, this increase in sensitivity was associated with a reduction in specificity and thus, an increase in false-positive test results. (Wright, Denny, Kuhn, Goldie, 2002)

xi. Conization

Conization, also known as cone biopsy, is an excisional procedure that involves removal of the entire cervical squamous columnar junction with extension into the endocervical canal. A cone shaped portion of the cervix is removed for biopsy. It removes a deeper portion of tissue than LEEP. Current methods used for conization include laser, cold knife, CO₂, or loop diathermy. Conization is a surgical procedure, requiring anesthesia; therefore, it has a higher cost than LEEP. While it may be used as a diagnostic procedure as well as treatment, the standard diagnostic test is the colposcopy (Wright, Cox, Massad , 2001)

xii. Endocervical curettage:

Endocervical curettage (endocervical scraping): In this procedure the endocervical cells is scraped to see if it is affected by precancer or cancer. This procedure is usually done at the same time as the colposcopic biopsy. A local anesthetic may be used to numb the cervix. Then a narrow instrument (called a curette) is inserted into the endocervical canal. Some of the tissue that is lining the endocervical canal is removed by scraping with the curette and sent to the laboratory for examination. (American Cancer Society, 2008) Roblyer, Park, Kortum, Adewole and Follen, (2007) in a study Objective screening for cervical cancer in developing nations: Lessons from Nigeria, reported that it is not clear how best to translate cervical cancer screening programs to developing countries like Nigeria as cytology-based screening, followed by colposcopic detection is expensive and

requires extensive laboratory infrastructure and trained personnel, which are often unavailable in low resource settings. (Roblyer, Park, Kortum, Adewole and Follen, 2007) Furthermore, effort to conduct clinical trials using the multispectral digital colposcope (MDC) as an experimental screening device was implemented in Nigeria and the aim of the study was to test the device in a location where it might be most beneficial and to collect data useful for developing new, low-cost, low-maintenance devices. Multiple obstacles limited the success of imaging using the MDC in Nigeria including an unstable supply of electricity and a lack of available spare parts and tools. (Roblyer, Park, Kortum, Adewole and Follen, 2007) Techniques such as visual inspection with acetic acid (VIA) and visual inspection with Lugol's Iodine (VILI) which are less expensive and require minimal supplies and infrastructure were also considered, however, there are concerns that these approaches do not have adequate specificity without extensive provider training and experience which are equally limited in Nigeria (Roblyer, Park, Kortum, Adewole and Follen, 2007) The few screening services available in Nigeria are costly, grossly inadequate, underdeveloped and poorly distributed limiting the Services to the privileged ones. (Ayinde *et al.* 1998, Adebamowo, 2008)

2.5 Client's satisfaction

Client's satisfaction has been defined as how client's values and regards their care; it is a process as much as an attitude (Sultz and Young, 2004). Some investigators define satisfaction as a state, where the patients own expectations for treatment and care are met (or exceeded) (Trout *et al* 2000). Client-centered, high-quality services, (Herdman., Sherris, 2000, Bingham, Lagos, Winkler, Palomino ,2002) result in satisfied women, who, in turn, are strong promoters of screening. These women also provide needed support to those having difficulty deciding whether to participate or whose male partners are unwilling to provide support. (Agurto, 2001) Client satisfaction occupies an 'intermediate' step in establishing a healthy culture for evaluation within a programme or a setting. It often follows process evaluation and cost analysis, and precedes outcome and economic evaluations. Accordingly, measures of client satisfaction lie somewhere between 'process' and 'outcome' measures. When the concern is with the extent to which clients are satisfied with the context, processes, and perhaps the costs of a treatment

service or network, the relevant measures of satisfaction can be viewed as process measures. However, when the concern is with the extent to which clients view the programme as having been helpful in resolving their problems, client satisfaction becomes a proxy outcome measure. (WHO, 2000)

It has been shown that patient satisfaction ratings can be a key indicator of quality of care. (Epstein, Lee, Hamel, 2004) The concept of quality of care is therefore becoming increasingly recognized as a key element in the provision of health care; it links the outcome of care with the effectiveness, compliance and continuity of care (Federal Ministry of Health, 2001) Client's satisfaction has been shown to be influenced by a number of variables, such as waiting time, time spent with physician, convenience of office, and attitude and demeanor of physician and other health workers. Other factors may include accessibility, level of health workers communication clarity, and client's expectations of the visit. (Balkrishnan, Dugan, Camacho, Hall, 2003, Camacho, Anderson, Safrit, Jones, Hoffmann, 2006, Leddy, Kaldenberg, Becker, 2003, Yancy, Machpherson, Hanusa, Switzer, Arnold, Buranosky, 2001)

2.5.1 Importance of client satisfaction

Lauden, (2003) Ayanian, (2005) reported that understanding client's perceptions of technical and interpersonal cares they receive are indications that care is essential. (Landen, Younger, Sharp, Underwood, 2003, Ayanian, Zaslavsky, Guadagnoli, Fuchs, Yost, Creech, Cress, O'Connor West, Wright, 2005). Client's satisfaction is becoming an increasingly important component of the quality of care in the client-centered health care arena (Bordley, 2002). WHO, 2000 emphasized that client's satisfaction has emerged as an important component of the quality of medical care. It has become increasingly important in the competitive market climate of health care that the providers characteristics, organization, and system attributes important to the consumers be identified and monitored. Client satisfaction with treatment processes may both influence, and be influenced by, treatment outcomes. Clients who are not satisfied with a service may have worse outcomes than others because they miss more appointments, leave against advice or fail to follow through on treatment plans. On the other hand,

clients who do not do well after treatment may have less than favorable attitudes towards a treatment service, even if it was of high quality by other criteria. (WHO, 2000)

2.5.2 Positive Predictor of Client's satisfaction

Client's satisfaction with care may be significantly affected by client's symptoms and the Physician's response to these symptoms. (Agurto, 2001) In the study "Factors affecting utilization of cervical cancer prevention services in low-resource setting" it was reported that client centered high-quality services result in satisfied women, who, in turn become strong promoters of cervical screening services. The client – provider relationship greatly affects client's satisfaction (Agurto, 2001) Client's expectations are varied and can depend on socio-economic, health-related, and other factors such as the health care setting. (Kravitz, Bell, Azari, Kelly-Reif, Krupat, Thom, 2003) Sultz and Young, 2004, reported that client's can have general (Non-technical) expectations, specific (technical) expectations for certain tests or procedures, or both. In addition to caregivers' technical skill, interpersonal skills, such as waiting times for appointments, emergency responses, helpfulness and communication of staff, and the facility's appearance contribute to client's satisfaction. (Sultz and Young, 2004)

Bower et al, 2000 concluded in the review of the theoretical and empirical work in patient satisfaction with care that the most consistent finding is the characteristics of providers or organizations that result in more "personal" care are associated with higher levels of satisfaction. Some studies suggest that more personal care will result in better communication and more clients' involvement, and hence, better quality of care. (Mercer et al 2004). Sohail et al, 2005 highlighted the importance of the client-provider interaction and its implication for client satisfaction and loyalty in the study "The impact of a reproductive health franchise on client satisfaction in rural Nepal" Interviews with screened women in Kenya and South Africa indicated that they generally were reluctant to openly ask questions during group counseling sessions. (Pan American Health Organization, PATH, 2002, Buskens, Bradley, 2002) They reported that individual time was needed with the provider to ask potentially embarrassing questions about the procedures, address additional fears about adverse effects, and seek advice on how to talk

to their spouse. With Nurses and Staff, promptness and friendliness are the main determinants of client's satisfaction. It was found that the caring attitude of the physician is a strong predictor of patient satisfaction. Clients are less satisfied if doctors display any uncertainty and presumably, waiting time and time spent with physician play key roles in clients' satisfaction. Another factor that could affect client's satisfaction is good communication (Bower, 2000). Bingham et al., 2001, Buskens et al., 2002 stressed further that the conditions under which counseling takes place, how effectively and respectfully the provider communicates information to the woman, the woman's ability to ask questions, the process of informed consent, and the respect for privacy and confidentiality all are important factors that influence a woman's experience with care (Bingham et al., 2001, Buskens et al., 2002). One-on-one communication between women and their providers is a critical dimension of quality care that often is overlooked. In Peru, Kenya, Mexico, and South Africa screened women interviewed highlighted the importance of providers taking time to converse with them, answering questions, explaining procedures, and giving encouragement (Bingham et al, 2002, PATH, 2002, Buskens, et al, 2002) Women had more satisfaction and confidence in services with good appearance and cleanliness of the clinic and provider, and arrangements of the clinic to assure maximum privacy during the examination, use of clean instruments and clean linen on the examination table. (Herdman and Sherris, 2000)

2.5.3 Factors Predicting Patients dissatisfaction

A user satisfaction surveys was conducted in Cabana, El Salvador to collect the views and perception of 341 women who received cervical screening services in 16 health facilities. The survey results pointed to some dissatisfaction with access to services, in particular the distance from women's homes to health center and with the time spent waiting to see clinicians. (PAHO, 2002) ACCP project also identified inaccessibility of screening services as a major obstacle for women, for some women, especially those living in communities where there is minimal access to health care, the location of the service facility is an important determinant of satisfaction .it was reported that some women found it difficult to travel to clinics where screening was offered because of the long distance or the cost of local transport, or because they were unable to postpone

domestic responsibilities (Bingham, Bishop, Coffey, Winkler, Bradley, Dzuba, Agurto, 2003) Waiting time also emerges as one of the major areas of dissatisfaction with the health services as well as the cause of non utilization. (Patro, Kumar, Goswami, Nongkynrih, Pandav, UG Study Group, 2008) Community health workers in Kenya reported that some male partners do not permit their wives to seek screening because they do not want them traveling long distances, which often requires travel at night. (PATH, 2002)

Bingham et al, (2003), in their study identified that poor quality services can result in dissatisfaction and dissatisfied women may discourage their neighbors and relatives from participating in cervical screening. (Bingham et al, 2003). Client satisfaction study data from Kenya and Peru showed that women realized the same specula were used with many women and that their common concern was that the specula were not properly cleaned before being used; women suggested improving privacy by minimizing the number of people coming into the examination room, having a dead bolt on a door, or having a privacy screen set up during the examination. (Bingham et al, 2003) Furthermore, non-Spanish-speaking indigenous women who were interviewed highlighted the importance of having an interpreter available at the clinic, as many do not seek services because of the language barrier (Agurto, 2001). Some women also expressed the need for confidentiality, especially when privacy is lacking or when male providers performed the examination. Some women also reported being embarrassed by having to expose their genitals or be touched by a stranger. (Agurto, 2001) Some women live in Muslim community where it is forbidden for them to expose themselves to anyone except their husbands. In some instances male partners have agreed to their wives to receive the services only if a female provider performs the examination. (Programme for Appropriate Technology in Health, P.A.T.H, 2002) High quality services are linked with supply and demand. If there is no enough demand, quality will usually be compromised. When demand is high, an insufficient supply of services can result in user dissatisfaction. (ACCP, 2004)

2.5.4 Outcome of Patients satisfaction

Meeting women's needs by providing high-quality services can contribute to an increase in screening coverage. Women who are satisfied with the services that they received are more likely to describe their experience positively to family members and friends. It was reported in Ghana by "Alliance for cervical Cancer Prevention (ACCP) in "Improving Screening Coverage rates of Cervical Cancer prevention programme: A focus on communities, that 36 percent of women who received screening reported that the person who referred them was a woman who has already been tested and 31 percent of women reported that, a family member, friend or neighbors was the source of the suggestions to seek screening. (JHPIEGO, 2004) Furthermore, that satisfied clients refer other women to screening services, this builds confidence among all community members in the quality of the screening services, the quality of the screening procedures and motivates women who have not yet done so to seek screening.

ACCP research to date suggests that women are more likely to be screened (and treated if needed) when services are offered through face-to-face visits by community health workers or when they hear about services through women or church group. Indeed, in this setting, women often came to the health facility once or twice with a friend to learn about the service before they agreed to be screened. (Buskens and Bradley, 2002) Strategies for introducing or strengthening cervical cancer prevention programs must focus on ensuring that appropriate and cost-effective services are available and that women who most need the services will, in fact, use them (Bingham, *et al.*, 2002) Client satisfaction is an important measure of the quality of health care and needs to be addressed in order to improve the utilization of health care services. (Patro, Kumar, Goswami, Nongkynrih, Pandav, UG Study Group, 2008)

2.6 Utilization of cervical cancer screening services.

Annual Pap smear screening for cervical cancer has contributed to about 75% decrease in cervical cancer mortality in the U.S. since the mid- 1950s (NCI, 2001a). There is general consensus that in its earliest stages of development, cervical cancer is 100% treatable. This becomes possible only if Pap smear tests are taken at this stage to detect and treat them effectively. (Ferlay et al., 2001; NCI, 2001a) It takes the commitment of women to take the tests and to follow-up after having an abnormal smear (The Imaginis Corporation, 2001). Although cervical cancer incidence and mortality in the U.S. have both decreased dramatically since the past half-century, it still raises serious public health concerns in the country. Many women still do not have regular Pap tests (Bolen, Rhodes, Powell-Griner, Bland, Holtzman, 2000; Coffield, Maciosek, McGinnis, Harris, Caldwell, Teutsch, , Atkins, Richland, and Haddix , 2001; Hahn, Teutsch, Franks, Chang and Lloyd, 2001).

Inadequate Pap smear screening to prevent cervical cancer was listed as one of 11 prevalent known risk factors among women in the U.S. (Hahn et al., 2001). This is particularly so for low-income women (NCI, 2001a), poor women may be at a higher risk because they are not able to afford regular Pap smears (Ferlay et al., 2001; NCI 1999a; 2001a). Research shows that majority of women who are diagnosed with invasive cervical cancer did not receive annual Pap smear screening for it. Also, about half of the women with newly diagnosed invasive cervical cancer had not had a Pap test in the past five years. Bolen et al. (2000) documented that in 1997, 20% of eligible women in the U.S. reported not having had a Pap smear in the preceding three years. A study with Korean women living in America reported relatively low rates of cervical screening, only 22% of the women had ever had a Papanicolaou test and only 26% had the test in the prior 2 – 3 years. (Lee, Tripp-Reimer, Miller, Sadler, 2007)

Despite the several advantages of screening, it has been observed that screening is still generally poor especially in developing countries. Screening rates in developing countries is still as low as 5% although there are variations in different countries and among different groups of people. (Akinremi, 2004) Not surprisingly, not having regular Pap smears is the single greatest risk factor for bad outcomes in women who develop cervical

cancer (Ferlay et al., 2001; NCI 1999a, b; 2001a). Onah, Ezugwu and Eze, (2001) in their study expressed concern that the medical workers who should be responsible for opportunities screening of women they care for are not keen on getting screened themselves. Despite general agreement amongst Nigerian Gynecologists on the need for a national screening program, their level of opportunistic screening of clients is currently low. (Onah, Ezugwu, Eze, 2001) A few studies have, however, shown an encouraging level of Pap smear use. Wee et al. (2001) found that 81% of the sub-sample of nearly 1,900 patients, in a study who were eligible for cervical cancer screening had at least one Pap smear documented in the last 3 years. (Wee, Phillips, Burstin, Cook, Puopolo, Brennan, and Haas, 2001)

2.6.1 Factors influencing cervical screening service utilization

Studies have identified some factors that reduce women's participation in cervical screening programmes. These are poor awareness of the indications and benefits of the cervical smear test, lack of knowledge of cervical cancer and its risk factors, fear of embarrassment, pain and cancer, lack of female screeners or convenient clinic times, anxiety caused by receiving an abnormal cervical smear result, poor understanding of cervical screening procedures and a need for additional information (Ferlay, GLOBOCAN, 2002)

In Nigeria, anxiety regarding physical privacy and confidentiality about their results, fear of being seen as promiscuous and being discriminated against, were identified among some female undergraduates at the University of Ibadan as the reason they do not seek cervical screening services (Ayinde *et al.*, 2004). Siah, Push and Singh also observed certain socio-demographic factors that are associated with under utilization of cervical cancer screening and they are, age fewer than 30 and over 49 years and being unmarried (Siah Push and Singh, 2002). Results from the National Breast and Cervical Cancer Early Detection Program (NBCCEDP), which is for low-income uninsured women, confirmed the race and ethnicity bias as obstacle to utilization of these two cancer screening (Benar, Lee, Piper and Richardson, 2001). It has been suggested that part of the reason for the low-utilization of cancer screening prevention by minorities is that they have a history of

negative experiences with the healthcare system (Brown, Fouad, Basen-Engquist, and Tortolero-Luna, 2000). Bingham et al, 2003 in the study “Factors affecting utilization of cervical cancer prevention services in low-resource settings” developed a framework for conceptualizing the factors affecting the use of cervical cancer prevention services in low-resource settings. Three sets of factors were identified: (i) sociocultural norms, (ii) service delivery system and (iii) women's perceptions of quality of care.

2.6.2 Factors related to sociocultural norms

- i. **Beliefs and attitudes towards cervical cancer prevention due to lack of disease knowledge and information:** Results from the PAHO analysis of qualitative studies in Latin America and the Caribbean suggest that women generally do not distinguish among types of cancer affecting women's reproductive organs and do not readily understand that cervical cancer is a preventable disease. (Agurto, 2001) In the United Kingdom, non-attendance at cervical cancer screening clinics has been associated with low perceived risk of disease, a lack of knowledge about cervical screening and the determinants of cervical cancer, fear of detection of cervical cancer, fear of pain, and embarrassment. (Gillam, 1991) A study carried out to assess Korean-American women's knowledge about cervical cancer using focus group discussion revealed that there was misinformation and lack of knowledge about cervical cancers (Lee, 2000).

Similarly, the knowledge of cervical cancer risk factors among Chinese immigrants in Seattle was found to be low (Ralston, Taylor, Yasui, Kuniyuki, Jackson, Cu, 2003). Maaita and Barakat (2002) also reported similar findings among Jordanian women attending gynaecology clinics in Jordan, 77% participants were not aware of the causes of cervical cancer and 34.5% did not know the significance of a positive cervical smear. (Maaita and Barakat, 2002) The belief that obvious symptoms such as pain indicate the presence of cervical cancer and the belief that a Pap test is used only to diagnose existing cancer may work in concert to negatively influence a woman's decision to screen. Studies from Latin America confirm that the lack of knowledge that cancer is a preventable disease and a poor understanding of the symptoms of cervical cancer are correlated with a failure to screen. (Lewis, 2004, Agurto, 2001) Daramola (2001), in a study of the

awareness of screening procedures of carcinoma of the cervix smear amongst health service users in Lagos, Nigeria reported that knowledge about the disease however appears to increase with increasing education as only 26.2% of respondents were aware of cervical cancer. Of these, only 29% knew it was possible to detect cervical cancer early, 15.8% were aware of Pap smear and about half of these got the definition right. In a study carried out by Adanu, (2002) among well-educated women in Accra, Ghana, 93% had heard of cervical cancer. However, only 37% had adequate knowledge of the disease and only 85% had ever had Pap smear. Philips, Johnson, Avis and Whines (2003) in another study carried out among female university students, the majority of the student accurately identified the major risk factors. Also their knowledge of screening programmes was accurate in some respects but inaccurate in others (Philips et al., 2003).

In an Australian study, it was similarly observed that single women and those under the age of 30 years were more ignorant of and were not utilizing cervical screening because they are unaware of the test. For those aware of cervical screening, they lacked knowledge of centers where the test could be done (16%), some were reluctant to do it (9.5%), due to anxiety regarding physical privacy and few could not afford the cost of the screening (5.9%) (Reproductive Health Outlook, 2006) In Canada, a study on preliminary examination of cervical health practices and knowledge among university aged females revealed that overall knowledge among all the women was inadequate. Although, there were women who had Pap smear done in the past, their knowledge was till inadequate. Both groups of women, i.e. those who had pap smear and those who had not, were particularly unknowledgeable about the risk factors for cervical cancer (Alliance for Cervical Cancer Prevention, 2004). In Nigeria, the National HIV/AIDS and Reproductive Health Survey (NARHS 2003) revealed that only 12.8% of women and 4.3% of men have ever heard about cancer of the womb. In their 2004 study on awareness of cervical cancer, Pap smear and its utilization among female undergraduates in Ibadan, Ayinde, Omigbodun and Ilesanmi reported that 71% of respondents had knowledge of cervical cancer. Factors in favour of this knowledge included being a student of the College of medicine, marriage and sexual activity. On the other hand, awareness of Pap smear was generally poor, as only 3.3-5% of the students know about cervical screening. Another

major finding is that awareness of pap smear far outweighed its utilization by the undergraduates.

ii. **Beliefs that cervical screening is related to sexually transmitted infections (STI) diagnosis:**

In a study conducted by Buskens and Bradley, 2002 in South Africa, it was reported that most women believe that a positive cervical cancer screening means that they have AIDS (Buskens, Bradley, 2002). This view also prevailed in Kenya where cervical screening often is confused with the "AIDS test" or with STI testing because women have been told that cervical cancer is caused by human papillomavirus (HPV). In Kenya, HIV/AIDS is viewed as proof of marital infidelity and treatment is largely unavailable. (Bingham, Abwao, Luchemo, 2001) Further, some women are especially fearful about explaining the results of these examinations to their spouses, and therefore may decide not to be screened. In South Africa, anxiety over the pelvic exam has spawned such references as "hanging the legs" or "surrendering" oneself and a positive cervical screening test implies that she is somehow "dirty" or promiscuous. It also challenges the male partner's "ownership" of and control over his wife. (Lewis, 2004, Agurto, 2001)

In Peru's San Martín rainforest region, women harbor many misconceptions about the disease, that cancer is gotten from "lycra" underwear, having too much sex, and having a lot of children, (PAHO, 2004) Another study carried out in 2004, by Alliance for Cervical Cancer Prevention, revealed that a large majority of the women indicated that the purpose of the Pap test was to test for STDs as responses suggest that the women suspected a linkage between a sexually transmitted pathogen and abnormal result. (ACCP 2004) The Centre for Disease Control (2004) reported that participation in a national cervical screening programme in Mexico was impeded by feeling of reluctance to undergo pelvic examination required for screening because of feeling that the examination is related to test for promiscuity, physical discomfort, shame, invasive nature of the examination and a feeling of defenselessness.

Among Pacific women living in New Zealand, perceived barriers to cervical screening information services include a belief in the "sacred" nature of human sexuality, anxiety

about lack of confidentiality within community groups and the perceived relationship between cervical smears and sexual activity. On the other hand, women in Bolivia went for screening because they perceived the benefit in terms of receiving an STI diagnosis and treatment during the same visit. In South Africa, of 69 women interviewed who had come for cervical screening, 52 reported after probing that they had actually come because they perceived they had a “womb-related ailment”. (Buskens and Bradley, 2002) Sexual health education programmes correctly inform women that sexual activity and promiscuity at early age increases the risk of cervical cancer. However it appears that this information delivers mixed messages (Bailef, 2000). For example positive pap smears may be seen as a result of promiscuous behaviour (Bailef, 2000). The effect of this is that cervical intraepithelial neoplasia (CIN) can carry the same stigma as a sexually transmitted infection. (Bailef, 2000)

iii. Fears stemming from negative images of cancer and gynecological Care:

Powerful and frightening images of cancer may contribute to a woman’s reluctance to get screened. Images are associated with words such as “devour or eating”, “putridity”, or “plague”.(Agurto, 2001) In Mexico, women described cervical cancer as “rotting or devouring of the womb”. that any treatment would leave them “hueca” (sexually disabled),(PATH,1998) Women in Kenya also describe the inevitability of cervical cancer and the belief that, at a minimum, the womb will be “cut out”, resulting in the loss of womanhood and sexuality. (Bingham, Abwao, Luchemo, 2001). and in Bolivia, women stated that cancer is a “death sentence” that destines them to die slowly and painfully In Nigeria, anxiety regarding physical privacy and confidentiality about their results, fear of being seen as promiscuous and being discriminated against, were identified among some female undergraduates at the University of Ibadan as the reason they do not seek cervical screening services (Ayinde et al., 2004).

iv. **Social support factor:**

Seow, Huang and Straughan (2000) in the study of an Asian population reported that women that have Pap smears were more likely to have close friends with whom they could discuss health. They were also reported to have regular physicians. ACCP research suggests that women are more likely to be screened (and treated if needed) when they hear about services through women's or church group. In a South African study, women reported enjoying group information sessions, knowing they could bring their friends and neighbors, and feeling that health care educators or providers (who run the sessions) really cared about them. (Buskens and Bradley, 2002) Women often came to the health facility once or twice with a friend to learn about the service before they agreed to be screened. Another key factor in a woman's decision to participate in cervical cancer prevention services is her husband's positive emotional and financial support. In Kenya, community health workers noted that many women do not seek cervical screening services or make follow-up visits because their husbands provide little support or are actively opposed. (PATH, 2002) Community health workers in Kenya reported that women come to clinics for cervical cancer screening only when they are able to finance the trip, negotiate their home responsibilities, and obtain support from their husbands. (PATH, 2002)

A supportive social network and actually knowing other screened women had an important effect on a woman's decision to seek cervical screening. (Winkler, Bingham, Coffey and Penn Handwerker, 2007) Similarly, in South Africa, results suggest that knowing someone else who had a cervical smear was an independent predictor of screening (Bradley, Risi, Denny, 2004) It is possible that women who routinely seek care from a health facility for curative purposes are also more comfortable accessing those services for preventive options such as screening. (Markovic, Kesic, Topic, 2005) In Kenya many women do not seek cervical screening services or make follow-up visits because their husbands provide little support or are actively opposed. (PATH, 2002)

2.6.3 Barriers related to the service delivery system:

i. **Location of service:** In Peru, it was reported that screening rates were much lower in districts where services were distant or difficult to access. In Nayarit, Mexico, and in Western Kenya, women reported that transportation costs and distance played a significant role in screening participation and loss to follow-up. (PATH, 2002, PATH, 1998) There is no public transport and women must pay for private transportation. Many women must travel anywhere from two to eight hours, at an average cost of a day's agricultural wage. (PATH, 2002, Bingham, Abwao, Luchemo, 2001) Well-run cervical cancer prevention programs work to develop strategies to screen hard-to-reach women in underprivileged rural communities and urban settlements. Mobile units can work with community leaders to develop educational campaigns, provide sites for screening women in the critical age groups, keep track of patients, and motivate them to return for follow-up care. (PATH, 2002) An ACCP project in Roi Et province of Thailand showed that using mobile clinics to provide visual screening reached a large number of women, in some cases reaching three times as many women as hospital-based services. Four years after the project began, one-fourth of all eligible women in the province had received visual screening. (Kleine and Gaffikin, 2004) In South Africa, health workers face the challenge that people move constantly in search of work and that many live in poor, informal settlements. The poor, minorities and uninsured are experiencing declining access to healthcare. Overall, they utilize preventive healthcare services less (Ferlay et al., 2002)

ii. **Structure of the service delivery system:**

It has been suggested that part of the reason for the low-utilization of minorities in cancer screening prevention is that they have a history of negative experiences with the healthcare system (Brown et al., 2000). Organizational factors such as lack of access and negative perceptions about quality of services, poor physical conditions of health facilities, and delays in receiving test results were also reported to be associated with poor screening rates (Lewis, 2004) In many developing countries the organizational, material and human resources required for cervical screening is lacking (Jaiyeola, Ojemakinde, Izebvaye, 2002). This also partly accounts for poor screening behavior.

Moreover, the fact that facilities and logistics for cervical screening are generally located in hospitals, a place where one goes when ill, according to local beliefs, makes acceptance of screening more difficult. (Thomas, Babarinsa , Ajayi , Fawole O, Ojemakinde , Omigbodun , 2005)

Traditional screening and treatment approaches for cervical cancer can require three or more visits to a health center. However, returning for multiple visits poses challenges to women and their families. Challenges may include the need for child care, transportation, and time away from work. Consequently, many women do not return to obtain test results or receive treatment. In the single-visit approach, a clinician offers immediate treatment to women with a positive, but not yet diagnostically confirmed, screening test result (usually after visual inspection). In Thailand, Ghana, report from ACCP research has shown that the approach has the potential to detect cervical cancer at an early stage when it can be treated successfully. (Gaffikin et al, 2003, JHPIEGO, 2003). In one Bolivian hospital, approximately 50 percent of the women requiring treatment for precancer never received it. (Bolivia Ministry of Health, EngenderHealth, Pan American Health Organization, 2003) Screen-and-treat approaches involving two visits also offer a promising solution as they provide immediate test results during a woman's first visit so the importance of returning to a second appointment for treatment is clear. He reported the advantages of the single-visit approach which include:

- _ Eliminating the usual step of having to wait for a diagnosis and then return for treatment;
- _ Addressing the problem that many women fail to return for follow-up care;
- _ Reducing the need for extensive systems to track women; and
- _ Increasing program cost-effectiveness. (Gaffikin et al., 2003)

However, the approach remains controversial, because some women will be unnecessarily treated, this can overburden the health care system and cause needless anxiety among women. Inability to afford cost of Pap smear is another obstacle, this is particularly so for low-income women (NCI, 2001a). Poor women may be at a higher risk because they are not able to afford regular Pap smears (Ferlay et al., 2001; NCI 2001a). In a study carried out by Adesina ,Babarinsa, Fawole, Oladokun, Adeniyi and Adewole

(2003), to obtain information about cervical cytology services in Nigeria, it was discovered that finance and skilled manpower were major obstacles to screening. Only half of the obstetrics and gynecology units in the hospitals assessed had hospital based cervical cancer programs. Moreover, only four of these had certified gynecological oncologists (Adesina et al., 2003). Some type of external financial assistance for cancer care generally is necessary for poor women living in inaccessible communities to access cancer care. Cancer treatment centers are often found in large urban areas, and expenses add up quickly for women living in peripheral regions, as it may require several days of travel as well as weeks of lodging while receiving treatment. This eventually causes cancer, among other beliefs (Bingham et al, 2003). The Centre for Disease Control (2004) reported that participation in a national cervical screening programmes in Mexico was impeded by certain socio-cultural factors, like giving priority to unmet needs related to extreme poverty, long waits for sample collection and results and perceived high costs of care.(CDC, 2004).

Cervical cancer screening programmes can further ensure that services are accessible to women by reviewing internal policies and procedures. Services should be culturally appropriate and available in languages spoken by the women most at risk. Services should be made available at location and times that are convenient to women, such as during the evening and on weekends. (JHPIEGO, 2001) Winkler Bingham, Coffey and Penn Handwerker (2007), reported in their study “Women's participation in a cervical cancer screening program in northern Peru where they compared a total of 156 women who sought screening between July 2001 and October 2003 with 155 women who did not.” that both screened and unscreened women 16% and 24%, respectively reported that they had been turned away from a health facility that offered screening services, and when compared with unscreened women, screened women appeared to be more experienced with the health care delivery system. (Winkler Bingham, Coffey and Penn Handwerker, 2007)The effect of negative report circulating in the community about the availability of screening services was also evident as barrier to up take of cervical screening among Kenyan women .Women reported being turned away by provider because they were too busy.(Bingham et al, 2003)

2.6.4 Barriers related to quality of care:

i. The need for women-centered quality services

Women-centered quality services result in the satisfaction of women, which are strong promoters of screening. These women also provide needed support to those having difficulty deciding whether to participate or whose male partners are unwilling to provide support. (Agurto, 2001) In a study by PATH 2002, women expressed the need for confidentiality. Women who have been screened commonly report feeling ashamed, especially when privacy is lacking or when male providers performed the examination. They also report being embarrassed by having to expose their genitals or be touched by a stranger. Winkler, Bingham, Coffey, and Penn Handwerker, (2007) in their study reported that unscreened women expressed more concerns about a male provider doing the examination than screened women ($P < 0.001$) and that screened women felt more satisfied with the general level of quality of care at health centers than unscreened women. (Winkler, Bingham, Coffey, and Penn Handwerker, 2007) Maintaining a staffing pattern that meets the expectation of the community is an important aspect of improving screening participation.

The importance of staffing clinic with female Nurses and Doctors was highlighted. (ACCP, 2004) The client-provider relationship greatly affects client satisfaction with health care services. (Agurto, 2001) ACCP (2004), reported that the main barrier to service delivery were the lack of accessible and available high quality services, the lack of comfort and privacy in facilities, discourtesy on the part of facility staff, and the prohibitive cost of services. Most women experience anxiety while waiting for test result, which contributed to their overall fear of cancer. However, some women expressed peace of mind and a sense of being in control with screening. (ACCP, 2004) Counseling is an important aspect of service delivery. It satisfies women's needs, reduces their anxiety and fear, and explores possible barriers to treatment follow up. Counseling is positively related to screening participation. (IARC, 2005) The provision of high quality counseling demands that sufficient time be allocated within the facility. In a high demand environment, providers may shorten the length of counseling session to meet the demand

for services. (ACCP, 2004) Screened women interviewed in Peru, Kenya, Mexico, and South Africa highlighted the importance of providers taking time to converse with them, answering questions, explaining procedures, and giving encouragement. (Bingham et al., 2002, PATH, 2002, Buskens et al, 2002) Women appreciated being addressed by their names, and wanted providers to speak simply, softly, and gently, and avoid brusque behavior. Non-Spanish-speaking indigenous women who were interviewed in the Nayarit study highlighted the importance of having an interpreter available at the clinic, as many do not seek services because of the language barrier.(Agurto,2004) Meeting women's needs by providing high quality services can contribute to an increase in screening coverage .Women who are satisfied with the services that they receive are more likely to describe their experience positively to family members and friends .

In Peru, the strongest predictor of screening attendance was prior experience with screening .Women's perception of quality of health care received at prior visit as indicated by a composite client satisfaction scale was also a strong predictor of screening attendance (Winkler et al, 2007) In a study in Chana,36% of women who received screening reported that the person who referred them was a woman who had already being tested ,and 31% of women reported that a family member, friends or neighbor was the source of the suggestion to seek screening. (JHPIEGO, 2004).When satisfied clients refer other women to screening services, it builds confidence among all community members in the quality of the screening procedures and motivate women who have not yet done so to seek screening services. (JHPIEGO, 2004).Health care provider can be an important source of information for women and can motivate women to attend screening. (ACCP, 2004) In a study in Thailand, 41% of women who were screened reported that the suggestion that they seek screening originated with health care facility staff. In Peru, 26% of women reported that individual contact with a health provider had the most influence on their decision to participate in screening. (ACCP, 2004) On the basis of project experience ,face to face contact via word of mouth or direct invitation from health care provider or satisfied clients and audiovisual methods have more impact on women's participation in screening (IARC, 2004)

ii. Physical aspects of the facility:

The physical aspects of the facility, such as the appearance and cleanliness of the clinic and provider, and arrangements to assure maximum privacy during the examination is another important dimensions of quality of care . Women in Kenya reported that they had more confidence in providers who have clean and pressed clothing, clean appearance, clean instruments, and clean linen on the examination table. (PATH, 2002) Screened women were more likely to believe that equipment was safe ($P < 0.002$), found waiting times acceptable ($P < 0.001$), reported receiving good care ($P < 0.02$) and were more likely to say that they were satisfied with the services they had received at the health facility ($P < 0.001$). In addition, screened women exhibited significantly higher mean scores on the client satisfaction scale ($P < 0.001$) than unscreened women. (Winkler, Bingham, Coffey, and Penn Handwerker, 2007)

Extensive review of literature was carried out on cancer epidemiology worldwide and in Nigeria in particular. Pathophysiology and pathogenesis of cancer, epidemiology, pathology and risk factors for cervical cancer were reviewed. Cervical cancer metastasis, course and prognosis of the disease were also documented. Prevention and early detection of cervical cancer was of great importance, thus four components of cervical cancer control were discussed. These components which are primary prevention, secondary prevention (early detection), diagnosis, treatment and follow up of patients who are positive on screening. Screening for cervical cancer was emphasized as an important public health measure for early detection of cancer of the cervix. Common possible screening methods for cervical cancer were examined. Clients' satisfaction was defined and its importance in continuous utilization of cervical cancer screening services was examined. Both positive factors that promote or guarantee satisfaction and negative factors that promote dissatisfaction with services received by clients at the cervical cancer screening centers were documented. Lastly, literatures on barriers to effective utilization of cervical cancer screening facilities and appropriate measures for prevention were discussed.

2.7 THE PRECEDE FRAME WORK FOR UNDERSTANDING CLIENTS' UTILIZATION AND PERCEIVED LEVEL OF SATISFACTION WITH SERVICES.

PRECEDE is an acronym for Predisposing, Reinforcing, Enabling Causes in Educational Diagnosis and Evaluation. PROCEED is acronyms for Policy, Regulation, in Organization, Constructs in Education and Environmental Development. The PRECEDE-PROCEED model was developed as a planning framework from which health education and health promotion programs could be designed (Green, Kreuter, Deeds, and Partridge, 1980; Green & Kreuter, 1991) The PRECEDE model is based on the premise that an educational diagnosis should precede an intervention just as a medical diagnosis precedes a treatment plan (Green et al., 1980). This model is multidimensional, founded in the social/behavioral sciences, epidemiology, administration and education. As such, it recognizes that health and health behaviors have multiple causations, which must be evaluated in order to assure appropriate intervention.

The comprehensive nature of PROCEED allows for application in a variety of settings such as school health education, patient/client education, community health education, and direct patient care settings.

The planning process outlined in the model rests on two principles:

- The principle of participation, which states that success in achieving change, is enhanced by the active participation of members of the target audience in defining their own high-priority problems and goals and in developing and implementing solutions.
- The important role of the environmental factors as determinants of health and health behavior such as media, industry, politics, and social inequities

PRECEDE- has 5 phases

Phase 1 - Social Diagnosis: This phase identifies and evaluates the social problems which impact the quality of life of a target population. Prevent sexual behaviors that lead to infection with HPV that pre disposes to cervical cancer. Lack of social morals, early

sexual exposures, unwanted pregnancy, early marriage and multiple sexual partners. Lack of knowledge about cervical cancer and cervical cancer screening.

Phase 2 - Epidemiological Diagnosis: This phase helps determine health issues associated with the quality of life. It helps identify behavioral and environmental factors related to the quality of life issues. Reduction in women morbidity and mortality due to cervical cancer screening.

Phase 3 - Behavioral Diagnosis: This phase focuses on the systematic identification of health practices and other factors which seem to be linked to health problems defined in Phase 2. This includes non-behavioral causes (personal and environmental factors) that can contribute to health problems, but are not controlled by behavior. Seeking cervical cancer screening services. Preventing multiple sexual partners and infection with HPV

Phase 4 - Educational Diagnosis: This phase assesses the causes of health behaviors which were identified in Phase 3. Three kinds of causes are identified - predisposing factors, enabling factors, and reinforcing factors.

- i. **Predisposing factors:** These are factors that motivate or provide a reason for behaviors, they include knowledge, attitudes and cultural beliefs. Knowledge of predisposing factors and causes of cervical cancer, its prevention, attitude towards cervical cancer screening, whether it required special treatment when detected or not and perception of outcomes of cervical cancer.
- iii. **Enabling factors:** These are factors that enable person to act on their own Predisposition, these factors include available resources, supportive policies, assistance and services.
- iv. **Reinforcing factors:** These are factors that come into play after a behavior, has been initiated, they encourage repetition or persistence of behavior by providing continuing reward or incentives, social support, praise, reassurance and symptom relief might all be considered reinforcing factors. Attitude of Husbands, Mother and sisters, experiences with the health providers, their attitudes and disposition as well as practices of friends and sisters, if they have been screened or not.

Phase 5 - Administrative & Policy Diagnosis: This phase focuses on the administrative and organizational concerns which must be addressed prior to program implementation. This includes the assessment of resources, budget development and allocation, implementation timetable, organization or personnel within programs, and coordination of the program with all other departments, and institutional organizations and the community.

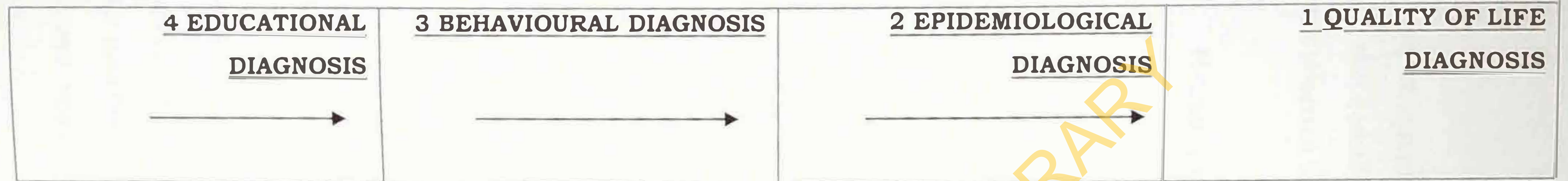
Administrative Diagnosis - the analysis of policies, resources, prevailing circumstances and organizational situations that could hinder or facilitate the development of the health program.

Policy Diagnosis - to assess the compatibility of program goals and objectives with those of the organization and its administration, does it fit into the mission statements, rules and regulations.

Phase 6 – Implementation of the program

Phase 7 – 9 Evaluation: measures change in terms of overall objectives and changes in health and social benefits or the quality of life. It takes a very long time to get results and it may take years before an actual change in the quality of life is seen.

APPLICATION OF THE PRECEDE FRAME WORK FOR UNDERSTANDING CLIENTS' UTILIZATION AND PERCEIVED LEVEL OF SATISFACTION WITH SERVICES



Predisposing Factor: Knowledge of cervical cancer and cervical cancer screening. Knowledge of risk factors for cervical cancer.

Enabling factors:
Easy accessibility and availability of cervical cancer screening services. Availability of health workers and cervical cancer preventive counseling.

Reinforcing factors: Health workers motivated clients to access cervical screening services. Respectful interaction by Health workers.

Seeking cervical cancer screening services, starting screening at the right time, screening at the appropriate interval, and early treatment in case of abnormal cervical screening result.

Reduction in morbidity and mortality due to cervical cancer.

Maternal survival leads to better care for the children, enhance contribution to family and community welfare

CHAPTER THREE

METHODOLOGY

This chapter comprises of the design and scope of the study, and description of the study area. It also describes the study population, study variables, the methods and instruments of data collection and data analysis. Finally, it explains the limitations of the study.

3.1 Research Design and Scope of Study:

A cross-sectional descriptive study design was used for this study. The study assessed clients' utilization and perceived level of satisfaction with services received at the cervical cancer screening clinic in University College Hospital, UCH, Ibadan. It was designed to assess clients' knowledge about cervical cancer and cervical cancer screening and document factors, which motivate women to utilize the cervical screening services in the cervical cancer screening clinic as well as factors responsible for non utilization of the services. The variables of interest are the client's utilization and perception on services at cervical screening clinic in UCH. Independent variables are the demographic characteristics e.g. age, social characteristics such as religion affiliations, knowledge and awareness about Pap smear and cervical cancer. Satisfaction with the technical skill of the health workers, facility appearance, courtesy of reception at the waiting area, cost of treatment, privacy /confidentiality, counseling skill and cleanliness of the clinic / instruments / linens.

3.2 Description of Study Area

The University College Hospital was established in 1952 by Act of Parliament No 26 of 1952, in response to the need for training medical students following the establishment of a Faculty of Medicine in the University College, Ibadan in 1948. The physical developments were commenced in 1953 and were formerly commissioned in November 1957. The vision of the hospital is to become and remain a flagship tertiary health center in service, research and training in Nigeria and Africa. The mission of the hospital is to render excellent and prompt care to patients in an atmosphere that ensure and promote hope and dignity, irrespective of status while providing outstanding development of

intellectual skill and character, in an environment that stimulates qualitative and relevant research. The mandate of the Hospital covers:

- i. Promotion of man power for the Nation.
- ii. To serve as a research center.
- iii. Provision of tertiary Health care center for the people.
- iv. Training of Medical professionals.

The University College Hospital, Ibadan has a staff strength of three thousand three hundred and sixty-four (3,364) workers, and is run by well equipped and tested Medical personnel namely: resident doctors, house officers, consultants, honorary consultants and nurses. The Hospital also has seven (7) well equipped professional schools. It is a hospital of international standard. University College Hospital is one of the best hospital in Africa, one of the best in Commonwealth Countries and a center for excellence for quality tertiary health care institution. The hospital has 53 service and clinical departments and runs 96 consultative out-patient clinics in a week in 50 specialty and sub specialty disciplines. Department of Obstetrics and Gynecology is one of the clinical Department and houses the cytology unit of the hospital. The Cytology unit in the Department of Obstetrics and Gynecology is strategically located close to family planning clinic. The major service formerly rendered in the unit was mainly cervical cancer screening (Pap smear), which was usually done once a week after booking the clients.

With aim of improving the screening and treatment of cervical cancer among Nigerian women, Exxon Mobil Foundation, the M.D. Anderson Cancer Center in Houston (Houston team) and the British Columbia Cancer Agency in Vancouver, in collaboration with the University of Ibadan, College of Medicine, School of Public Health and the University College Hospital, Ibadan had a Programme tagged "Operation stop cervical cancer in Nigeria" in February 2006. The program aimed to scale up Cervical Cancer early detection and treatment. The Cytology clinic now has modern equipments for pap smear, colposcopy, LEEP (Loop Electro surgical Excision Procedure), biopsy, and endocervical curettage. The group expended huge capital on equipments and training of health personnel. At present, further international interactions are planned to aid in the

roll out of the National cervical screening program and to advance clinical research on cervical screening in resource constrain setting. The staff strength of the clinic presently consists of two nurses, about four to six resident doctors and consultants. The average clients seen per day before February 2006 were between three to six, the rate is gradually increasing.

The study population consisted of all clients' seen at the cytology clinic of the Department of Obstetric and Gynecology, University College Hospital, for cervical screening services between twenty-first of June, 2007 and twenty-first of September, 2007. The study lasted for three Months.

These are services rendered at the cytology unit:

- i. **Pelvic exam:** An exam of the vagina, cervix, uterus, fallopian tubes, ovaries, and rectum. Two lubricated gloved finger are inserted into the vagina and the other hand is placed over the lower abdomen to feel the size, shape, and position of the uterus and ovaries.
- ii. **Pap smear:** Papanicolaou smear is a current hallmark of cervical cancer screening. The test is performed to detect abnormal cervical cells that may latter develop to cervical cancer cells. A vaginal speculum is used to visualize the cervical opening, a wooded spatula is used to get sample of cervical cells. These cells are placed on a slide, fixed and sent to a laboratory and examined under a microscope for cancerous changes. This test is highly effective and recommended for sexually active women every three years after initial screening with normal result. Clients whose pap smears result indicate cytological abnormalities suggestive of high-grade lesions are at risk for the development of invasive cancer and need further diagnostic test with Colposcopy. (Garcia and Omid, 2006)
- iii. **Colposcopy:** is a diagnostic procedure in which a colposcope (a thin, lighted tube) is utilized to examine an illuminated, magnified view of the cervix, the tissue of the vagina and vulva to detect pre-malignant lesion and malignant lesions in these areas. With the aid of a colposcope, biopsies are taken for further pathological examinations. The German physician, Dr Hans Hinselamann, developed the procedure in 1952.
- iv. **LEEP (Loop Electro surgical Excision Procedure):** is a technique where electric current is passed through a thin wire loop to remove abnormal tissue. It is also called loop excision.

- v. **Endocervical curettage:** A procedure to collect cells or tissue from the cervical canal using a curette (spoon-shaped instrument). Tissue samples may be taken for biopsy.
- vi. **Biopsy:** If abnormal cells are found in a Pap smear, the doctor may do a biopsy, in which a sample of tissue is cut from the cervix and viewed under a microscope by a pathologist to check for sign of cancer.

Table 1: Statistics of clients' seen for pap smear in the cervical cancer screening (Cytology) Clinic of Department of Obstetric and Gynecology, U.C.H, Ibadan, from year 2003-year 2008

Year	No of clients for Pap smear	No of clients for Colposcopy	No of clients for LEEP
2003	312	Nil	Nil
2004	336	Nil	Nil
2005	396	1	Nil
2006	999	54	33
2007	941	9	5
2008	943	10	9
TOTAL	3,927	74	47

3.3 Sampling Procedure:

i. Sample size calculation

Using the formula

$$N = \frac{Z^2pq}{d^2}$$

N = Sample size

Z = Confidence interval which is 1.96

p = Proportion of women who had previous Pap smear

P = 0.052% (Ogunbode et al, 2005)

q = Proportion of women who has never done Pap smear

d² = Level of confident (0.05)

$$N = \frac{Z^2pq}{d^2}$$

$$P = 0.05 \text{ (Ogunbode et al, 2005)}$$

$$N = 1.96^2 \frac{(0.052)(1-0.052)}{d^2}$$

$$N = \frac{3.84 \times 0.052 \times 0.948}{0.05^2} = \frac{0.1893}{0.0025}$$

$$N = 75.72 \text{ approximated to } 76$$

10 % attrition rate added.

ii Sampling technique

All the 254 clients who visited the clinic for Pap smear during the three months period (21st of June to 21st of September 2007) of the study were invited to participate in the study. However, only 160 clients consented to participate in the study which is still above the minimum sample size. Some clients did not participate in the study because they were ill and in pain. Some hurried out of the clinic and some were reluctant to participate.

3.4 Instrument for Data Collection

Semi- structured questionnaire: - Information gathered from the literatures guided in development of a self-administered semi-structured questionnaire. The questionnaire employed both open ended and closed ended questions and was self administered. The questionnaire was divided into three sections. The first section asked for the personal data of the respondents. The second section assessed the knowledge of respondent on cervical screening, previous utilization of cervical screening services, and knowledge of cervical cancer. The third section assessed clients' satisfaction. The questionnaires was written in English but was translated to Yoruba for participants that were from Yoruba land and were not educated for better understanding.

3.5 Reliability

This is the accuracy or precision of a research –measuring instrument. Several measures were taken to ensure the reliability of the instrument. The test-retest method was used to test the reliability of the questionnaire. Prior to its use, the semi-structure questionnaire was pre-tested among clients' seeking cervical cancer screening services in Our Lady of Apostle Catholic Hospital, Oluyoro, Ibadan. The ethical review committee of Our Lady of Apostle Catholic Hospital, Oluyoro, Ibadan, made some adjustment in the questionnaires. This corrections were made before the questionnaires were administered.

The total numbers of forty draft questionnaires were administered to the clients that came to the Hospital for Cervical Screening after accessing the services. Same number of questionnaires was collected from the respondents, cutting across social demographic characteristics. The findings of the pretest were used to further scrutinize and reset the items in the instrument for necessary adjustment for the main study. The instrument also went through measures of internal consistency with the use of Cronbach's alpha coefficient analysis to confirm its reliability. This is a model of internal consistency, based on the average inter-item correlation. Result showing correlation coefficient greater than 0.05 is said to be reliable. In this study the result was 0.615, which is greater than 0.05, thereby confirming its high degree of reliability.

3.6 Validity

This is the extent to which an instrument actually measures what it purports to measure. The instrument was developed in simple English with its validity ensured through extensive literature search on cervical cancer and previous study that has been done on the topic. The draft of instrument was developed with the assistance of the researcher's supervisor and lecturers in the fields of reproductive health in Health Promotion and Education, College of Medicine to ensure face and content validity. The necessary corrections made by the experts were adapted to improve the instrument.

3.7 Limitations of the study

The study focused on clients' utilization and assessment of level of satisfaction with services received at the cytology (cervical cancer screening) clinic. The sensitivity surrounding client evaluation of service providers posed challenges as some respondents were unwilling to provide information during the pretest and also during the actual study because of fear of implicating the health workers and being victimized. However efforts were made to reduce this challenge by assuring the respondents of confidentiality of all information provided and ensuring participation was voluntary.

3.8 Ethical Consideration:

In this study, the following ethical issues were taken into consideration.

Participation of each client was voluntary and their consent was sought, after explaining the objective of the study to them and ascertains that they fully understood the study. None of the client was coerced into the study. All the eligible respondents unwilling to participate or continue to participate in the study were not victimized. The confidentiality of all information obtained from the participants was assured. The questionnaires were identified by serial number and no name was used as identifier. No personal address was required on the questionnaires. The questionnaires were stored in a safe and confidential place, where it was not accessible to members of the research team. The result obtained from the study will be of great benefit to improving the quality of services rendered at the cytology clinic to the clients.

3.9 Method of Data Collection and Analysis:

Prior to data collection in the clinic, adequate training was conducted for the hired research assistants to ensure that they had good understanding of the instrument prior to commencement of data collection. The training focused on the objectives and importance of the study, the study design, and the importance of collecting valid data, sampling process, how to secure respondents' informed consent, basic interviewing skills and how to review questionnaires to ensure completeness. The Research Assistants were involved in the pre-testing of the questionnaires in order to create opportunity for them to acquire practical interviewing skills. The researcher and other research assistants administered

the questionnaires and this lasted a period of three months, 21st of June to 21st of September 2007, excluding the weekends during which the clinic is not opened. The cervical cancer screening clinic, which is the study site, was visited daily as scheduled from 9.00am to 1.00pm for the period. The questionnaires were given to the respondents to complete after assessing the services (exit- interview approach). The questionnaire took them an average of twenty minutes to complete. However, help was given to respondent where necessary in the course of filling the questionnaire. The questionnaire was then retrieved from respondents after completion. The investigator and other two research assistants checked the data collected each day to make sure that questionnaires were well filled. Average of 3-4 questionnaires was filled daily. The 160 questionnaires that were correctly filled by both the research assistants and educated clients were sorted and processed. A coding guide was developed to facilitate data entry. Each questionnaire was coded and entered into a computer facilitated by the developed coding guide. The data collected were edited, and analyzed using descriptive (i.e. mean, median and mode) and inferential (i.e. Chi-square) statistics. Analysis was done by using SPSS statistical package.

Knowledge variables were scored and correct responses was given 1 mark while incorrect responses was scored 0; this gave a maximum of 16 points and minimum of 0 point to knowledge of cervical cancer. Finally, information obtained were summarized and presented in tables and charts.

CHAPTER FOUR

RESULTS

4.1 Social-Demographic Characteristics of the Respondents:

The social-demographic characteristics of the respondents are presented in Table 4.1.1. All the respondents were female, mostly of age range between 22 and 77 years. Less than half of respondents (33.7%) were within 40-49 years age group followed by (31.2%) between 30-39 years old, (23.7%) aged 50 years and above and the remaining, (11.2%) respondents were between 20-29 years. with a mean of 42 (SD± 10.23). Majority of the respondents were married (90.6%) while (5.0%) being single and (3.7%) widows. More than three-quarters of the respondents (86.8%) were Yoruba, (5.0%) were Igbo and 8 (5.0%) were Edo. Most of the respondents (56.3%) had tertiary education, (29.4%) had secondary education, while (8.7%) had primary education and (5.6%) have no formal education.

Most of the respondents (78.1%) were Christians while (21.8%) are Muslims. 61 (38.1%) respondents had 0 – 2 children while (52.5%) had 3 – 5 children. The result revealed that (36.3%) were traders/artisans and had private businesses, teachers are (25.6%), civil servants (18.1%), Medical and paramedical, (6.8%) while (6.8%) were not working.

TABLE 4.1.1: Social-Demographic Characteristics of the Respondents (n=160)

Age group (years)		Frequency	Percentage (%)	
Age group (years)	20-29	18	11.2	
	30-39	50	31.2	
	40-49	54	33.7	
	50+	38	23.7	
	Marital status	Married	145	90.6
Marital status	Single	8	5.0	
	Widowed	6	3.7	
	Ethnic origin	Yoruba	139	86.8
Ethnic origin	Igbo	8	5.0	
	Edo	8	5.0	
	Others	5	3.1	
	Religion	Islam	35	21.8
Religion	Christianity	125	78.1	
	Parity	0-2	61	38.1
	Parity	3-5	84	52.2
6-8		15	9.4	
Educational status		Tertiary	90	56.3
Educational status	Secondary	47	29.4	
	Primary	14	8.7	
	No formal education	9	5.6	
	Occupation	Trading/private business/Artisan	58	36.3
Occupation	Teaching	41	25.6	
	Civil servant	29	18.1	
	Medical/Paramedical	11	6.8	
	Not working	11	6.8	
	Researcher	6	3.7	
	Banker	4	2.5	

4.2: Awareness of cervical cancer

4.2.1: Respondents awareness and major sources of information about Cervical Cancer

A large number of respondents 111(69.4%) were aware of cervical cancer before coming to the clinic while 47(29.4%) were not aware. The most common source of awareness about cervical cancer was through hospital workers 83 (51.9%), followed by the internet 38 (23.8%), friends 19 (11.9%) and the mass media 10(6.3%). See table 4.2.1

Table 4.2.1 Respondents major sources of information about Cervical Cancer

N=160

Source of information.	Frequency	Percentages (%)
Hospital workers.	83	51.9
Internet	38	23.8
Friends	19	11.9
Mass media	10	6.3
Colleagues	5	3.1
Relations	4	2.4
Church / mosque	1	0.6

4.2.2: Respondents awareness and major sources of information about Cervical Screening

More than half of the respondents 104 (65.0%) had heard about cervical screening prior to their referral to the clinic while 56 (35.0%) were not aware. Respondents were further asked of their major source of information about cervical cancer screening, one hundred and nine (68.1%) became aware of cervical screening through health facilities (especially clinics) , schools, 15(9.4%), and friends,11(6.9%). See table 4.2.2

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Relations	4	2.4
Church / mosque	1	0.6

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Table 4.2.2: Respondents awareness and major sources of information about Cervical Screening

N=160

Sources of information.	Frequency	Percentages (%)
Hospital workers	109	68.1
School	15	9.4
School	11	6.9
Relations	7	4.4
Mass media	7	4.4
Church/Mosque	7	4.4
Public lecture	4	2.5

4.2.3: Knowledge of cervical cancer

(a) Respondents' definition of cervical cancer:

Respondents overall mean knowledge score on cervical cancer using 16 point scale was 8.2. The respondents with higher education reported higher mean knowledge score of (8.5) (P=.000), than those with lower education reported (6.3). Respondents within the age group 20-29 reported higher mean knowledge score of (8.9)(P=.713)

Less than half of the respondents 65 (40.6%) identified cervical cancer as abnormal cancerous cell growth in the cervix, followed by 16(10.0%), reported cervical cancer as deadly cancer which can be treated if detected early. Other results are presented in Table

4.2.3.

Table 4.2.3 Respondents' definition of Cervical Cancer N=104

Responses	Frequency	Percentages (%)
Abnormal growth of cancerous cell in the cervix*	65	40.6
Deadly cancer which can be treated if detected early**	16	10.0
Deadly disease affecting women. **	16	10.0
An incurable disease. **	3	1.9
Caused by micro-organism. **	2	1.3
Infection at the mouth of the womb **	1	0.6
Profuse bleeding. ***	1	0.6

*Correct Responses

** Description of the disease

*** Manifestation of the disease

(b) Description of Cervical Cancer

Most of the respondents 117 (73.1%) knew that early exposure to sexual intercourse may predispose to cervical cancer, three-quarter of the respondent 121 (75.6%) knew that a woman with multiple sexual partners is at risk of cervical cancer, while 110 (68.8%) of the them knew that cervical cancer does not manifest early because it develops overtime. A little above half of the respondents 85 (53.1%) knew that a woman of childbearing age can have cervical cancer. See table 4.2.4.

Table 4.2.4: Description of Cervical Cancer

N=160

Statements	Yes Frequency (%)	No (Frequency) (%)	I don't know (Frequency) (%)
A woman with multiple sexual partners is at risk of cervical cancer	121(75.6) *	5(3.1)	34(21.3)
Early exposure to sexual intercourse is a risk factor for cervical cancer.	117(73.1) *	5(3.1)	38(23.8)
Cervical cancer does not manifest early because it develops overtime.	110(68.8) *	6(3.8)	44(27.5)
Bleeding from vaginal during and after sexual intercourse is a major sign of cervical cancer.	79(49.4) *	7(4.4)	74(46.3)
The use of contraceptive device can cause cervical cancer.	55(34.4) *	30(18.8)	75(46.9)
Change of sexual partner is not a risk factor for cervical cancer.	34(21.3)	81(50.6) *	45(28.1)
Sexually transmitted infection cannot cause cervical cancer.	32(20.0)	59(36.9) *	69(43.1)
A woman of childbearing age cannot have cervical cancer.	22(13.8)	85(53.1) *	53(33.1)
It may occur when a woman is menstruating normally without any pain.	16(10.0) *	62(38.8)	82(51.3)

* Correct answers.

(c) Knowledge of risk factors of cervical cancer

When respondents were asked about risk factors for developing cervical cancer, 39 (55.7%) of the respondents identified multiple sexual partner as a risk factor, 23 (14.4%) reported infection / sexual hygiene, 12 (17.1%) gave early sexual exposure, and 9(12.8%) sexually transmitted diseases. Others are shown in table.4.2.5.

Table 4.2.5 Responses knowledge of risk factors of Cervical Cancer

N =128

Risk factors of Cervical Cancer.	Frequency	Percentages (%)
Multiple sexual partner	39	24.4
Infections /poor sexual hygiene	23	14.4
Early sexual exposure	12	7.5
Untreated sexually transmitted disease	9	5.6
Heredity	8	5.0
Using unsterile instrument	6	3.8
No known cause	5	3.1
Vaginal discharge	4	2.6
Sexual abnormality	4	2.6
Multiplication of cells	3	1.8
Some family planning methods	3	1.8
Lack of regular check up	3	1.8
Multiple Childbearing /Early sex after child birth.	3	1.8
Eating smoked meat / fish	2	1.3
The Devil	2	1.3
Human Papilloma virus(HPV)	1	0.6
Abnormal growth in the cervix	1	0.6

4.3: Knowledge of cervical screening

(a) **Respondents knowledge on who needs Cervical Screening:**

Respondents' knowledge on who needs Cervical Screening was sought. Most of the respondents (85.0%) identified women who have started child bearing followed by (83.1%) who reported any female that have started having sexual intercourse regularly. Other responses are presented in table 4.3.1. The reason for cervical cancer screening was also explored, result shows that less than half of the respondent (47.5%) knew that cervical screening is mainly to detect early malignant/cancerous cells in the cervix while (34.4%) reported that cervical screening is for female to know her health status. See table 4.3.2

Table 4.3.1: Respondents knowledge on who needs Cervical Screening

N = 160

Who is at risk of cervical cancer and need Cervical Screening?	Yes Frequency (%)	No Frequency (%)	I don't know
(a) Females who have started child bearing or elderly women?	136(85.0)*	6(3.8)	18(11.3)
(b) Any female that has started having sexual intercourse regularly?	133(83.1) *	4(2.5)	23(14.4)
(d) Females that are less than 25 years old?	35(21.9)	71(44.4)*	54(33.8)

*Correct answer

Table 4.3.2: Respondents knowledge on why women need cervical screening
N=160

Why a woman needs cervical screening.	Yes	Percent ages (%)	No	Percent ages (%)	Total
To detect early malignant/cancerous cells.	76 *	47.5	84	52.5	160
To know her health status.	55 *	34.4	105	65.6	160
To prevent premature death / disease.	8	5.0	152	95.0	160
Because of sexually transmitted infection.	3	1.9	157	98.1	160
So that a woman will be careful of having sex	1	.6	159	99.3	160

* Correct answers.

4.4: Utilization of cervical cancer screening services

(a) Sources of referral to Cervical Screening Clinic

One hundred and six respondents 106 (66.3%) were referred to cervical screening clinic in U.C.H from other clinics in the same institution and other health facilities outside, followed by 42 (26.3%) who were referred by friends /relations, nine (5.6%) were referred from churches/mosques and 3(1.9%) were self referred. Respondents were asked of the year they became aware of the Cervical Screening Center in U.C .H. Above two-third 147 (91.8%) of the respondents mentioned year 2004 - 2007, 10 (6.3%) year 2000 - 2003 and 3 (1.9%) in year 1997 and below. See table 4.4.1

Table 4.4.1: Year Respondents knew the Cervical Screening Center in U.C .H.
N=160

Year	Frequency	Percentages (%)
2004 - 2007	147	91.8
2000 - 2004	10	6.3
1997 and below	3	1.9

(b) Previous utilization of cervical screening services

Only 38 (23.8%) respondents had previously been screened for cervical cancer. When those without previous screening experience were asked for why they never did 81 (66.9%) attributed it to not been aware of test centers, 18 (14.9%) thought the test was not important and were reluctant to do it, 8 (6.6%) procrastinated about the test, 3(2.5%) feared pain, 3(2.5%) had no money to pay for the test, while 9(7.4%) were just reluctant.

(c) Motivational reason for cervical cancer screening

Factor that motivates respondents to seek for screening services was assessed. For most respondents, 129 (80.6%) it was on doctor's directive, while 27 (16.9%) sought the screening service to know their health status (routine medical checkup) of their own volition and 4(2.5%) came due to suspected infections.

4.5: Respondents comments with current cervical screening service:

a) Health workers performance.

Table 4.5.1 shows respondents comments with current cervical screening service, with health workers performance at the screening center. 90(58.8%) respondents stated that health workers were polite and friendly, 42(27.5%) identified them as being considerate and 35(22.9%) perceived them as careful and gentle during the screening test. See other responses in table 4.5.1

Table 4.5.1 Respondents comments with Health workers performance

Health worker was-	Frequency	Percentages (%)
(a) Polite and friendly	90	58.8
(b) Considerate and knowledgeable	42	27.5
(c) Careful and gentle	35	22.9
(d) Experienced and professional	33	21.6
(e) Prompt attention	12	7.8
(f) Same gender	6	3.9
(g) Privacy provided	1	0.7
(h) Test was not painful	1	0.7

(b) The components of Services of the Clinic and the Environment

Table 4.5.2 shows the perceived level of satisfaction of respondents with the services received in cervical screening clinic and environment. All the respondents 160 (100%) expressed satisfaction with how they were addressed by the health workers and health workers general performance. Most respondents 150 (93.8%) were satisfied with the waiting time, majority 139 (86.9%) with courtesy of reception at the clinic waiting area and 135 (84.4%) sitting arrangement, 93 (60.0%) with access to light refreshment, 95 (59.4%) quality information given by health workers about cervical cancer, and 87 (54.4%) with quality of information given on cervical cancer screening.

Table 4.5.2: Perceived level of Satisfaction with the components of services of the Clinic and the environment.

N = 160

Satisfied with -	Satisfied Frequency (%)	Not satisfied Frequency (%)	Undecided Frequency (%)
(a)How addressed by the health workers	160(100)	-	-
(b)Health workers performance	160(100)	-	-
(c) Waiting time.	150(93.8)	9(5.6)	1(.6)
(d)courtesy of reception at waiting area	139(86.9%)	21(13.1%)	-
(e)Sitting arrangement in the clinic.	135(84.4)	23(14.4)	2(1.3)
(f)Access to light refreshment in the clinic	96(60.0)	41(25.6)	23(14.4)
(g) Quality of information provided on Cervical Cancer.	95(59.4)	64(40.0)	1(.6)
(h)Quality of information provided on cervical cancer screening.	87(54.4)	72(45.0)	1(.6)
(i)Toilet facility in the clinic	80(50.0)	51(31.9)	29(18.1)

(c) Actual services received at the cervical cancer screening clinic.

Overall, respondents were satisfied with services received. Before the screening, most respondents 155(96.9%) expressed satisfaction with health workers friendliness, 142(88.8%) quick response to questions asked and 142(88.8%) with use of gentle soothing words. During the procedure majority 157(98.1%) of respondents expressed satisfaction with body privacy, 155(96.9%) conducts test in a comfortable room on a couch, 153(95.6%) being careful during procedure and 149(93.1%) talking to me during the procedure to allay fears. However, respondents were highly dissatisfied with visitors coming into the room while screening was going on 149(93.1%), followed by not being provided information on expected outcome of the test 91(56.9%). Other rating on satisfaction are seen in table 4.5.3

After the test, majority 152(95.0%) of the respondents expressed high satisfaction with being informed about time to come for the test result and 158(98.8%) respect accorded by health workers, but were highly dissatisfied with not being counseled on how to prevent cervical cancer 113(70.6%). See others result in table 4.5.3

Table 4.5.3 Respondents perceived level of satisfaction with actual services received.

Statements	Satisfied (Frequency) (%)	Not satisfied (Frequency) (%)	Undecided (Frequency) (%)	No of Respo ndents
Pre test				
Health worker explained the meaning of cervical cancer.	71(44.4)*	86(53.8)	2(1.3)	159
Soft and gentle words were used by the health worker when giving informations.	142(88.8)*	13(8.1)	5(3.1)	160
Health worker was friendly.	155(96.9)*	3(1.9)	2(1.3)	160
Health worker answered my questions about the test promptly.	142(88.8)*	13(8.1)	4(2.5)	159
Health worker explained how cervical screening is been done before the test.	85(53.1)*	74(46.3)	1(0.6)	160
During procedure				
I was properly counseled and prepared privately for the test.	93(58.1)*	66(41.3)	1(0.6)	160
Necessary assistance was given during the screening test.	140(87.5)*	20(12.5)	—	160
Health worker allayed your fear.	149(93.1)*	10(6.3)	1(0.6)	160
The door was closed during the test.	155(96.9)*	5(3.1)	—	160
Visitors were allowed into the test room during test.	11(6.9)	149(93.1)*	—	160
Health workers exposed only the part of the body needed for test.	157(98.1)*	3(1.9)	—	160
The test was done in a comfortable room on a couch.	155(96.9)*	4(2.5)	1(0.6)	160
The environment of the clinic was not clean.	6(3.8)	154(96.3)*	—	160
Health worker do test in a clean way	158(98.8%)*	1(.6)	1(.6)	160
Test was done in a careless manner	6(3.8)	153(95.6)*	1(0.6)	160
Expected outcome of cervical screening test was explained.	63(39.4)*	91(56.9)	5(3.1)	159
Cervical screening is with no pain.	125(78.1)*	29(18.1)	6(3.8)	160

Post test				
Were you satisfied with appointment given to come for the result?	105(65.6)*	52(32.5)	2(1.3)	159
Satisfaction with counseling on how to prevent cervical cancer.	46(28.8)*	113(70.6)	1(0.6)	160
Health workers interaction with you in term of respect.	158(98.8)*	2(1.3)	-	160

Respondents were asked if they will recommend the test to their friends. 156(97.5%) indicated that they will recommend the test to their friends while only 4(2.5%) do not desire to recommend the test to anybody.

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4.6: Type of additional information desired by respondents on Cervical Cancer/Cervical Screening

Report on additional information required by the respondents who were dissatisfied with information given on cervical cancer revealed that 59 (90.7%) will like further information on the causes, prevention and cure of cervical cancer, 4 (6.1%) would have wanted information on the cost of the treatment and 2(3.0%) on symptoms and early sign of cancer of the cervix. Table 4.6.1 shows additional information required by respondents on cervical cancer screening. Most of the respondents 47 (72.3%) needed general information on the test and 11 (16.9%) the outcome of the test immediately. Other responses are shown in the table. 4.6.1

Table 4.6.1 Type of additional information desired by respondents on Cervical Screening

N=73

Type of information	Frequency	Percentage (%)
General information on the test	47	72.3
The outcome of the test	11	16.9
Why lateness of result	10	15.4
Test procedures	3	4.6
Centers for the test	1	1.5
Next appointment	1	1.5

4.7 Suggestions for improving Clinic Services and clinic environment for improved satisfaction

Table 4.7.1 shows suggestions for improving clinic services and clinic environment for improved satisfaction. 35(29.9%) of the respondents suggested that educative information should be intensified on the screening test, 25(21.4%) suggested privacy of the waiting area equip with good chairs, television, fan or air –conditioner for convenience, while 24(20.5%) suggested reduction in the test fees or to make the test free. Other suggestions are presented in table 4.7.1 below.

Table 4.7.1 Suggestions for improving Clinic Services and clinic environment for improved satisfaction

N = 144

Suggestions for improving Clinic services for improved satisfaction.	Frequency	Percentages (%)
Educative information on the test	35	29.9
Privacy of the waiting area and equip with good chairs, television, fan or air – conditioner for convenience	25	21.4
Reduce test fees or make it free	24	20.5
More trained and qualified nurses	15	12.8
Reduce waiting time for result	13	11.1
Awareness in rural areas	11	9.4
Stand by generator should be available	9	7.7
Equip clinic with necessary materials e.g. Jik and carrat soap	5	4.3
Place radio and television advertisements	4	3.4
Distribute handbill / posters	2	1.8
Paying point is too far	1	0.6

TEST OF HYPOTHESIS

4.8 Hypothesis 1-There is no significant relationship between the age of the clients and knowledge of cervical cancer.

The result of the relationship between age group and knowledge of cervical cancer is presented in table 4.8.1. It was observed that the difference was not statistically significant ($X^2= 1.370$, $DF=3$, $P = 0.71$). More than half of the respondents in the age group 30-39, 26 out of 50 had poor knowledge of cervical cancer while 24 had good knowledge. On the contrary, within age group 20-29, more than half of the respondents had good knowledge of cervical cancer, same trend obtained within age range of 40-49.

Table 4.8.1 Relationship between the age of respondents and knowledge of cervical cancer

Age Group	Knowledge of Cervical Cancer					
	Poor N	Percentages (%)	Good N	Percentages (%)	Total	Percentages (%)
20-29	8	44.4	10	55.6	18	100
30-39	26	52.0	24	48.0	50	100
40-49	23	42.6	31	57.4	54	100
50+	20	52.6	18	47.4	38	100
Total	77	48.1	83	51.9	160	100

Chi square $X^2= 1.370$

$DF=3$

$P > 0.05$

4.8.2 Hypothesis 2 - There is no significant relationship between the education level of clients and knowledge of cervical cancer.

Table 4.8.2 shows that there is a significant relationship ($X^2=16.22$, $DF=1$, $P = 0.00$) between education level of respondents and knowledge of cervical cancer. It was observed that majority of the respondents with higher education, 80 out of 137 have good knowledge of cervical cancer compared with 3 out of 23 participants with lower education.

Table 4.8.2 Relationship between the education level of respondents and knowledge of cervical cancer.

Educational Status	Knowledge of Cervical Cancer Screening					
	Poor N	Percentages (%)	Good N	Percentages (%)	Total	Percentages (%)
Lower education (Primary and secondary school)	20	87.0	3	13.0	23	100
Higher education (> secondary school)	57	41.6	80	58.4	137	100
Total	77	48.1	83	51.9	160	100

Chi square $X^2 = 16.22$

$P < 0.05$

4.8.3: Hypothesis 3 - There is no significant relationship between the education status of clients and perceived level of satisfaction with services at the cytology clinic.

Table 4.8.3 shows that there is no significant relationship ($X^2 = 0.30$, $DF=1$, $P > 0.05$) between educational level of respondents and perceived level of satisfaction with services received. Good perceived level of satisfaction was observed in more than half of the respondents with higher education, 74 out of 137. About equal number of respondents, with lower education has good and poor perceived level of satisfaction.

Table 4.8.3 Relationship between the education status of respondents and perceived level of satisfaction

Educational Status	Perceived level of satisfaction					
	Poor level of satisfaction N	Percent ages (%)	Good level of satisfaction N	Percentag es (%)	Total	Percenta ges (%)
Lower education and secondary school)	12	52.2	11	47.8	23	100
Higher education (> secondary school)	63	46.0	74	54.0	137	100
Total	75	46.9	85	53.1	160	100

Chi square $X^2 = 0.30$

$DF=1$

$P > 0.05$

4.8.4 Hypothesis 4 - There is no significant relationship between the age of respondents and perceived level of satisfaction with services at the cytology clinic.

Table 4.8.4 shows that there is no significant relationship ($X^2=2.953$, $DF=3$, $P > 0.05$) between age of respondents and perceived level of satisfaction. More than half of the respondents within age 50+ has good perceived level of satisfaction, 20 out of 38, same pattern obtained for respondents within age 40-49 with 32 out of 54 and age group 20-29 with 11 out of 18 respondents with good perceived level of satisfaction. On the other hand more respondents, 28 out of 50 have poor perceived level of satisfaction within age group 30-39.

Table 4.8.4 Relationship between the age of respondents and perceived level of satisfaction

Age Group	Perceived Level of Satisfaction					
	Poor level of satisfaction. N	Percentages (%)	Good level of satisfaction N	Percentages (%)	Total	Percentages (%)
20-29	7	9.3	11	12.9	18	100
30-39	28	37.3	22	25.9	50	100
40-49	22	29.3	32	37.6	54	100
50+	18	24.0	20	23.5	38	100
Total	75	100	85	100	160	100

Chi square $X^2 = 2.953$

DF=3

CHAPTER FIVE

DISCUSSION

5.1 Socio-Demographic Characteristics of Respondents

Nearly all the respondents were married and majorities were above 30 years of age. This is expected since generally most women feel cervical cancer screening is for married and older women. This finding is in line with Ayinde et al study (2004) that reported 39.5% of respondents with opinion that cervical cancer screening is reserved for women who have started child bearing and is elderly. Bingham, Coffey, Winkler, Bishop, (2003) also reported that cervical cancer prevention services typically focus on women who are older (aged 30-50) and in need of other health care services such as married women who visit hospital for antenatal care. Ayinde et al (2004) study also shows that married sexually active students in the third year and above were identified to be more likely to have the cervical screening. In an Australian study, it was similarly observed that single women and those under the age of 30 years were at greater risk of not having knowledge of Pap smear and not utilizing it.

A significant percentage of the respondents had tertiary education. This might have been due to cervical cancer screening clinic awareness talk in clinics of the tertiary medical institution and on the other hand the low level of enlightenment on cervical cancer in the community since most women in the community is not aware of the screening. The fact that majority of the respondents were of the Yoruba ethnic group was as a result of the study area being located in the southwestern region of the country where the predominant ethnic group is Yoruba.

5.2 Awareness and knowledge of cervical cancer

Awareness and Knowledge of cervical cancer and source of awareness:

Two-third of the respondents reported ever heard of cervical cancer before coming to the clinic and most do not correctly know the predisposing factors to cervical cancer. This might not be connected to cervical cancer being a chronic disease condition which develops overtime and not well publicized unlike HIV/AIDS. Similar finding has been

reported by Bingham et al (2003) in which low awareness of disease is barrier to uptake of cervical cancer screening.

Ayinde and Ogunbode, (2005) also reported poor awareness about cervical cancer among Nigerian female market population. Lack of awareness is expressed as often associated with lack of knowledge of risk factors associated with the development of cervical cancer, such as early initiation of sex, multiple sexual partners and sharing male partners with other partners and history of sexually transmitted diseases. (Ralston, Taylor, Yasui, Kuniyuki, Jackson, Cu, 2003).

5.3 Awareness and knowledge of cervical cancer screening

More than half of the respondents had ever heard of cervical cancer screening prior to referral to the clinic. This reveals that respondents have good knowledge of cervical cancer screening. This might be due to large proportion of respondents being referred for the screening by the health workers, thus a little explanation about the test must have been given. Irrespective of the good knowledge of respondents on cervical cancer screening, misconceptions persist. Majority of the respondents thought "females who have started child bearing or elderly women really need cervical cancer screening.

Most believed that cervical cancer is majorly a disease of older women and that younger woman may not need screening except the promiscuous ones. About half of the respondents associated multiple sexual partners as a risk factor for cervical cancer. In a study conducted in Ghana, Kenya and South Africa, it was reported that women assumed that the screening test was actually a test for human immunodeficiency virus (HIV) or STIs. A positive test was erroneously believed to mean that they have AIDS. (Bingham, Abwao, Luchemo, 2001, Buskens and Bradley, 2002) Furthermore, positive cervical cancer screening result often are viewed as proof of marital infidelity. Because of these stigmas some women are especially fearful about explaining the results of these examinations to their spouses, and therefore may decide not to be screened. A study in Bolivia found that some women refused cervical cancer screening because they believed that it is a diagnostic tool for any vaginal/gynecological problem. Another study reported that women said that the screening test involves removing the uterus, cleaning it and then

putting it back in the woman's body. These misconceptions arose from lack of adequate information about cervical cancer screening in the community. (Buskens and Bradley, 2002)

5.4 Utilization of cervical cancer screening services.

Despite more than half of the respondents being aware of cervical cancer screening, only (23.8%) had previously being screened for cervical cancer. This percentage is rather low. Those without previous screening experience were asked why they never did, about half of them were not aware of test centers, others thought the test was not important and were reluctant to do it, while some procrastinated about the test. Roberts et al (2004) in a study reported a wide disparity between the prevalence of awareness of cervical cancer and utilization of cervical cancer screening, as very few (28.8%) had heard of cervical cancer and only (6.8%) reported having had a pap smear any time in the past. (Roberts et al, 2004).

Same low trend of utilization, (8.3%) was documented among female undergraduates in Ibadan by Ayinde, Omigbodun and Ilesanmi, (2004) Similar reasons for non-utilization were reported by Ayinde et al, (2004), among female undergraduate in Ibadan as lack of awareness about the test, lack of knowledge of centers where the test could be done, reluctance and high cost of the test. (Ayinde et al, 2004). Gharoro and Ikeanyi, (2006) in a study of appraisal of the level of awareness and utilization of the Pap smear as a cervical cancer screening test among female health workers in a tertiary health institution, expressed low level of self-reported utilization of Pap test among health workers as well as screening uptake due to a combination of inappropriate beliefs, misapprehension, and deficient knowledge. The majority of the participants believed that they were not at risk of developing cervical cancer. High rate of non-utilization of the test was also reported among female health professional working in hospitals where facilities for the test are readily available (Ayinde and Omigbodun, 2003). In another study, the major reason documented for non-utilization was reluctance, due to anxiety regarding physical privacy (Watkins et al, 2002). On the other hand, it could also be as a result of no importance attached to cervical cancer screening by health workers unlike HIV infection. (Watkins et

al, 2002) It was revealed that only about 5% of women in developing countries have been screened for cervical dysplasia in the past 5 years compared with 40% - 50% of women in developed countries. (Akinremi, 2004) Correlates of inadequate screening status include low educational level, inadequate service at public health facilities and lack of knowledge about prevention and symptoms of cervical cancer. This is consistent with Bingham et al, (2003), which also reported that screening coverage in developing countries is extremely low, resulting in high morbidity and mortality due to cervical cancer. (Bingham et al, 2003) Results also showed that health workers were the major source of information about cervical cancer screening. This suggests the fact that awareness about cervical cancer screening is very limited in the community, except women get to the health facility. The effect of negative reports from other women on health workers negative behavior can also affect screening uptake, such as if a woman had heard reports of women being turned away by providers because they were too busy or not available (Bingham, et al unpublished data, 2004).

Information gathered from health facilities are somehow treated with importance than information from friends and neighbors. (ACCP, 2004) Health care providers can be an important source of information for women and can motivate women to attend screening (Sankaranarayanan et al 2003). In a study conducted in Thailand, it was reported that 41% of women who were screened reported that their seeking screening originated from health care facility staff. In another study, 26 percent of women reported that individual contact with a health provider had the most influence on their decision to participate in screening. (ACCP, 2004) This might be due to respondents belief that health workers are trusted sources of information about cervical cancer and cervical cancer screening. However, it has been reported that few women relied less on health providers for information and more on other women who had already been screened, family members, friends and neighbors. (ACCP, 2004)

About two-third of the respondents were aware of the Cervical Screening Center in U.C .H. in 2007 but significantly lower proportion in previous year (2005 and 2006). The finding suggest that most of the respondents recently knew about the clinic and probable large percentage of these respondents knew the clinic because they were referred from

other health facilities. Suggesting that awareness about the cervical screening center in U.C.H. is beginning to rise in the community. Clients who visited the clinic might also have informed their friends. A study in both Kenya and Peru on identifying the characteristics of underserved women by Winkler *et al* (2007) reported that the number of screened people that a woman knew significantly predicted the woman's screening status, screened women reported knowing an average of nearly ten screened women while unscreened women knew, on average, just six other women who had been screened. Another study by Alliance for cervical cancer prevention (ACCP) on determinants of participation in screening suggest that involving community networks is necessary to reach marginalized women (e.g. women living by themselves, women living in transitional housing or in poorer areas and women who are less educated or unemployed (Winkler *et al* (2007) In contrast, traditional approaches to women's participation, such as the issue of invitation letters or reminders, was reported to have proven unsuccessful. (Winkler *et al*, 2007)

5.5 Motivational reasons for cervical cancer screening

The key motivated reason for seeking screening services was assessed. For most of the respondents it was the doctor's advice while others, the desire for routine medical check up on their own volition. There is a strong association between health provider recommendation and first-time screening as well as regular uptake of cervical cancer screening. Based on information from the National Cancer Institute, Mandelblatt and Yabroff acknowledged physician recommendation to be "one of the most powerful predictors of screening across all age, socioeconomic, and ethnic groups." The positive influence of physician recommendation on cancer screening uptake has been well documented in numerous studies in the United States. (Juon , Seung-Lee , Klassen , 2003, Austin , Ahmad , McNally , 2002, Nguyen , McPhee , Nguyen , 2002)

All respondents reported satisfaction with the services in cytology clinic and environment including how they were addressed by the health worker and health workers professional performance before the screening while most were satisfied with health workers friendliness and manner of answering respondents' questions with use of gentle soothing words. During the procedure majority of respondents expressed satisfaction with body

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privacy, service delivery in comfortable rooms and the act of being carefully attended to during procedure and communication to allay fears. This high level rating reflects remarkable service delivery behavior of the health workers which needs to be maintained. A report in a study shows that how effectively and respectfully the provider communicates information to the clients influence a woman's experience with care. Furthermore, women appreciated being addressed by their names, and wanted providers to speak simply, softly, and gently and avoid brusque behavior. (Agurto, 2001) Importance of having an interpreter available at the clinic was equally reported as many women do not seek services because of the language barrier (Agurto, 2001). While nearly all respondents included in the study were satisfied with clinic procedures, waiting area and sitting arrangement in the clinic, however, many respondents were highly dissatisfied with visitors coming into the room while screening was going on and not being provided with information on expected outcome of the test. This issue must be promptly addressed to prevent the erosion of gains made in respect to other areas of satisfaction.

Furthermore, little above half of the respondents were satisfied with information provided by health workers on cervical cancer screening and cervical cancer. This could probably be explained by the availability of only two Nurses who counsel the clients. One-to-one communication between a woman and her provider was the recommended counseling approach adopted in this cytology clinic. However in light of its time consuming and with more clients waiting to access service, the health workers might probably reduce counseling time per clients which consequently cut down necessary information to the client. However, good counseling is very vital in cervical screening service and as noted by Agurto (2001) and Lazzano - Ponce et al (1999) client - provider relationship greatly affects client satisfaction. The condition under which counseling takes place, the woman's ability to ask question and have her questions answered and the process of informed consent affects a woman's experience with care (Agurto, 2001 and Lazzano - Ponce et al, 1999)

In conclusion, in respect of the conceptual frame work set for the study, the followings can be concluded:

- Knowledge of cervical cancer and cervical cancer screening influenced rate at which clients' seek cervical cancer screening services.
- Easy accessibility and availability of cervical cancer screening services can possibly influence the time a client starts screening and compliance with subsequent follow up.
- Availability of cervical cancer preventive counseling and enlightenment in various clinics can influence seeking cervical cancer screening services.
- It was observed that influence of the significant others, such as clients husbands, sisters, friends, and neighbors in seeking cervical cancer screening services which has been postulated to influence seeking cervical cancer screening services was not validated in this study.
- Respectful interaction by health workers and comfortable clinic environment affected the satisfaction level of the clients with the cervical cancer screening services.

5.6 Recommendations

In line with the findings of these study it is recommended that

- 1) National guidelines on cervical cancer prevention and management should be provided, and workers trained on the use.
- 2) IEC materials about cervical cancer and its prevention should be developed and disseminated to communities, at workplace and clinics along with information on where and how to get screened. In addition, local media should be used to deliver information concerning cervical cancer and cervical cancer screening. Mass media like radio, television, video, cable networks, newspaper, and magazines since they are attractive option for communicating message to a large number of people simultaneously and may reach people in remote locations. Program planners should commence providing counseling and screening for cervical cancer in the voluntary counseling and testing centers for HIV (VCT).
- 3) Provision of prompt and adequate information on screening outcomes should be strengthened and so is privacy during screening.
- 4) The clinic health workers should be trained on the importance of a satisfied client and develop goals for improving performance like good counseling skills and understand client concerns and right.
- 5) The authority in charge of the clinic, need to re-consider relocating the clinic to the community since the number of clients currently utilizing the clinic is low. Focusing on the community in cervical cancer prevention activities, matters in increasing participation rate.
- 6) A woman's social networks with which she may be affiliated could support a woman's decision and ability to seek services. The support of religious leaders, who are predominantly men, should be sought also to link community health workers with women faith based organizations.

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APPENDIX 1

CLIENTS' UTILIZATION AND PERCEIVED LEVEL OF SATISFACTION WITH SERVICES RECEIVED AT THE CERVICAL CANCER SCREENING CLINIC, UNIVERSITY COLLEGE HOSPITAL, (U.C.H) IBADAN, NIGERIA

Introduction

My name is OLANIYI, Esther; I am a student of the Department of Health Promotion and Education, College of Medicine, University of Ibadan. I am carrying out a research to assess the satisfaction of patients with the services they receive at cervical screening clinic of the Department of Obstetrics and Gynaecology, University College Hospital, Ibadan. Please, kindly assist by filling the questionnaire as appropriate, giving sincere and genuine answers. It is not a test. No answer is wrong or right. Your response will be kept confidential and your name will not be necessary for the study.

Thank you.

SECTION A

Instruction: Tick where appropriate

Serial No-----

Demographic Data

1. Age at last birthday (in years) _____
 2. What religion do you practice?
(1) Christianity (2) Islam (3) Traditional
(4) Others specify _____
 3. Marital Status:
(1) Single (2) Married (3) Separated (4) Divorced (5) Widowed
 4. Educational Status: (1) No formal education (2) Primary education
(4) Secondary education (5) Grade 11/Technical
(6) Tertiary (specify) _____
 5. Type of Marriage (1) Monogamous (2) Polygamous
 6. Occupation (please specify) _____
 7. Tribe: (1) Yoruba (2) Igbo (3) Hausa (4) Others specify _____
- How many children have you had? _____

SECTION B

Awareness to Cervical screening

- 9a. Have you ever heard of cervical screening? 1. Yes 2. No 3. I don't know.
- 9b. If yes, what do you understand by the term "cervical screening".
-

10 Who first told you about "cervical screening"?

- (1) Relations (2) Friends (3) School (4) Health facility
(6) Public lecture (5) Mass media (7) others specify _____.

(Indicate "Yes, No or I don't know" for each options)

11. Who is at risk of cervical cancer and needs cervical screening from the followings?

(a) Females that are less than 25 years old?

1. Yes 2. No 3. I don't know.

(b) Females who have started child bearing or elderly women?

1. Yes 2. No 3. I don't know

(c) Any female that has started having sexual intercourse regularly?

1. Yes 2. No 3. I don't know

12. Why do you feel a woman needs a "cervical screening"? (Pick options below)

- (a) Because of sexually transmitted infection. 1 Yes 2 No 3 I don't know
(b) To know her health status 1 Yes 2 No 3 I don't know
(c) To prevent premature death / disease 1 Yes 2 No 3 I don't know
(d) To detect early malignant/cancerous cells 1 Yes 2 No 3 I don't know
(e) So that a woman will be careful of having sex. 1 Yes 2 No 3 I don't know

Previous Utilization of Cervical Screening service

13. Why did you come to this clinic? -----

14a. Have you ever had a cervical screening done before now?

1. Yes 2. No 3. I don't know

14b. If No, why have you not done 'cervical screening' before now? -----

15. What is your source of information about this cervical screening service in U.C.H?

- (1) Friend (2) Mass Media (3) Neighbor
(4) Relation (5) Internet (6) others specify: _____

SECTION B

Awareness to Cervical screening

- 9a. Have you ever heard of cervical screening? 1. Yes 2. No 3. I don't know.
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15. What is your source of information about this cervical screening service in U.C.H?

- (1) Friend (2) Mass Media (3) Neighbor
(4) Relation (5) Internet (6) others specify: _____

16. In what year did you know about this cervical screening center in U.C.H? -----

17. Who decided about your coming to obtain this screening service?

- (1) Self. (2) Friend (3) Husband (4) Neighbour. (5) Other specify-----

Knowledge of Cervical Cancer

18a. Have you ever heard of "cervical cancer"?

1. Yes 2. No 3. I don't know.

18b. If yes, what do you understand by cervical cancer? _____

19. How did you know about cervical cancer?

- (1) Hospital workers (2) Mass media (3) Friends (4) Colleagues
(4) Relations (5) Internet (6) others specify _____

20 In your own opinion what do you think can cause cervical cancer?

- (a) _____
(b) _____
(c) _____

Please respond to the following statement by ticking, "Yes" or "no" or "I don't know".

No	Statements	Yes	No	I don't know
21				
	Cervical cancer does not manifest early because it develops overtime.			
	It occurs when a woman is menstruating normally without any pain.			
	The use of contraceptive device can cause cervical cancer.			
	A woman with multiple sexual partners is at risk of cervical cancer.			
	Early exposure to sexual intercourse is a risk factor for cervical cancer.			
	Change of sexual partner is not a risk factor for cervical cancer.			
	A woman of childbearing age cannot have cervical cancer.			
	Bleeding from vaginal during and after sexual intercourse is a major sign of cervical cancer.			
	Sexually transmitted infection cannot cause cervical cancer.			

SECTION C

Predictor of Satisfaction

22 Can you estimate for how long you waited before being attended to by the Health workers? -----(In minutes)

23a. Are you satisfied with the time you waited before being attended to by the health workers?

- 1. Yes
- 2. No
- 3. I don't know

23b. Give reasons for your answer. -----

23c. If no, please specify how long you feel is appropriate for you to wait before being attended to by the health workers? -----(Minutes)

24 How do you rate the cost of cervical cancer screening test?

- (1) Expensive
- (2) Moderate
- (3) Cheap

25a. Are you satisfied with the waiting area?

- 1. Yes
- 2. No

25b. If no, what are the things that need to be put in place?

1 -----

2 -----

26. Is the sitting arrangement in the clinic comfortable for the patients?

- 1. Yes
- 2. No
- 3. I don't know.

27a. Are you satisfied with how you were addressed by the health workers?

- 1. Yes
- 2. No

27b. If no, how would you have loved to be addressed? -----

28. Were you able to use the toilet facility in the clinic?

- 1. Yes
- 2. No
- 3. I don't know

29. Were you able to buy light refreshment around the clinic when needed?

- 1. Yes
- 2. No
- 3. I don't know

30a. Do you feel the information you were given by the health workers about cervical cancer were enough? 1. Yes 2. No

30b. If no, what additional information would you want?

1 -----

2 -----

31a. Do you feel the information you were given by the health workers about the test were enough?

1. Yes

2. No

31b. If no, what additional information would you want?

1 -----

2-----

32. Who performed the test?

(1) Male Doctor

(2) Female Doctor

(3) Male Nurse

(4) Female Nurse.

33a. Are you satisfied with the person who performed the screening test?

1. Yes

2. No

33b. Give reasons for your answers.

1-----

2-----

Please respond to the following statement on the page overleaf by ticking, "Satisfied" or "not satisfied" or "Undecided"

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No	Statements	Satisfi ed	Not satisfie d	Undeci ded.
34	Pre test			
	Health worker explained the meaning of cervical cancer.			
	Soft and gentle words were used by the health worker when giving informations.			
	Health worker was friendly.			
	Health worker answered my questions about the test promptly.			
	Health worker explained how cervical screening is been done before the test.			
	During Procedure			
	I was properly counseled and prepared privately for the test.			
	Necessary assistance was given during the screening test.			
	Health worker allayed your fear.			
	The door was closed during the test.			
	Visitors were allowed into the test room during test.			
	Health workers exposed only the part of the body needed for test.			
	The test was done in a comfortable room on a couch.			
	The environment of the clinic was not clean.			
	Health worker do test in a clean way.			
	Test was done in a careless manner.			
	Expected outcome of cervical screening test was explained.			
	Cervical screening is with no pain.			
	Post test			
	Were you satisfied with appointment given to come for the result?			
	Satisfaction with counseling on how to prevent cervical cancer			
	Health workers interaction with you, in term of respect			

35. How do you rate what happened generally during your visit?

(1) Satisfied

(2) Not satisfied

(3) Fair

36. Please, indicate things that you might want us to put in place to make you more satisfied with the cervical screening services in this clinic.

(a)-----

(b)-----

(c)-----

37a. Would you like to recommend the test to a friend?

1. Yes

2. No

37b. If Yes, why? _____

37c. If No, why? _____

48. Please if you have any other comments or recommendation, please, include them here. All comments and answers are confidential:

Thank you very much for your time in completing this questionnaire. Your participation in completing this survey is important to improving the quality of services render at the cervical screening clinic. University College Hospital, U.C.H. Ibadan.

APPENDIX 2

CONSENT FORM

My name is OLANIYI, Esther .O. (Mrs.), an M.P.H. Student in the Department of Health Promotion and Education, College of Medicine, University of Ibadan.

I am carrying out a study on Clients' perceived level of satisfaction with services received at the cervical screening clinic, University College Hospital, Ibadan.

I am therefore requesting for your participation in the study.

You will not need to mention your name but you will be given a serial number.

Any information given will not in any way be used against you but rather will be used to protect you as an autonomous person who has the right to decide issues concerning her life.

Your candid opinion is expected. You are free to accept to participate in the study or not to participate.

You are free to withdraw from the study during the course if you wish without victimization.

CONSENT: Now that the details information about the study has been explained to me and I fully understood, I am ready to participate in the study.

Signature of participants/Date

Signature of interviewer

APPENDIX 3

The Progression of Cervical Disease

- **HPV INFECTION** Extremely common among women of reproductive age. A small percentage of cases lead to abnormal cell changes.
- **MILD CERVICAL DYSPLASIA** Abnormal cell changes, called dysplasia, are usually temporary. Some cases, however, progress to severe dysplasia.
- **SEVERE DYSPLASIA** Severe dysplasia is far less common than mild dysplasia. It can progress to cancer in 10–15 years.

CERVICAL CANCER Invasive cancer develops over many years and is most common among women in their 50s and 60s. (ACCP, 2003).

Staging of cervical cancer

It is widely accepted that invasive carcinoma of the cervix is preceded by pre-malignant lesions which are benign.

The World Health Organization classification of cervical dysplasia :

Mild,

Moderate, or

Severe and has a separate category for carcinoma in situ (CIS).

1. Cervical intraepithelial neoplasia (CIN).

CIN1: represents mild to moderate dysplasia; Good maturation is present in the nuclear abnormality confined to the deeper layer.

CIN2: is an intermediate grade; Moderate dysplasia – Maturation is present in the upper half of the epithelium. Nuclear abnormalities are more marked and found higher up.

CIN3: severe dysplasia or carcinoma in situ. (CIS) Differential and stratification may be completely absent or present only in the superficial quarter of epithelium. Nuclear abnormalities are more marked and may extend through the entire depth of epithelium.

2. In the Bethesda system a low-grade squamous intraepithelial lesion (LSIL) corresponds to CIN1
3. A high grade SIL (HSIL) encompasses both CIN2 and CIN3. (Adami, Hunter, and Trichopoulos, 2002)

The Federation Internationale Gynecologic Obstetrica, (FIGO) Classification

Cervical cancer is staged by the FIGO staging system, which is based on clinical examination, rather than surgical findings. It allows only the following diagnostic tests to be used in determining the stage: palpation, inspection, colposcopy, endocervical curettage, hysteroscopy, cystoscopy, proctoscopy, intravenous urography, and X-ray examination of the lungs and skeleton, and cervical conization.

FIGO Staging of Carcinoma of the Cervix Uteri, 1994

Preinvasive Carcinoma

Stage 0 Carcinoma in situ, intraepithelial carcinoma

Invasive Carcinoma

Stage 1 Carcinoma strictly confined to the cervix (extension to the corpus is disregarded).

Stage Ia1

Lesions detected microscopically that can be measured as no greater than 3mm deep and 7mm wide. Minimal microscopically evident stromal invasion. (.2-1.2% die)

Stage Ia2

The depth of invasion is between 3- 5 mm taken from the base of the epithelium, either surface or glandular, from which it originates, and less than 7 mm wide. (1.7% die)

Stage Ib1

Lesions up to 4.0 cm diameter.

CIN3: severe dysplasia or carcinoma in situ. (CIS) Differential and stratification may be completely absent or present only in the superficial quarter of epithelium. Nuclear abnormalities are more marked and may extend through the entire depth of epithelium.

2. In the Bethesda system a low-grade squamous intraepithelial lesion (LSIL) corresponds to CIN1
3. A high grade SIL (HSIL) encompasses both CIN2 and CIN3. (Adami, Hunter, and Trichopoulos, 2002)

The Federation Internationale Gynecologic Obstetrica, (FIGO) Classification

Cervical cancer is staged by the FIGO staging system, which is based on clinical examination, rather than surgical findings. It allows only the following diagnostic tests to be used in determining the stage: palpation, inspection, colposcopy, endocervical curettage, hysteroscopy, cystoscopy, proctoscopy, intravenous urography, and X-ray examination of the lungs and skeleton, and cervical conization.

FIGO Staging of Carcinoma of the Cervix Uteri, 1994

Preinvasive Carcinoma

Stage 0 Carcinoma in situ, intraepithelial carcinoma

Invasive Carcinoma

Stage 1 Carcinoma strictly confined to the cervix (extension to the corpus is disregarded).

Stage Ia1 Lesions detected microscopically that can be measured as no greater than 3mm deep and 7mm wide. Minimal microscopically evident stromal invasion. (.2-1.2% die)

Stage Ia2 The depth of invasion is between 3- 5 mm taken from the base of the epithelium, either surface or glandular, from which it originates, and less than 7 mm wide. (1.7% die)

Stage Ib1 Lesions up to 4.0 cm diameter.

Stage Ib2 Lesions larger than 4.0 cm diameter.

Stage II The carcinoma extends beyond the cervix but has not extended onto the wall. The carcinoma involves the vagina, but not the lower third.

Stage IIa No obvious parametrial involvement.

Stage IIb Obvious parametrial involvement.

Stage III The carcinoma has extended onto the pelvic wall. On rectal examination, there is no cancer-free space between the tumor and the pelvic wall. All cases with hydronephrosis or nonfunctioning kidney.

Stage IIIa No extension to the pelvic wall, only involvement of the lower third of the vagina.

Stage IIIb Extension to the pelvic wall and/or hydronephrosis or non-functioning kidney.

Stage IV The carcinoma has extended to the mucosa of the bladder or rectum.

Stage IVa Spread of the growth to adjacent organs, biopsy confirmed.

Stage IVb Spread to distant organs.

The diagnosis of Stage Ia1 and Stage Ia2 is based on microscopic examination of removed tissue, preferably a cone, which includes the entire lesion. Vascular space involvement, either venous or lymphatic, does not change the staging but must be recorded because it may affect treatment decisions in the future. (Cancerbackup, 2008)

Diagnosis of Carcinoma of the Cervix

Cervical carcinoma is diagnosed mainly through:

(a) Medical History and Physical Examination.

- A complete physical examination, including a pelvic examination.
- Perform a Pap smear.

(b) Laboratory tests

Blood tests to measure complete blood count (CBC) and blood chemistry levels

(c) Endoscopy of the cervix (colposcopy)

- Biopsy
- Colposcopic biopsy
- Endocervical curettage
- Cone biopsy
- Imaging tests, mainly done to check the extent of the cancer (American Cancer Society, 2008)

(d) Staging tests

(e) Tests to determine cervical cancers progress (stage). They may include:

- blood chemistry test
- chest x-ray
- computerized tomography (CT, CAT) scan
- magnetic resonance imaging (MRI)
- intravenous pyelogram (IVP)
- cystoscopy
- sigmoidoscopy
- examination under anesthesia
- lymph node biopsy (Canadian Cancer Society, 2006)

Clinical Features of Cervical Cancer:

Cervical cancer may not cause any signs or symptoms in its early stages. Early changes to the cells in the cervix are often picked up during routine Pap tests.

Later signs and symptoms:

- Abnormal bleeding, spotting or bloodstained discharge from the vagina between periods
- Unusually long or heavy periods
- bleeding after sexual intercourse
- Pain during sexual intercourse
- Watery discharge from the vagina
- Increased amount of discharge from the vagina
- Bleeding from the vagina after menopause.
- Pain in the pelvic area or lower back that may go down the leg(s)
- Foul-smelling discharge from the vagina
- Swelling (oedema) of the legs
- Anaemia, which causes tiredness, lack of energy and shortness of breath.

Treatment

Three kinds of treatment may be used either singularly or in combination, depending on the stage of Cervical Cancer.

There are 3 main treatment modalities

- Surgery:** an operation to remove the cancer.
- Chemotherapy:** the use of drugs to kill cancer cells.
- Radiotherapy:** the use of high energy x-rays to kill the cancer cells, radiotherapy for

Cervical Cancer.

Radiotherapy is a treatment which uses high energy beams of radiation which are focused on cancerous tissue. Radiotherapy destroys the cancer cells, while doing as

little harm as possible to normal cells. Radiotherapy alone can be curative for early stage cervical cancer and may be an alternative to surgery. Radiotherapy is also given if the cancer has spread beyond the cervix and is not curable with surgery alone. Radiotherapy may also be used after surgery if there is a high risk that the cancer may come back. It is often given in combination with chemotherapy. (Cancer backup, 2003)

Two types of radiotherapy are used for cervical cancer, external and internal. In many cases both types are used.

- External radiotherapy. This is where radiation is targeted on the cancer from a machine. (This is the common type of radiotherapy which is used for many types of cancer.)
- Internal radiotherapy (brachytherapy). This treatment involves placing a small radioactive implant next to the cancerous tumour for a short time and then it is removed. (It is put in position via the vagina.)

Even if the cancer is advanced and a cure is not possible, radiotherapy may still have a place to ease symptoms. For example, radiotherapy may be used to shrink secondary tumours which have developed in other parts of the body and are causing pain. (Cancer Research UK, 2007)