

Cost and Predictors of Cost of Cervical Cancer Treatment  
in Patients Attending Tikur Anbessa Hospital; Addis  
Ababa, Ethiopia



By: Alemayehu Desalegne

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A Thesis Submitted To the School Of Graduate Studies of Addis  
Ababa University in Partial Fulfillment of the Requirements for  
the Degree of Masters of Public Health

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May 2011  
Addis Ababa, Ethiopia

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# **Dedication**

I dedicate this thesis

To

My Mother; Amakelech Tadese

&

My Father; Desalegn Hailu

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## LIST OF ABBREVIATIONS

|       |                                                       |
|-------|-------------------------------------------------------|
| ASR   | Age-standardized rate                                 |
| CI    | Confidence Interval                                   |
| CIN   | Cervical Intraepithelial Neoplasia                    |
| COI   | Cost Of Illness                                       |
| DT    | Tunisian Dinar                                        |
| EC    | Ethiopian Calendar                                    |
| EDHS  | Ethiopian Demographic Health Survey                   |
| ETB   | Ethiopian Birr                                        |
| FIGO  | International Federation of Gynecology and Obstetrics |
| GW    | Genital Warts                                         |
| Gyn   | Gynecology                                            |
| HCPP  | Healthcare Payer Perspectives                         |
| HPV   | Human Papilloma virus                                 |
| IAEA  | International Atomic Energy Agency                    |
| IQR   | Inter Quartile Range                                  |
| IRB   | Institutional Review Board                            |
| NGO   | Non Governmental Organization                         |
| NT\$  | New Taiwan Dollar                                     |
| OPD   | Out Patient Department                                |
| Pap   | Papanicolaou                                          |
| RT    | Radiation Therapy                                     |
| SD    | Standard Deviation                                    |
| SNNPR | Southern Nations Nationalities and Peoples Region     |
| SPSS  | Statistical Package for Social Sciences               |
| STD   | Sexually Transmitted Disease                          |
| TAH   | Tikur Anbessa Hospital                                |
| UK    | United Kingdom                                        |
| US    | United States                                         |
| USD   | United States Dollar                                  |
| WHO   | World Health Organization                             |

## Abstract

**Background:** *Cervical cancer is a leading cause of death from cancer among women in low-resource settings, affecting women at a time of life when they are critical to social and economic stability. In addition to its magnitude, the economic and quality-of-life burden of cervical cancer is significant.*

**Objectives:** *To estimate economic burden of cervical cancer among patients and their family members and to determine predictors for variation in patient related cost of cervical cancer.*

**Methods:** *Cost of illness study on 227 cervical cancer cases at Tikur Anbessa Hospital was conducted. Consecutive sampling technique was used to select the study participants. We employed a micro-costing bottom-up approach in order to estimate direct cost of cervical cancer. Indirect costs for the study subjects and their accompanying persons were calculated in terms of productivity time losses, using human capital approach. Societal perspective, prevalence-based model was used. Descriptive statistics such as mean, standard deviation, median and inter-quartile range were calculated to describe some parts of the results. Nonparametric testing; Kruskal Wallis was used to determine the statistical significance of the differences in mean values for the four stage of cervical cancer and other variables. Mann-Whitney test was used to determine the statistically significance differences in mean values for the two groups (surgery, radiotherapy chemotherapy, ever admitted etc.). Multiple liner regression analysis was employed to analyze the separate effects of the various predictor variables on the cost of treatment.*

**Results:** *The average outpatient cost per patient for cervical cancer was Birr 5,905 (\$407.2) (median = 3,000 (\$206.9)). Mean direct outpatient cost (Birr 4,845.3 (\$334.2) takes the largest share compared with the indirect counterpart (Birr 2,173.7 (\$150)). The outpatient cost for almost half of the respondent falls in a range between Birr 6,933 (\$478) and Birr 1,359 (\$93.7). Mean inpatient cost for hospitalized patients was Birr 5,863.2 (\$404.4). The average direct inpatient cost was Birr 4,771 (\$329) (74% medical costs and 26% non medical costs). The mean value for total inpatient cost for nearly half of the respondent were in a range of Birr 7,161(\$493.9) and 1,936 (\$133.5). For every single day increment in inpatient hospital stay there is equivalent increment of Birr 61.5 (\$4.2) on total inpatient patient side cost.*

**Conclusion:** *Cervical cancer creates an immense economic burden on patients and their families. Outpatient treatment cost was found to be dependent on patient residence distance from the hospital, number of employed household members, number of facility visited and occupation. Longer duration of inpatient hospital stay and existence of co-morbidity were associated with higher inpatient cost.*

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**Key words:** *cost of illness, cervical cancer, cancer, economic evaluation, cost, Ethiopia,*

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# 1. INTRODUCTION

## 1.1 Background

Cervical cancer is a disease in which the cells of the cervix become abnormal and start to grow uncontrollably, forming tumors. It is considered a disease of early and late middle age. Isolated cases are found to occur among young women, but incidence rates are seen to rise sharply from age 35 years with approximately 87% of cases in women over the age of 35 years(1).

Known predisposing factors to future development of cervical cancer include sexual debut before the age of 20 years, sexual promiscuity, high parity and low socioeconomic status. Some of the factors are thought to facilitate infection by certain high-risk human papilloma virus (HPV) types during the period of active cervical epithelial metaplasia, especially during adolescence (2).

Cervical cancer is a leading cause of death from cancer among women in low-resource settings, affecting women at a time of life when they are critical to social and economic stability. In addition to its magnitude the economic and quality-of-life burden of cervical cancer is significant and highlights the need for treatment and prevention options for this condition (3).

## 1.2 Statement of the Problem

The world has a population of 2329.08 million women age 15 years and older who are at risk of developing cervical cancer. Current estimates indicate that every year 493,243 women are diagnosed with cervical cancer and 273,505 die from the disease. Cervical cancer ranks as the 2<sup>nd</sup> most frequent cancer in women in the World, and the 2<sup>nd</sup> most frequent cancer among women between 15 and 44 years of age. About 10.0% of women in the general population are estimated to harbor cervical human papilloma virus infection at a given time, and 70.1% of invasive cervical cancers in the World are attributed to HPVs 16 or 18 (4).

Africa has a population of 267.9 million women ages 15 years and older who are at risk of developing cervical cancer. Current estimates indicate that every year 78,897 women are diagnosed with cervical cancer and 61,671 die from the disease. Cervical cancer ranks as the

1<sup>st</sup> most frequent cancer in women in Africa, and the 1<sup>st</sup> most frequent among women between 15 and 44 years of age (4).

In Ethiopia records show that of the nearly 22 million women over the age of 15, approximately 7,600 are diagnosed with cervical cancer and roughly 6,000 women die of the disease each year (5). Studies reveals that the etiology of cervical cancer in Ethiopia is multifactorial. Early exposure of the immature cervical epithelium to STD, the trauma of repeated childbirth, and multiple sexual partners in women whose defense factors are impaired by chronic malnutrition, add up to a major medico-socio-economic factor. The evidence also suggests that cervical cancer in Ethiopia is predominantly socio-sexual disease (4).

Policymakers need to know not only the epidemiological indicators of cervical cancer, such as prevalence rate and incidence rate, but also the size of its negative impact on the economy. Economic cost of illness studies describes the economic burden of a disease to the society. Thus, cost of illness information should be useful for government agencies, pharmaceutical industries, medical professionals, and insurance payers to know the quantity of resources (in monetary terms) used to treat a disease, and the size of the negative economic consequences (in terms of lost productivity) of illness to the society (6, 7).

It would clearly be valuable to have some estimate of the economic losses caused by cervical cancer so that the economic consequences of its eradication could be predicted. This could enable expenditure of public funds on health projects to be carried out more rationally. Despite huge number of studies on the cost of cervical cancer in the developed world they are scanty in the Africa continent. In Ethiopia no such study has been documented to calculate the cost of cervical cancer. In this era of scarce resources and rising cost, it is critical to have an understanding of the economic aspect of cervical cancer in order to develop and implement sound public health and prevention policies. This cost-of-illness study gives estimate for the total cost and predictors of cost in patients with cervical cancer.

## 2. LITERATURE REVIEW

### 2.1 What are the risk factors for cervical cancer?

Several risk factors increase the odds of developing cervical cancer. Women without any of these risk factors rarely develop cervical cancer. Some of the main risk factors include: Young age at the first full-term pregnancy, Multiple full-term pregnancies, oral contraceptives (birth control pills), diet, Chlamydia infection, Immunosuppression, smoking, HPV infection, poverty, family history of cervical cancer(8, 9). In thinking about risk factors, it helps to focus on those can be change or avoid (like smoking or HPV infection), rather than those cannot (such as age and family history). However, it is still important to know about risk factors that cannot be changed, because it's even more important for women who have these factors to get regular Pap smear tests to detect cervical cancer early (10).

The most important risk factor for cervical cancer is infection by the HPV (8, 9). These viruses are called papilloma viruses because some of them cause a type of growth called a papilloma, which are more commonly known as warts. Currently it is believed that HPV is a necessary cause for the development of cervical cancer (2, 11). Different types of HPVs cause warts on different parts of the body (11). Certain types of HPV are called high-risk types because they are strongly linked to cancers, including cancer of the cervix, vulva, and vagina cancer in women, penile cancer in men, and anal and oral cancer in both men and women. The high-risk types include *HPV 16, HPV 18, HPV 31, HPV 33, and HPV 45*, as well as some others. About two-thirds of all cervical cancers are caused by *HPV 16 and 18* (8).

Although HPV can be spread during sex including vaginal intercourse, anal intercourse, and oral sex - sex doesn't have to occur for the infection to spread. All that is needed to pass HPV from one person to another is skin-to-skin contact with an area of the body infected with HPV. Infection with HPV seems to be able to be spread from one part of the body to another - for example, infection may start in the cervix and then spread to the vagina. The only sure way to completely prevent anal and genital HPV infection is to never allow another person to have contact with those areas of the body (10, 12).

## 2.2 Cervical cancer staging

Staging is a method that has been developed to describe the extent of cancer growth. The stage of cervical cancer describes the tumors: Size, Depth of penetration within the cervix, spread within and beyond the cervix. Staging allows the physician to customize cancer treatment and to predict how a patient will fare over time. In general, the lower the stage, the better the person's prognosis (expected outcome). The physician uses all available findings to choose a stage that best describes the woman's condition.

Cervical cancer staging is usually described in terms of a staging scheme developed by the International Federation of Gynecology and Obstetrics (FIGO). The FIGO classifications are grouped within basic stages labeled stage 0 through stage IV and these stages has also sub-stages and a total of 6 categories (0-4)(1).

## 2.3 Epidemiology of cervical cancer

Worldwide cervical cancer is the third most common cancer in women after breast and colorectal cancer, and the seventh overall, with an estimated 529,000 new cases in 2008. More than 85% of the global burden occurs in developing countries, where it accounts for 13% of all female cancers. High-risk regions are Eastern and Western Africa with Age standardized Rate (ASR) greater than 30 per 100,000, Southern Africa (26.8 per 100,000), South-Central Asia (24.6 per 100,000), South America and Middle Africa (ASRs 23.9 and 23.0 per 100,000 respectively). Rates are lowest in Western Asia, Northern America and Australia/New Zealand (ASRs less than 6 per 100,000)(13).

Sub-Saharan Africa has by far the highest burden and mortality associated with cervical cancer in the world (14). A total of 5,318 new cases of cervical cancer were detected in South Africa in 1997, while the risk of development of cervical cancer in South African women has been estimated to be 1 in 291. In Nigeria, the estimated incidence rate of cervical cancer is 25 per 100,000 women; with an estimated 8,000 new cases of cervical cancer diagnosed in the country each year (15).

Equally high rates of cervical cancer have been reported from several African countries including Uganda, Malawi, Ethiopia and Kenya. Recent data from the World Health Organization (WHO) indicate that while a woman in the United States has a 70% chance of

surviving cervical cancer, that chance is reduced to 58% in Thailand, to 42% in India, and to only 21% in sub-Saharan Africa (15).

Cervical cancer remains the most common cancer in women in Eastern Africa, South-Central Asia and Melanesia (16). Overall, the mortality incidence ratio is 52%, and cervical cancer is responsible for 275,000 deaths in 2008, about 88% of which occur in developing countries: 53,000 in Africa, 31,700 in Latin America and the Caribbean, and 159,800 in Asia (13).

The prevalence of cervical cancer in the developing world is 59.4 per 100,000. It is most frequent form and leading cause of cancer mortality among Ethiopian women. Most of the cases are diagnosed at an advanced stage by the time they seek services (5).

Data are not yet available on the HPV burden in the general population of Ethiopia. However, in Eastern Africa, the region Ethiopia belongs to, about 33.6% of women in the general population are estimated to harbor cervical HPV infection at a given time. These figures are probably significantly lower than the actual number of cases, given the low level of awareness, cost, and limited access to screening services and lack of a national cancer registry (5).

In Ethiopia, although there is no national cancer registry, reports from retrospective review of biopsy results have shown that cervical cancer is the most prevalent cancer among women. For instance, among 243 cancer cases, cervical cancer accounted for 12.8% of all cancers and 65.9% of female genital tract cancers in Gondar, Northwest Ethiopia (17). Similar studies in Addis Ababa and Yirgalem Hospital (Southern Ethiopia) have also shown that it accounted for 32% (18) and 25.8 % (19) of female malignancies, respectively. A study done on 2,111 women attending hospitals and clinics in Addis Ababa has also reported the prevalence of invasive cancer to be 15.6/1000 in the studied population (20). Low socio-economic status, poor hygiene, early marriage or coitus, multiparity and polygamy have been reported to be associated factors (21).

## 2.4 Preventions for cervical cancer

Cervical cancer is preventable and, in most cases, curable, if identified in its early stages(22). By contrast to the high burden and mortality associated with cervical cancer in Africa, very few primary and secondary prevention initiatives are currently available to curtail the disease in Africa. To date, cervical cancer screening and Pap smear that have significantly

reduced the rates of cervical cancer in high and middle income countries are still very poorly applied in Africa. Part of the low acceptance of secondary prevention services for cervical cancer in Africa include the lack of awareness of cervical cancer and the role of screening, inappropriate health seeking behavior by women, poor organization of health services and the low priority accorded to women's health by policymakers (15, 23).

Primary prevention of cervical cancer implies prevention of HPV infection. Until recently primary prevention of cervical cancer relies on abstinence, mutual monogamy of virgins or condoms (which provide at best around 70% protection against transmission). Recently, however, two vaccines against HPV have become commercially available. The development of vaccines against certain types of HPV has been a major breakthrough in the options available for the prevention of cervical cancer (24).

## 2.5 Treatment for cervical carcinoma

Treatment options for cervical carcinoma may include surgery, radiotherapy (RT) and chemotherapy. The most commonly utilized modality is radiotherapy, which ideally employs one or both of two techniques; Teletherapy and Brachytherapy. The advantage of this technique is that extremely high doses of radiation can be applied to the tumor with less penetration of surrounding normal tissue (1, 25).

Surgical strategies vary according to the extent of the lesion. Cervical conization or simple hysterectomy (abdominal or vaginal) may effectively treat carcinoma in situ and microinvasive cervical cancers. A radical hysterectomy involves removal of the uterus along with parametrial and paravaginal tissues; this is a treatment option for patients with Stage IA2-IIA disease (1, 25).

The decision of whether to use surgery or radiotherapy for early-stage disease turns on several issues. Patients who are frail or have serious co morbidities may be poor surgical candidates. Advanced age has traditionally been considered a relative contraindication to radical pelvic surgery. The belief that such procedures in the elderly yield unacceptable morbidity has led to treatment of many older cervical cancer patients with radiotherapy rather than radical hysterectomy. Three retrospective studies have shown that, in properly selected older women, application of radical hysterectomy with modern surgical and postoperative care leads to complication rates comparable to those of younger women.

Thus, radical hysterectomy should not be withheld as a treatment option for older patients who are otherwise good surgical candidates (1, 25).

Choice of therapy is also based on the clinical stage. Patients with stage IA1 cervical cancer may be treated by simple hysterectomy or, in selected cases, with conization. Palliative RT may be used in individuals with stage IVB disease to control pain and bleeding from the pelvic tumor. Chemotherapy with agents such as *cisplatin*, *5-fluorouracil*, *bleomycin*, *vincristine*, and *ifosfamide* is often given in hopes that some therapeutic benefit may be derived in cases of metastatic disease. "Cures," however, are unlikely with currently available chemotherapy (1, 25).

## 2.6 Economics of cervical cancer

Concern about the links between ill-health and impoverishment has placed health at the center of development agencies' poverty reduction targets and strategies, and strengthened arguments for a substantial increase in health sector investment to improve access for the world's poorest people to combat poverty as well as reduce disease burdens. Household interactions with health services, and the costs people incur due to illness, are also central to the performance of health care interventions, particularly their coverage and equity implications.

The cost of illness can be divided into direct costs and indirect costs. Direct costs are the value of resources used in the treatment of disease. They include costs for outpatients, emergency centers, inpatients, medications, community services, etc. These estimates are used to address the question of the quantity of resources used to treat a disease. Indirect costs are the value of resources lost as a result of illness. They include productivity loss due to either morbidity or mortality. These estimates are used to address the question of the magnitude of the negative economic consequences of illness to the society (7, 26, 27).

Indirect costs are often estimated using a human capital approach. However, a willingness to pay method also has been used. The human capital approach estimates costs from discounted forgone earnings, while the willingness to pay method estimates costs based on individuals' perception of the amount of money they would be willing to give up to avoid illness. The majority of studies use the human capital approach, since data are often readily available and relatively easy to estimate (7, 26, 27).

Mean and standard deviation of the treatment and indirect costs were estimated in Taiwan using 7,398 cases of cervical cancer. According to this study the average total costs for cervical intraepithelial Neoplasia (CIN) patients were NT\$4,201 for CIN1, NT\$8,623 for CIN2 and NT\$14,406 for CIN3, with the indirect costs accounting for 25-33% of the total. The total costs for ICC patients were NT\$210,230 for Stage 1, NT\$392,387 for Stage 2, NT\$433,969 for Stage 3 and NT\$464,701 for Stage 4, with the indirect costs accounting for about 14-17% of the total (28).

In the United States a study shows that annual productivity costs associated with cervical cancer mortality were, 130,377 women who would have been alive during 2000 had they not died from cervical cancer during that or a previous year. Over 75% of these women died before age 60, with >25% dying prior to age 40, and it was estimated that 37,594 (29%) of these women would have had labor force earnings during 2000. The total productivity loss in 2000 owing to cervical cancer mortality was estimated at \$1.3 billion (29).

Another research review in the US indicates the annual direct medical costs associated with cervical cancer range from 300 to 400 million USD. In contrast, there was a wide range across studies for estimates of the annual direct medical costs associated with CIN which range from 700 million USD to 2.3 billion USD. Recent economic burden estimates would suggest annual direct medical costs associated with the prevention and treatment of anogenital warts and cervical HPV-related disease of at least 4 billion USD (30).

The direct annual healthcare costs for screening, treating, and managing abnormalities related to cervical cancer and cervical dysplasia in the United States are estimated to be as high as \$4.6 billion. Although the direct costs of cervical cancer are substantial, only 10% of all expenditures derive from invasive disease; more than two thirds of the total cost is attributable to screening and testing. Annual indirect costs resulting from lost productivity and loss of earnings due to premature death are also significant and are estimated to be higher than direct costs (31).

A Population-based retrospective epidemiological study to estimate the burden of hospitalizations by cervical cancer in Spain using records of all patients admitted to hospital with a diagnosis of malignant neoplasm of the cervix or carcinoma in situ of cervix during a four year period (1999-2002), were conducted. Accordingly the mean cost of a

hospitalization by cervical cancer and carcinoma in situ is 3,098 Euro and 2,192 Euro respectively. The estimated annual cost of hospitalizations cervical cancer and carcinoma in situ in Spain was 19 million euro (32).

Data collected from gynecologists, dermatologists, and urologists seeing patients with genital warts using multi-centre cross-sectional study (n= 617) of genital warts in Germany (2005) describes that mean direct cost per patient with new genital warts was estimated at 378 Euros (95% CI: 310.8–444.9); for recurrent genital warts at 603 euro (95% CI: 436.5–814.5), and for resistant genital warts at 1,142 euro (95% CI: 639.6–1752.3). The overall cost to third-party payers was estimated at 49.0 million euro, and the total societal cost at 54.1 million euro, corresponding to an average cost per patient of 550 Euros and 607 euro, respectively (33).

In Tunisia, a retrospective study to estimate the average direct cost of managing cervical cancer during the first year after diagnosis was conducted among patients with cervical cancer diagnosed in 2003 at the Salah Azaiez Cancer Institute in Tunis. The study includes 64 patients with cervical cancer. The results showed that the direct medical care cost of cervical cancer ranged from 777 to 7458 Tunisian Dinar(DT) (431 to 4143 euro) with an average of 3180 +/- 1390 DT (1766 +/- 772 euro). The national cost was estimated to be 877,680 DT (486,847 euro) (34).

Direct and indirect costs of an illness can be influenced by type and severity (stage) of an illness and health service characteristics that influence access and choice of provider. Estimated annual burden per 1,000 US women was \$1,059 for CIN 1 and \$1,803 for CIN 2 and 3 (35). Similarly in 1990 another five years cost audit study conducted in U.K in order to examine the relationship between stage at initial diagnosis and management costs for cervical cancer. The mean costs of managing pre-invasive carcinoma (£386) were found to be significantly lower than those of stage 1 invasive carcinoma (£6623) and both were lower than the costs of invasive cancer at stages 2–4 (£10,910, £10,579 and £11,035, respectively) (36). A comparison of management costs for cervical cancer with those of breast cancer by stage revealed both that the former are invariably higher and that the cost-by-stage profiles for the two diseases are dissimilar (36).

Costs associated with cervical neoplasia and cancer imposes a significant burden on managed care. The apparent disparity of care related to screening and treatment among specific ethnic groups and economically disadvantaged subpopulations results in elevated cervical cancer mortality rates and adds to managed care's burden. This is likely the result of several factors, including differences in the stage of cervical cancer at diagnosis, cultural barriers to undergoing regular cervical screening, and impaired access to follow-up care after receiving abnormal Pap smear test results (37).

A retrospective study and a clinical expert survey were performed in Belgium to assess for yearly hospital cost of cervical cancer and Genital Warts (GW) patients. Belgian official sources were used to estimate the annual costs of management of CC, CIN and GW patients both from a Healthcare Payer Perspectives (HCPP) and a societal perspective. Based on the 667 patients diagnosed annually in Belgium with Cervical Cancer and an annual cost per patient of euro 9,716, the total annual cost of CC is euro 6.5 million (HCPP). The 10,495 estimated CIN 1, 2 and 3 patients led to an annual cost of euro 1.97 million (HCPP) (38).

In general most of existing evidences on cervical cancer shows how much immense the problem is in terms of its impact on morbidity and mortality. Evidence also depicts that how much big its economic burden is on the nations from macroeconomic aspect but little is known about patient side economic cost of cervical cancer. In Ethiopia, except very few clinical based studies it is not easy to get evidence about cervical cancer. And no studies have been conducted on economic evaluation of cervical cancer.

Therefore, this study is intended to fill the information gap and may help researcher, planners, policy makers, program mangers and the community at large.

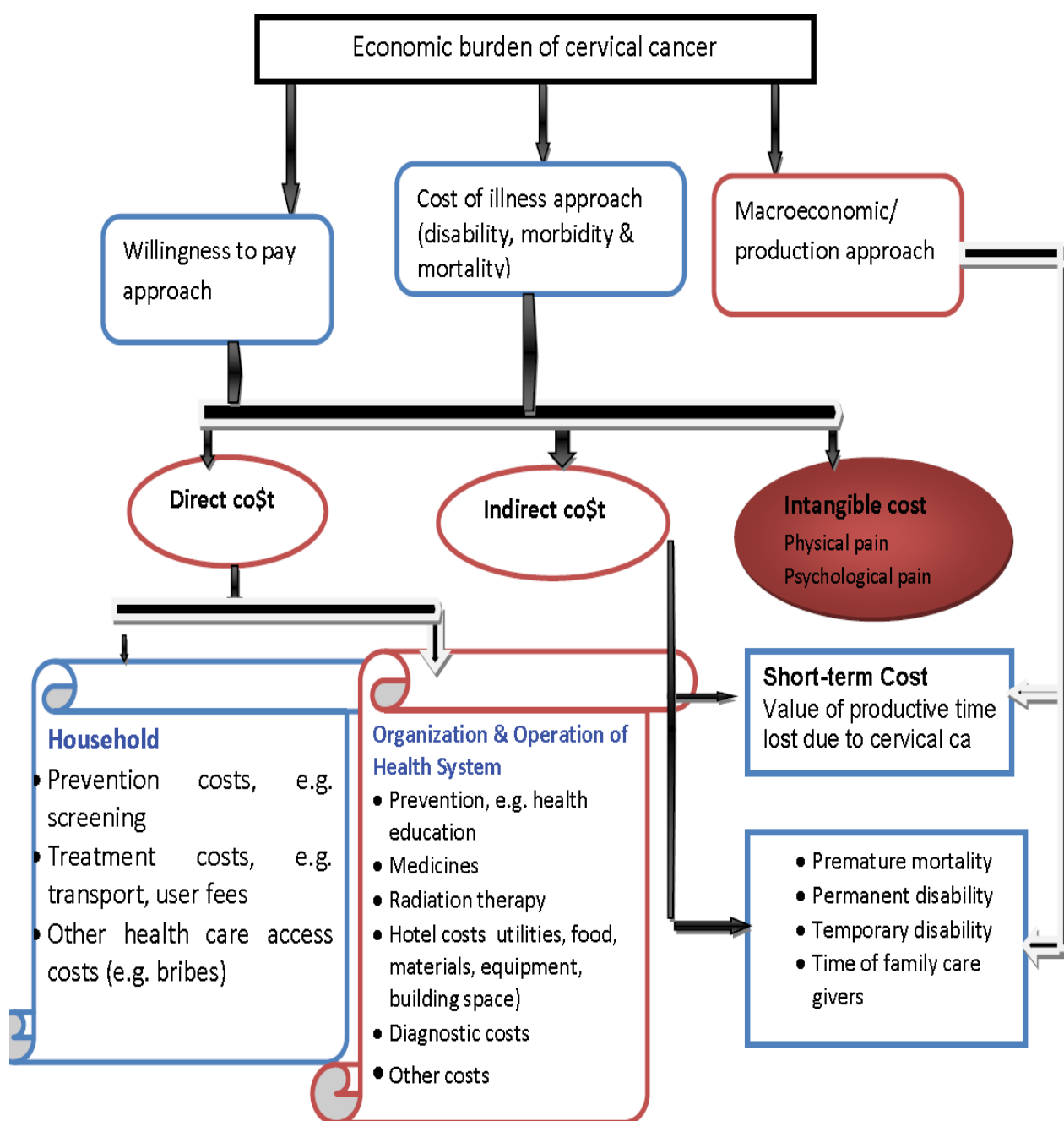


Figure 1: Cost of cervical cancer conceptual framework; Addis Ababa, Ethiopia, 2010

### **3. OBJECTIVES**

#### **3.1 General objective**

- ❖ To estimate economic burden of cervical cancer on patients and their families attending outpatient and inpatient services at Tikur Anbessa Hospital.

#### **3.2 Specific objectives**

- ❖ To estimate direct cost of cervical cancer on patients and their families attending outpatient and inpatient services at Tikur Anbessa Hospital;
- ❖ To estimate indirect cost of cervical cancer on patients and their families attending outpatient and inpatient services at Tikur Anbessa Hospital;
- ❖ To determine predictors for variations in patient related cost of cervical cancer.

## 4. METHODOLOGY

### 4.1 Study area and period

The study was conducted in Addis Ababa University Tikur Anbessa Hospital specifically on gynecology and radiotherapy departments. Tikur Anbessa Hospital is the only central referral hospital in the country and it is expected to provide specialized services for more than 80 million people.

The radiotherapy center which is located and part of Tikur Anbessa Hospital is the only institution which provides radiotherapy and chemotherapy in Ethiopia. The center opened in 1997, a joint project between the Ethiopian government and the International Atomic Energy Agency (IAEA). In its first four years, the facility has treated 1,300 patients, with the number of patients growing steadily. From its establishment to 2001 E.C it provides treatment for 11,983 patients who came from all regions in the country. Women make up about 73% of the patients at the center, and cancer of the cervix is the most common disease comprising over one-third of all female patients treated.

Gynecology department of the hospital also provides different comprehensive and specialized services. In the context of cervical cancer; it has the mandate for surgical treatment and evaluation and screening of new and referral cases.

The study was conducted from November to January 2010.

### 4.2 Study design

This study is quantitative study using a hospital based analytical cross-sectional design; to estimate patient side costs of cervical cancer.

### 4.3 Source and study population

**Source population:** All cervical cancer patients who come to the outpatient and inpatient units of Tikur Anbessa Hospital from all over the country.

**Study population:** All cervical cancer patients who were attending outpatient and inpatient services at Tikur Anbessa Hospital with in the specified period of data collection time (December 13, 2010 – January 15, 2011)

**Exclusion and Inclusion criteria:** All cervical cancer patients who were willing, well enough to communicate and selected by the sampling procedure of the study were included in the study. Those patients who were critically sick and unable to communicate were excluded.

#### 4.4 Sample Size Calculation

The minimum sample size was calculated using single population mean formula. Assumptions were taken for mean and standard deviation from preliminary assessment and expert's judgment that mean cost of 2,500 Birr and standard deviation ( $\delta$ ) of 500 Birr.

$$n = \frac{Z^2 \times \delta^2}{d^2} = \frac{1.96^2 \times 500^2}{65^2} = 227$$

Where: n= sample size

Z= Reliability coefficient for 95% confidence interval (1.96)

$\delta$ = population standard deviation (500 Birr)

d= marginal error (65 Birr~ 4.5\$)

#### 4.5 Sampling procedure

Consecutive sampling technique was used to select the study subjects. Histologically confirmed and clinically staged 227 cases of cervical cancer patients were selected from patients presenting to Gyn-OPD, oncology referral clinic (from patients waiting for admission), Gynecology ward (from patients waiting for surgical treatment) and oncology department of the hospital (from patients referred and/or admitted for radio/chemo-radiotherapy). For each specified departments proportional size of sample had been provide.

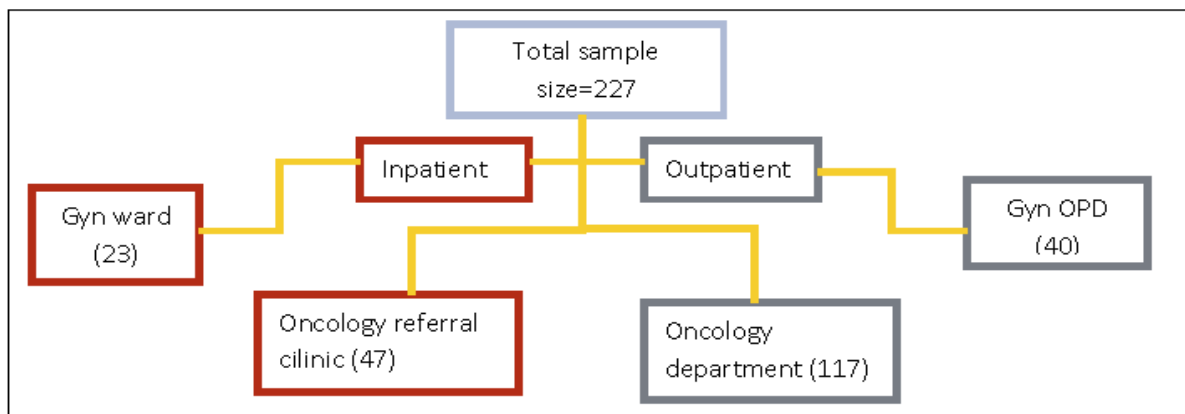


Figure 2: Sampling procedure for the study on cost and predictors of cost of cervical cancer treatment in patients attending Tikur Anbessa Hospital; Addis Ababa, Ethiopia, 2010

#### 4.6 Principal research instruments

A structured closed-ended and partially open ended questionnaire was used to estimate economic burden of cervical cancer on patients and their family. The questionnaire has been developed by reviewing relevant literatures. In order to improve the developed questionnaire valuable comments was received from different sources. The first draft questionnaire was an English version (Annex I) and then translated to Amharic and then translated back into English to check for consistency.

A number of questions that could address the objective of this study was gathered and adapted. The questionnaire incorporates: general socio-demographic variables, direct cost (consultation cost, investigations cost, medicine cost, travel cost, food on way to clinic cost), indirect cost (lost time of patients and companion) and socio economic characteristic of households. Checklist was used to collect clinical data from patients' record.

#### 4.7 Data collection

Quantitative assessment using a structured closed-ended and partially open ended questionnaire was conducted. Six female nurses who have previous data collection experience were selected and two day training was provided. Two data collection supervisors were assigned. The questions were administered using face to face interview. Patient record review using the check list was administered by respective data collectors for each study participants.

#### 4.8 Pre-testing

The questionnaire was pre-tested in Gandhi hospital among 10 women to ensure the clarity for respondents. Then, some correction was made accordingly.

#### 4.9 Operational definition of terms

**Cost:** resources spent to purchase services or other resources including direct, indirect, and intangible components.

**Cost-of-illness study (COI):** analysis that computes the total costs incurred by society as a consequence of a specified health care problem, typically including both the direct and the indirect costs—such as medical costs and lost productivity—associated with an illness.

**Direct costs:** costs/expenditures in Ethiopian birr born by the patients and their families in

diagnosis and treatment of cervical cancer such as prescribed drugs, investigation, transport and cost for the treatment (radiotherapy, chemotherapy, and/or surgery) etc.

**Indirect costs:** productive losses in Ethiopian birr borne by the patients and their families, and include income losses due to lost workdays, beyond the direct provision of care.

**Intangible costs:** poorly defined costs associated with illness including pain and suffering and loss of companionship.

**Prevalence-based model:** quantifies economic costs by measuring all costs due to illness occurring within a given time period, usually a single year, regardless of the time of disease onset.

#### 4.10 Variables of the study

##### **Dependent variables:**

- Direct cost
- Indirect cost

##### **Independent variables:**

- Socio-demographic variables (age, marital status, educational status, residence, Occupation, Income etc) and Socio-economic status.
- Clinical variables: 'complications' and 'co morbidities' and stage of the illness.

#### 4.11 Method of cost estimation

##### **4.11.1 Perspective of analysis:**

Perspective is important because it determines the types of costs that should be included in the study. This cost of illness study was conducted from the societal perspective. Adoption of the societal perspective facilitates policies aimed at maximizing the welfare gains to society, or minimizing the losses.

##### **4.11.2 Estimation method:**

This study employs a micro-costing bottom-up approach in order to estimate direct cost of cervical cancer. Indirect cost for the study subjects and their accompanying persons was calculated in terms of productivity time losses, using human capital approach.

##### **4.11.3 Time frame:**

The prevalence-based model, which quantifies economic costs due to illness occurring any time period, was used. Which examine costs incurred during a given time period regardless of the date of the onset of disease

#### **4.11.4 Identification, measurement and valuation of costs:**

Costs due to cervical cancer were framed under direct and indirect cost components. The direct costs that were estimated were direct medical cost like laboratory, medication, and consultation. Direct non medical cost at outpatient visit and inpatient/hospital costs were also included (39). The valuation of direct costs was depending on patients' recall.

Indirect costs are defined as productivity lost due to the illness. The indirect costs that were estimated were earnings lost because of travel to outpatient visits/inpatients hospital stay and absences from work because of illness related to cervical cancer on patients and their families. These work days were changed into monetary terms using the wage the patients and their families have been earning by human capital approach. Time foregone in seeking care and productive time lost was converted into indirect cost based on the daily gross salary for paid work. The indirect cost for unemployed, student, and disable (an individual who can't do their job like mental illness) was not calculated as it is difficult to guess their income.

Intangible costs of pain, grief, suffering and loss of leisure are very difficult to measure. Pain, suffering and other reductions in quality of life are intangible and, by definition, difficult to quantify. Strictly, the intangible effects of illness are not costs. They are negative benefits. Thus, as benefits were not being included within the cost of illness (COI) framework, this study also omits the costs related to it.

Individual cost items were sum up to the categories of medical costs, non-medical costs, and lost income. Total costs of cervical cancer for each patient were calculated as the sum of the direct costs and the indirect costs. All costs were measured in Ethiopian Birr and were converted in to US Dollar for international comparison. The average value for the year 2010 exchange rate was used to convert ETB into US Dollar (14.5 ETB=US\$1).

#### **4.12 Data quality management**

Different measures had been taken to maintain the quality of the data. The questionnaire was pre-tested prior to the actual data collection. Data collectors who were diploma nurses and who had experience on data collection were used. Training was provided for data collectors. Silent and comfortable places were selected and used to conduct interview so as to allow maximum concentration and interest on the topic. Study participants were also told

to give the truth through explaining the purpose and importance of the study and assuring the confidentiality of data they were going to provide. Strict supervision was undertaken by the researcher and supervisors throughout the data collection period. Submitted filled questionnaires by data collectors were checked for completeness and consistency at the spot by supervisors.

#### 4.13 Data analysis (Statistical analysis)

Completed questionnaires were checked for completeness and consistency. Codes were prepared for each question by the principal investigator. The data entry was done using EPI-info Version 3.5.1. Data clean up was performed to check for accuracy, consistencies and values. Any error identified was corrected. The cleared data was exported to SPSS Version 16 software for analysis. Data analysis was performed using scores, frequency and percentage. A variety of descriptive statistics such as mean, standard deviation, median and inter-quartile range were calculated to describe some parts of the results.

Typical health cost data are known to be right-skewed, which in small samples may violate the parametric measures that rely on normal distribution and thus non-parametric testing; Kruskal Wallis was used to determine the statistically significance differences in mean values for the four stages of cervical cancer. The same statistical test was used for other variables which have more than two independent groups. Mann-Whitney test was used to determine the statistically significance differences in means values for variables which have only two independent group (surgery, radiotherapy chemotherapy, ever admitted, have/not companion etc.).

Multiple linear regression analysis was employed to analyze the relationship between the cost (dependent variable) and potential predictor variables (independent variables). In the regression model, independent variables with a probability value of  $P$  statistics  $< 0.1$  on the analysis have been entered whereas only statistically significant ( $P < 0.05$ ) variables were included to the final model. The statistical assumptions and models have been examined for the following assumptions: Normal Distribution, Homoscedasticity, Multicollinearity, Influential Observations, and Outliers.

#### **4.14 Ethical considerations**

Ethical clearance was secured from Addis Ababa University College of Health Sciences, Research and Ethics Committee of the School of Public Health. A formal letter of cooperation was written to Tikur Anbessa Hospital administrative bodies. Informed Consent was obtained from each respondent. A consent form (Annex VI) and information sheet (Annex V) was attached to each questionnaire which explained about the purpose of the study, confidentiality, and the respondent's full right to take part or not to take part in the study. Half day training was given to data collectors on the importance of informed consent and how to get informed consent from study participants. Finding of the study is kept confidential and all records are kept in a locked cabinet.

## 5. Results

A total of 227 histological confirmed and clinically staged cervical cancer patients were selected from patients presenting to Gyn-OPD (40), gynecology ward (23), oncology referral clinic (117), and oncology ward (47) (from patients referred and/or admitted for radio/chemo-radiotherapy) with the response rate of 100%. For each specified departments proportional size of sample has been provided.

### 5.1 Socio-demographic characteristics and general background

The mean age of the respondents was 48.7 years. The youngest respondent was 15 years old while the oldest was 80 years old. The total numbers of respondents in the age range 18-64 years were 204 (89.9%). The proportion of respondents within the age group 15-34 years old was 25 (11%). The majority of the respondents, 105 (46.3%), fall into the age range 40-54 years. Those between 15-49 years were 112 (49.3%). Only 3 (1.3%) of the respondents were under 20 years of age (Table 1).

Data on marital status reveals that more than half of the respondents, 119 (52.4%) were currently married, which is followed by those whose spouses were deceased, 57 (25.1%). Only 20 (8.8%) of the respondents are single. The rest of the respondents, 17 (7.5%) and 14 (6.2%) are either separated or divorced, respectively.

In terms of educational status, most of the respondents, 124 (54.6%), were illiterate followed by 102 (23.2%) respondents that can only read & write. Those have college and above education level were only two. Seventeen (7.5%) respondents indicated that they have only below 4<sup>th</sup> grade training (first cycle primary education). The rest of the respondents, 18 (6.8%) and 22 (4.5%) were either in second cycle primary education (grade [5<sup>th</sup> – 8<sup>th</sup>]) or secondary education, respectively.

Most of the respondents, 148 (65%), indicated that they are Orthodox Christians. Forty-four (19%) of the respondents are Protestants and 31 (14%) are Muslims. The rest four of the respondents indicated that they are either Catholic (1%) or Jehovah (1%).

The other variable that was considered in this section was the occupational status of respondents. Those who claimed that have their own business account for 13 (5.7%) of the total respondents whereas those work as private employees and civil servants were 12

(5.3%) and 13 (5.7%), respectively. Nongovernmental organization (NGO) workers constitute only 3 of the total respondents. However, the majority of the respondents, 118 (52%) were found to be housewives followed by 45 (19.8%) farmers during the survey (Table 1).

Even though the respondents were emanated from 8 regions and two city councils in the country, Ormoiya (29.5%), Amhara (25.6%) and Addis Ababa (21.6%) constitute the vast majority (Table 1). Tigray and SNNP regions take 6.6% and 10.6%, respectively. The socio demographic features of the 227 patients are reported in Table-1.

Table 1: Socio-demographic characteristics of the study subjects; Addis Ababa, Ethiopia, 2010

|                           | Frequency | Percent |                         | Frequency | Percent |
|---------------------------|-----------|---------|-------------------------|-----------|---------|
| <b>Age Group</b>          |           |         | <b>Residency Region</b> |           |         |
| 15-19                     | 3         | 1.3     | Tigray                  | 15        | 6.6     |
| 20-24                     | 1         | 0.4     | Addis Ababa             | 49        | 21.6    |
| 25-29                     | 10        | 4.4     | Dire Dawa               | 1         | 0.4     |
| 30-34                     | 11        | 4.8     | Affar                   | 4         | 1.8     |
| 35-39                     | 18        | 7.9     | Amhara                  | 58        | 25.6    |
| 40-44                     | 30        | 13.2    | Oromiya                 | 67        | 29.5    |
| 45-49                     | 39        | 17.2    | Somali                  | 6         | 2.6     |
| 50-54                     | 36        | 15.9    | SNNPR                   | 24        | 10.6    |
| 55-59                     | 31        | 13.7    | Gambela                 | 2         | 0.9     |
| 60-64                     | 27        | 11.9    | Harari                  | 1         | 0.4     |
| 64+                       | 21        | 9.3     |                         |           |         |
| <b>Ethnicity</b>          |           |         | <b>Religion</b>         |           |         |
| Tigray                    | 24        | 10.6    | Orthodox                | 148       | 65      |
| Amhara                    | 104       | 45.8    | Muslim                  | 44        | 19      |
| Oromo                     | 64        | 28.2    | Protestant              | 31        | 14      |
| Gurage                    | 18        | 7.9     | Catholic                | 2         | 1       |
| Others                    | 17        | 7.5     | Jehovah                 | 2         | 1       |
| <b>Marital Status</b>     |           |         | <b>Occupation</b>       |           |         |
| Single                    | 20        | 8.8     | House wife              | 118       | 52.0    |
| Married                   | 119       | 52.4    | Farmer                  | 45        | 19.8    |
| Widowed                   | 57        | 25.1    | Government employed     | 13        | 5.7     |
| Separated                 | 17        | 7.5     | Merchant                | 13        | 5.7     |
| Divorced                  | 14        | 6.2     | Private employed        | 12        | 5.3     |
| <b>Educational Status</b> |           |         | Daily laborer           | 8         | 3.5     |
| Illiterate                | 124       | 54.6    | Retired                 | 6         | 2.6     |
| Only read & write         | 44        | 19.4    | Unemployed              | 5         | 2.2     |
| Grade 1-4                 | 17        | 7.5     | Disabled/ sick          | 3         | 1.3     |
| Grade 5-8                 | 18        | 7.9     | NGO employed            | 3         | 1.3     |
| Grade 9-10/12             | 22        | 9.7     | Pupil/ student          | 1         | 0.4     |
| College & above           | 2         | 0.9     |                         |           |         |

More than half, 124 (54.6%), of the respondents came from households of 6 and above individuals. The mean (SD) household size was 6.2 (2.9). The mean number of household members who were working was 1.47 with most of the respondents' household having one working member 134 (59%) (Table 2). One hundred (44%) of the respondents were from households which have 9 or more household members.

Table 2: Percent distribution of participants by household size; Addis Ababa, Ethiopia, 2010

| Family size | Family size (n=227) |         |
|-------------|---------------------|---------|
|             | Frequency           | Percent |
| 1-2         | 22                  | 9.7     |
| 3-5         | 81                  | 35.7    |
| 6-8         | 24                  | 10.6    |
| 9-11        | 70                  | 30.8    |
| 11+         | 30                  | 13.2    |

Out of a total of 227 respondents, 179 (78.9%) were able to report an estimate of their monthly income. The remaining 28 (12.3%) earned nothing (i.e. these participant were not generating their own income and they were dependent on their relatives, remittance etc). There were also respondent; 20 (8.8%) earning different amounts not mentioned. Around 110 (61.5%) of the respondents earned a monthly income less than ETB 600. Vast majority of respondents, 161 (89.9%) earned a monthly income below ETB 1200. Monthly mean (SD) income was ETB 589 (468) and the median was ETB 500. While 32 (17.9%) of the respondent earns less than ETB 300 per month, only 3 (1.7%) of the respondents earns above ETB 1800.

Table 3: Percent distribution of monthly income of the study participant; Addis Ababa, Ethiopia, 2010

| Monthly income in ETB | Monthly income (n=179) |         | Cumulative Percent |
|-----------------------|------------------------|---------|--------------------|
|                       | Frequency              | Percent |                    |
| 1 - 299               | 32                     | 17.9    | 17.9               |
| 300 - 599             | 78                     | 43.6    | 61.5               |
| 600 - 899             | 35                     | 19.6    | 81.0               |
| 900 - 1199            | 16                     | 8.9     | 89.9               |
| 1200 -1499            | 3                      | 1.7     | 91.6               |
| 1500-1799             | 12                     | 6.7     | 98.3               |
| >1800                 | 3                      | 1.7     | 100.0              |

Slightly higher than one-quarter, 60 (26.4%) of the respondent residence were less far as 50 Km. The rest nearly three-fourth, 163 (71.8%), of the patients need to travel more that 100 km in order to arrive at Tikur Anbessa hospital from their place of residence. Mean (SD)

distance of the respondents residence from Tikur Anbessa Hospital was 299.2 (239) km and the median distance was 300 km. Sixteen (7.1%) of the patients were residents who came from more than 700 km far away from Tikur Anbessa Hospital.

Table 4: Percent distribution of distance from Tikur Anbessa Hospital to residence place of the study participants; Addis Ababa, Ethiopia, 2010

| Distance in Km | Distance from TAH (n=227) |         | Cumulative Percent |
|----------------|---------------------------|---------|--------------------|
|                | Frequency                 | Percent |                    |
| <50            | 60                        | 26.4    | 26.4               |
| 51-100         | 4                         | 1.8     | 28.2               |
| 101-300        | 72                        | 31.7    | 59.9               |
| 301-500        | 48                        | 21.1    | 81.1               |
| 501-700        | 27                        | 11.9    | 93                 |
| 700+           | 16                        | 7.1     | 100                |

The dominant symptoms that induce the patients to seek health care were abnormal bleeding, unusual heavy discharge and pelvic pain, 126 (56%), 43 (19%), and 28 (12%), respectively.

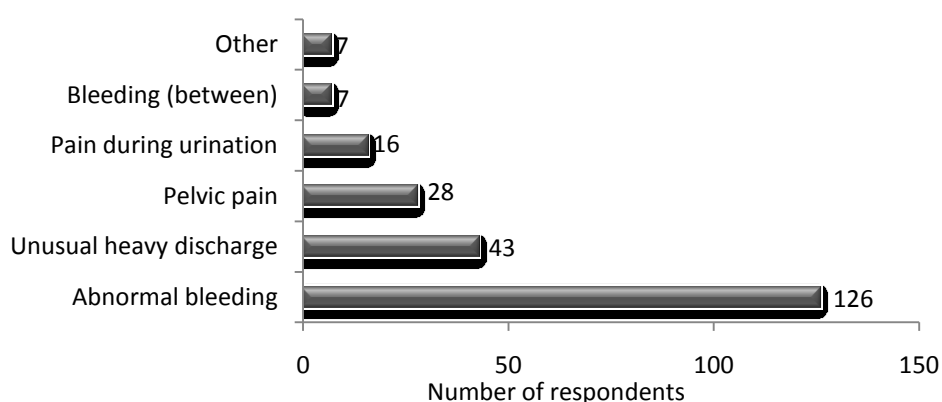


Figure 3: First symptom faced by participants that force them to seek health care; Addis Ababa, Ethiopia, 2010

\*Bleeding (between) = Bleeding between regular menstrual periods, after sexual intercourse, douching, or pelvic exam.

Vast majority of the respondent, 104 (46%) diagnosed at stage II followed by stage III, 91 (40%). Only 15 (7%) were diagnosed at the first stage of cancer stage. Seventeen (7%) of the study subject were diagnosed at more advanced stage (stage IV).

Table 5: Stage at diagnosis and first symptom that force the patients to health facility of study participants; Addis Ababa, Ethiopia, 2010

|               | First symptom           | Stage at diagnosis |          |           |          | Total |
|---------------|-------------------------|--------------------|----------|-----------|----------|-------|
|               |                         | Stage I            | Stage II | Stage III | Stage IV |       |
| First Symptom | Abnormal bleeding       | 10                 | 56       | 50        | 10       | 126   |
|               | Unusual heavy discharge | 3                  | 25       | 12        | 3        | 43    |
|               | Pelvic pain             | 1                  | 13       | 13        | 1        | 28    |
|               | Pain during urination   | 1                  | 4        | 9         | 2        | 16    |
|               | Other                   | 0                  | 6        | 7         | 1        | 14    |
| Total         |                         | 15                 | 104      | 91        | 17       | 227   |

## 5.2 Outpatient costs out of Tikur Anbessa Hospital

Among a total of 227 participants, 207 (91.2%) of them have visited at least one of the providers at least once. The rest 20 (8.8%) came directly to Tikur Anbessa Hospital. Nearly two third of the participants, 150 (66.1%) had a visit to governmental health facility at least once before coming to Tikur Anbessa hospital followed by visit to Private providers, 67 (29.5%). Only very few of the respondents reported that they had visit to NGO providers 10 (4.4%), traditional healer 5 (2.2%) and religious places 2 (0.9%). On average each patient visited nearly two (mean = 1.8, SD = 1.2) place or providers before coming to Tikur Anbessa Hospital.

Table 6: Percent distribution of type of service provider visited by the study participants; Addis Ababa, Ethiopia, 2010

| Type of service provider visited (n= 207) | Frequency | Percent |
|-------------------------------------------|-----------|---------|
| Governmental facilities                   | 150       | 66.1    |
| NGO providers                             | 10        | 4.4     |
| Private provider                          | 67        | 29.5    |
| Traditional Healer                        | 5         | 2.2     |
| Religious places                          | 2         | 0.9     |

## Patient side costs

### *Direct costs*

Outpatients cost incurred out of Tikur Anbessa hospital; mean cost for consultation with a physician, investigations and medicines came to ETB 33.2, 401.0 and 568.7 respectively. From the total direct cost components, the cost for medicine represents the largest share (48.4%), followed by investigations cost (34.1%).

Direct cost for non medical reasons takes the lower share of the total cost; only 14.7%. The mean cost for transportation was ETB 81.6. Expenditures for other different items related with the illness (food, drink, bed room etc.) and non-prescribed remedies were ETB 91.1, which is 7.8% of the total direct cost.

Table 7: Patient side direct outpatient costs out of Tikur Anbessa Hospital; Addis Ababa, Ethiopia, 2010

| Direct costs in ETB            | Sum           | Mean (%)      | Median     | SD            | (IQR)              |
|--------------------------------|---------------|---------------|------------|---------------|--------------------|
| <b>Direct medical cost</b>     | <b>227662</b> | <b>1002.9</b> | <b>403</b> | <b>2021.6</b> | <b>(1030, 100)</b> |
| Consultation Fee               | 7546          | 33.2 (2.8)    | 20         | 47.6          | (50, 25)           |
| Investigations Fee             | 91020         | 401 (34.1)    | 175        | 849.1         | (500, 50)          |
| Cost Of Drugs                  | 129096        | 568.7 (48.4)  | 100        | 1514.0        | (450, 0)           |
| <b>Direct non medical cost</b> | <b>39216</b>  | <b>172.8</b>  | <b>30</b>  | <b>1329.6</b> | <b>(115, 4)</b>    |
| Transportation Fee             | 18527         | 81.6 (6.9)    | 25         | 147.8         | (114, 3)           |
| Cost for Other expenses        | 20700         | 91.1 (7.8)    | 0          | 1261.3        | (0, 0)             |
| <b>Total direct cost</b>       | <b>266878</b> | <b>1175.7</b> | <b>475</b> | <b>2716.6</b> | <b>(1150, 150)</b> |

### **Indirect costs**

On average, each of the cervical cancer cases had the illness for about nine months before coming to TAH. But great variation was seen among the cases regarding the number of ill days with minimum of five day up to eight years (mean (SD) = 269.4 (317.4) days). The median duration of illness was 180 days. During time interval from the symptoms appeared to being an outpatient at TAH, mean working days lost was 155.5 days and the median was 2 months. During this time the patient lost ETB 1,228, on average.

The time elapsed on travel to reach health services and/or other providers vary from minimum of twelve minutes to maximum of ninety six hours for single trip. The mean (SD) and median time elapsed on travel was 5.7 (9) hours and 3 hours respectively.

Table 8: Patient side indirect outpatient costs out of Tikur Anbessa Hospital; Addis Ababa, Ethiopia 2010

| Patient side indirect costs           | Sum    | Mean   | Median | SD     |
|---------------------------------------|--------|--------|--------|--------|
| <b>Lost time (patients)</b>           |        |        |        |        |
| Duration of complaint in days (n=207) | 61155  | 269.4  | 180    | 317.4  |
| Days remained out of work (n=185)     | 28759  | 155.5  | 60.0   | 334.6  |
| Time for transportation               | 1135.8 | 5.7    | 3.0    | 9.0    |
| <b>Lost productivity (patients)</b>   |        |        |        |        |
| Amount of wages lost in ETB (n=145)   | 178195 | 1228.9 | 180    | 2153.2 |

## Companion side cost

Out of a total of 207 patients of cervical cancer who visited one of the providers, 167 (80.7%) of them had a family or a friend who accompanied them. Ninety-five (56.9%) of the companions had lost their income because they cared for them. Direct cost incurred by companions was ETB 83,274, with mean (SD) and median cost for transportation fee was ETB 108.4 (255) and 72.2, respectively. Companion expenditure for expenses like food, drink, bed room on the way and other different unspecified items was ETB 66,790 (mean= 414.8, median= 200).

On average each companion spent more than six and half hours on transport with their cervical cancer patient relatives or friend for single trip. Forgone earning by the companions because of cervical cancer was ETB 179,118 which takes the largest share of companion side cost.

Table 9: Companion side direct and indirect outpatient costs out of Tikur Anbessa Hospital; Addis Ababa, Ethiopia, 2010

|                                    | Companion side costs (n = 167) |        |        |        |
|------------------------------------|--------------------------------|--------|--------|--------|
|                                    | Sum                            | Mean   | Median | SD     |
| <b>Direct cost (ETB)</b>           |                                |        |        |        |
| Transportation Fee                 | 16484                          | 108.4  | 72.5   | 255    |
| Cost for Other expenses            | 66790                          | 414.8  | 200    | 705.7  |
| <b>Indirect costs</b>              |                                |        |        |        |
| Time for transportation (in hour)  | 1080.6                         | 6.6    | 2.5    | 13.6   |
| Days lost from work to accompany   | 16229                          | 97.2   | 30     | 231.9  |
| Amount of wages lost in ETB (n=95) | 179118                         | 1885.5 | 1000   | 2918.4 |

## 5.3 Outpatient costs at Tikur Anbessa Hospital

### Patient side costs

#### Direct costs

The average outpatient direct cost per patient for cervical cancer at Tikur Anbessa Hospital was ETB 7,060.1. The largest part was direct non medical costs (mean = 3,568.6 and median = 1,320). Mean expenses for none prescribed remedies, 2,816.6, takes the largest share of non medical direct costs followed by expenses for food, 527.3. Mean cost for transportation fee was ETB 117.3.

Direct medical cost for the studied 171 cervical cancer patients was 538,379. The average direct medical cost was 3,148.4 (median = 1,280 and SD = 5,140.1). At Tikur Anbessa hospital outpatient, mean cost for consultation with a physician, investigations and medicines came to ETB 111.2 (4%), 1,056.1 (34%) and 1,981.1 (63%), respectively in increasing order of magnitude (Table 10).

Table 10: Patient side direct outpatient costs at Tikur Anbessa Hospital; Addis Ababa, Ethiopia 2010

| Direct costs in ETB                | Sum            | Mean (%)      | Median      | SD             | (IQR)               |
|------------------------------------|----------------|---------------|-------------|----------------|---------------------|
| <b>Direct medical cost (n=171)</b> | <b>538379</b>  | <b>3148.4</b> | <b>1280</b> | <b>5140.1</b>  | <b>(3530, 445)</b>  |
| Consultation Fee                   | 19019          | 111.2(4)      | 30          | 596.9          | (30, 5)             |
| Investigations Fee                 | 180597         | 1056.1(34)    | 360         | 2357           | (1000, 200)         |
| Cost Of Drugs                      | 338763         | 1981.1(63)    | 600         | 3796.7         | (2000, 150)         |
| <b>Direct non medical cost*</b>    | <b>699453</b>  | <b>3568.6</b> | <b>1320</b> | <b>7828.2</b>  | <b>(2995, 379)</b>  |
| Transportation Fee (n=215)         | 25227          | 117.3         | 70          | 304.1          | (120, 10)           |
| Non-prescribed remedies (n=206)    | 580218         | 2816.6        | 600         | 7614.4         | (2000, 100)         |
| For food (n=212)                   | 111798         | 527.3         | 200         | 1143.3         | (550,70)            |
| <b>Total direct cost</b>           | <b>1087262</b> | <b>7060.1</b> | <b>3425</b> | <b>10471.9</b> | <b>(7664, 1204)</b> |

\* The difference in the sum is due to missing values.

### Indirect cost

Mean and median duration of stay as an outpatient at Tikur Anbessa Hospital for the study participants was 374 and 180 days, respectively; with a standard deviation of 826.3 days. In this duration, on average, the respondents had visit to TAH outpatient 38 times (median = 6 and SD=93.7). The mean day of lost earning due to the disease was  $119.4 \pm 206.2$  working days. Total lost earning (indirect cost) was ETB 273,195 (median = 1,774) (Table 11)

Table 11: Patient side indirect outpatient costs at Tikur Anbessa Hospital; Addis Ababa, Ethiopia 2010

| Patient side indirect cost                    | Sum    | Mean  | Median | SD     |
|-----------------------------------------------|--------|-------|--------|--------|
| Duration of stay as outpatient at TAH (n=227) | 84912  | 374.1 | 180    | 826.3  |
| Number of outpatient visits at TAH (n=220)    | 8516   | 38.7  | 6      | 93.7   |
| Days remained out of work in days (n=169)     | 20179  | 119.4 | 30     | 206.2  |
| Amount of wages lost in ETB (n=145)           | 273195 | 1774  | 250    | 4618.9 |

The means of transportation to come to TAH by vast majority of the respondent, 207 (91.2%), was car. Only 8 (3.5%) of them used animal transport (Figure 4).

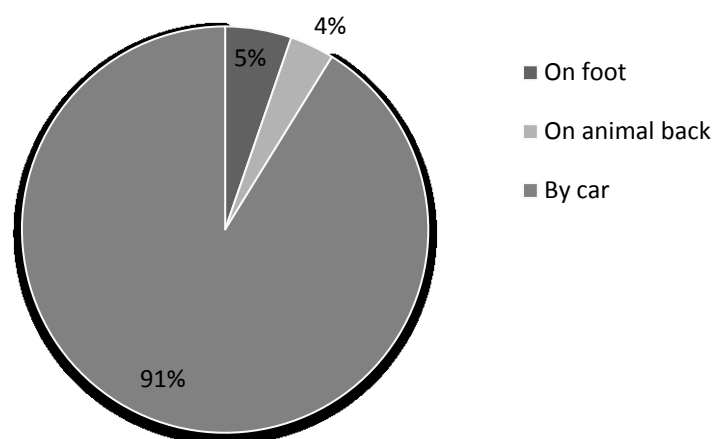


Figure 4: Means of transportation used by the patient to come to TAH; Addis Ababa, Ethiopia, 2010

### Companion side cost

Out of a total of 227 patients of cervical cancer who visited Tikur Anbessa hospital, 159 (70%) of them had a family or a friend who accompany them where as the rest 68 (30%) came alone. Sixty eight (43.2%) of the companions had lost some portion of their income because they care them. The Median forgone earning by the companion because of cervical cancer was ETB 580 (Mean = 1,518.1) which takes the largest share of caregiver side cost at outpatient study.

Table 12: Companion side direct and indirect outpatient costs at Tikur Anbessa Hospital; Addis Ababa, Ethiopia 2010

|                                  | Companion side cost (n = 159) |        |        |        |
|----------------------------------|-------------------------------|--------|--------|--------|
|                                  | Sum                           | Mean   | Median | SD     |
| <b>Direct cost</b>               |                               |        |        |        |
| Transportation Fee (n=151*)      | 14728.5                       | 97.5   | 88     | 130.9  |
| Cost for Other expenses (n=155)  | 88265                         | 569.5  | 200    | 200    |
| <b>Indirect costs</b>            |                               |        |        |        |
| Time for transportation          | 970.18                        | 6.1    | 3      | 8.4    |
| Days lost from work to accompany | 13827                         | 87     | 30     | 227.9  |
| Amount of wages lost (n=98)      | 148772                        | 1518.1 | 580    | 2741.5 |

\*Four companions didn't use any transport

## 5.4 Inpatient/Hospitalization costs

From the total of interviewed 227 patients, 122(53.7%) of them had admitted and treated as an inpatient here in Tikur Anbessa hospital or somewhere else in any other health facility at least for a day.

### Patient side costs

#### *Direct costs*

Among 122 hospitalized patients 98 (80%) of them pay directly for their treatments. The treatment cost for the rest 20% cover by other payers. Direct medical cost for hospitalized study subject was ETB 347,321 (Mean =3,544.1 and Median = 1,890). Cost for drug (Median = 800) was the largest of all other cost; consultation (Median = 30), investigation (Median = 500) and medical supplies (Median = 120 ( $n=32$ )). Sum of direct non medical cost was also ETB 121,408 (Median = 800). The median cost for non prescribed remedies was ETB 300 and for food 200.

Table 13: Patient side direct costs of cervical cancer for hospitalized study subjects; Addis Ababa, Ethiopia, 2010

| Direct costs in ETB                      | Sum           | Mean          | Median      | SD            | (IQR)               |
|------------------------------------------|---------------|---------------|-------------|---------------|---------------------|
| <b><i>Direct medical cost (n=98)</i></b> | <b>347321</b> | <b>3544.1</b> | <b>1890</b> | <b>5331.5</b> | <b>(3361, 722)</b>  |
| Consultation                             | 15379         | 156.9         | 30          | 848.8         | (50, 5)             |
| Investigations                           | 96372         | 983.4         | 500         | 1650.5        | (1000, 200)         |
| Cost Of Drugs                            | 235570        | 2403.8        | 800         | 4231.3        | (2500, 300)         |
| Medical supplies (n= 32)                 | 12399         | 387.5         | 120         | 728.8         | (500, 41)           |
| <b><i>Direct non medical cost</i></b>    | <b>119758</b> | <b>1152</b>   | <b>800</b>  | <b>1312</b>   | <b>(1593, 200)</b>  |
| Non prescribed remedies                  | 73747         | 676.6         | 300         | 1124.3        | (962, 100)          |
| For food                                 | 47661         | 437.3         | 200         | 582.7         | (600, 100)          |
| <b><i>Total (n=93)</i></b>               | <b>443672</b> | <b>4771</b>   | <b>2802</b> | <b>6356</b>   | <b>(5418, 1574)</b> |

#### *Indirect costs*

Total forgone earning born by the patient because of cervical cancer due to hospital stay was ETB 41,353 (Mean =827 and Median = 175) due to 3,948 working days lost (Mean =34, Median = 16). Mean hospital stay for the 122 of admitted study subject was 34 days (Median =16).

Table 14: Patient side indirect costs of cervical cancer for hospitalized study subjects, Addis Ababa, Ethiopia 2010

| Patient side indirect costs                  | Sum   | Mean | Median | SD   | IQR        |
|----------------------------------------------|-------|------|--------|------|------------|
| Duration of stay as inpatient at TAH (n=122) | 4143  | 34   | 16     | 42.2 | (41, 7)    |
| Days remained out of work (n=95)             | 3948  | 41.6 | 20     | 55.2 | (90, 1)    |
| Amount of wages lost (n=50)                  | 41353 | 827  | 175    | 1871 | (500, 100) |

## Companion side cost

Average transportation cost for companion of hospitalized study subject was ETB 119 (median = 97.5) and mean time on transportation was 8.3 hours (median = 3). Median for the indirect cost was ETB 1316 (Table 15).

Table 15: Companion side direct and indirect costs of cervical cancer; Addis Ababa, Ethiopia 2010

|                                          | Companion side cost (n = 102) |       |        |       |
|------------------------------------------|-------------------------------|-------|--------|-------|
|                                          | Sum                           | Mean  | Median | SD    |
| <b>Direct cost</b>                       |                               |       |        |       |
| Transportation Fee (n=98*)               | 11713                         | 119.5 | 97.5   | 146.3 |
| Cost for Other expenses (n=102)          | 47150                         | 462.3 | 300    | 458.9 |
| <b>Indirect costs</b>                    |                               |       |        |       |
| Time for transportation in hours (n=102) | 842.11                        | 8.3   | 3      | 16.2  |
| Days lost from work to accompany (n=94)  | 3219                          | 34.2  | 15     | 54.6  |
| Amount of wages lost (n=62)              | 81590                         | 1316  | 330    | 2221  |

\*Four companions didn't use any transport

## 5.5 Cost of radiotherapy, chemotherapy and surgery

One hundred seventy six (77.5%) of patients were on some form of treatment. The most commonly used form of treatment modality, in order of frequency of use, were radiotherapy (28.6%), radio-chemotherapy (22%) and surgical treatment (9.7%). Only three patients were on chemotherapy solely.

One hundred forty seven (64.8%) of patients had radiotherapy from Tikur Anbessa hospital. The number of radiotherapy per month varied between 1 and 43 times with a median of 14 (Mean  $\pm$ SD = 15.6  $\pm$  9.1).

Table 16: Treatment modality and current treatment category of study participants, Addis Ababa, Ethiopia 2010

| Treatment modalities                  | Yes / No | Freq | Percent |
|---------------------------------------|----------|------|---------|
| <i>Radiotherapy</i>                   | Yes      | 147  | 64.8    |
|                                       | No       | 80   | 35.2    |
| <i>Chemotherapy</i>                   | Yes      | 72   | 32.2    |
|                                       | No       | 155  | 67.8    |
| <i>Surgery</i>                        | Yes      | 68   | 30      |
|                                       | No       | 159  | 70      |
| Current Treatment status/ Category    |          |      |         |
| Surgery                               |          | 22   | 9.7     |
| Radiotherapy                          |          | 65   | 28.6    |
| Chemotherapy                          |          | 3    | 1.3     |
| Surgery + Radiotherapy                |          | 17   | 7.5     |
| Radiotherapy+ Chemotherapy            |          | 50   | 22      |
| Surgery + Radiotherapy + Chemotherapy |          | 19   | 8.4     |
| Waiting treatment                     |          | 51   | 22.5    |

Among the 227 patients with cervical cancer, 68 (30%) had undergone surgery. Fifty three of 68 operated patients had paid for their surgery. The mean (SD) cost for surgery was ETB 4342.5 (5964.2) and median of ETB 1500. The sum cost for surgery for valid 53 respondents was ETB 230152 (Table 17). Similarly, median cost of radiotherapy and chemotherapy was 100 and 180 respectively. On average, patients had comes to TAH for radiotherapy every other day (Mean = 15.6 & Median = 14)

Table 17: Cost of radiotherapy, chemotherapy and surgery at Tikur Anbessa hospital Addis Ababa, Ethiopia 2010

|                                                  | Mean   | Median | SD     | Sum    |
|--------------------------------------------------|--------|--------|--------|--------|
| Frequency of radiation therapy per month (n=147) | 15.6   | 14     | 9.1    | 2290   |
| Frequency of chemotherapy per month (n=73)       | 3      | 2      | 3.9    | 217    |
| Money paid per single radiation therapy (n=147)  | 199.5  | 100    | 417    | 29326  |
| Money paid per single chemotherapy (n=73)        | 352.5  | 180    | 612.2  | 25733  |
| Money paid for the surgery (n=53)                | 4342.5 | 1500   | 5964.2 | 230152 |

## 5.6 Predictors for variation in patient related cost

Cost incurred by the patient were computed in two broad distinct category; outpatient (direct and indirect) and inpatient/ hospitalization (direct and indirect) cost for those who were ever admitted due to cervical cancer. In addition to these we also have cost estimate incurred due to surgical procedure, radiotherapy and chemotherapy, separately. In this section we focused on patient side cost that had been incurred during outpatient and inpatient / hospitalization treatment.

In the Tests of Normality, the results of the Kolmogorov–Smirnov and Shapiro–Wilk tests indicate that the distribution remains significantly different from a normal distribution at  $P < 0.0001$  and  $P < 0.0001$  respectively. The data we have was skewed to the right or positively skewed.

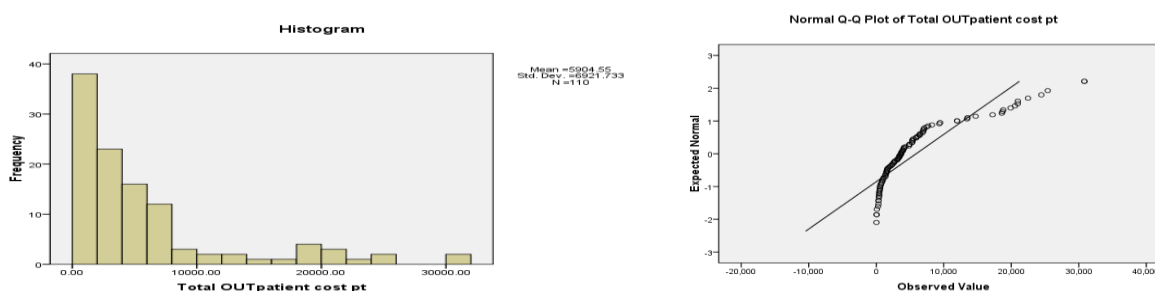


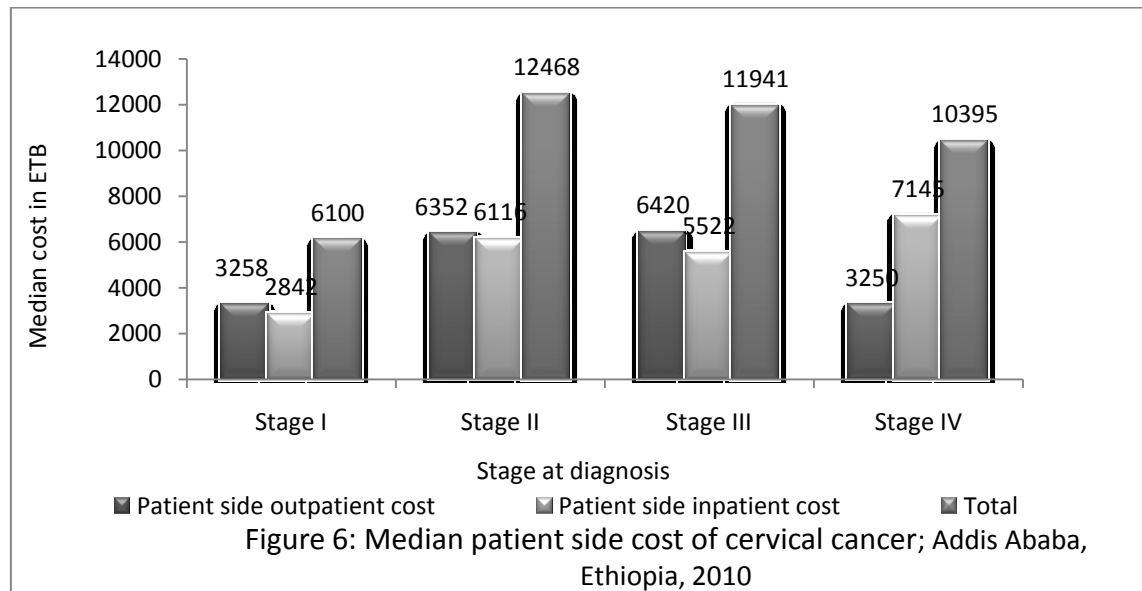
Figure 5: Distribution of patient side cost data; Addis Ababa, Ethiopia, 2010

Note that normality test had been done for inpatient cost similarly and the result found to be positively skewed too. So we used non parametric tests to compare the mean values; Kruskal Wallis (for variables which has more than two independent groups) and Mann-Whitney test (for variables which have only two independent groups).

Table 18: Outpatient and inpatient patient side treatment cost of cervical cancer; Addis Ababa, Ethiopia 2010

|        | Total patient side cost |                     |                  |                    |                    |                 |
|--------|-------------------------|---------------------|------------------|--------------------|--------------------|-----------------|
|        | Outpatient cost         |                     |                  | Inpatient cost     |                    |                 |
|        | Direct<br>(n=196)       | Indirect<br>(n=121) | Total<br>(n=110) | Direct<br>(n = 93) | Indirect<br>(n=50) | Total<br>(n=46) |
| Sum    | 949687                  | 263015              | 649501           | 443672             | 41353              | 269706          |
| Mean   | 4845.3                  | 2173.7              | 5905             | 4771               | 827                | 5863.2          |
| Median | 1940.5                  | 502                 | 3000             | 2802               | 175                | 3000            |
| IQR    | (4824, 651)             | (3100,0)            | (6933, 1359)     | (5417, 1573)       | (500, 100)         | (7161, 1936)    |

Cost was not significantly associated with stage of the illness. Those patients who were at the first stage incurred less compared with the second and the third stage patients. Conversely, those who were in very advanced stages (IV) spend less compared to other lower stages (Figure 5).



There was no significant difference in the mean total outpatient and inpatient treatment cost of cervical cancer among the categories of different; age group, marital status, and monthly income. There was also no significant difference in mean outpatient and inpatient treatment cost incurred by patients from different residence distance category. Among the four stages of cervical cancer at diagnosis, no significant difference in cost was observed in both outpatients and inpatients (Table 19a, 19b).

There was significant difference in mean outpatient cost in patients of different groups of occupation (farmer, housewife and others) ( $P < 0.02$ ). Hence, this significant difference didn't work for inpatients cost ( $p < 0.279$ ). Similarly, the number of working family member the household, the patient belongs to, had; significant at outpatient level ( $p < 0.01$ ), whereas the difference was not significant at inpatient level cost ( $p < 0.6$ ).

Significant mean outpatient and inpatient cost difference were observed among patients in relation to the main source of energy the household used for cooking with  $p$ -value  $< 0.01$  and  $0.02$ , respectively (Table 19b). Those who used fire wood incurs less compared with others. Conversely, those who used petroleum spend more compared with others.

The mean inpatient cost for respondents who came from out of Addis Ababa was significantly higher compared with those who were from Addis Ababa ( $p < 0.008$ ); whereas the mean difference for outpatient cost was not statistically significant ( $p < 0.630$ ). Patient who had companioned spent higher compared with those hadn't (Table 20).

Table 19a: Mean, median and mean rank for patient side outpatient and inpatient cost for different group, Addis Ababa, Ethiopia 2010 (*Kruskal Wallis Test p-value*)

|                 | Outpatient cost                   |        |           | Inpatient cost                   |        |           |
|-----------------|-----------------------------------|--------|-----------|----------------------------------|--------|-----------|
|                 | Mean                              | Median | Mean Rank | Mean                             | Median | Mean Rank |
| Age group       |                                   |        |           |                                  |        |           |
| 15-34           | 2494                              | 1493   | 39        | 5184                             | 2842   | 22        |
| 35-49           | 5567                              | 3808   | 57        | 4348                             | 2871   | 20        |
| 50-64           | 7429                              | 4441   | 59        | 7160                             | 3580   | 27        |
| >64             | 6345                              | 4060   | 56        | 13630                            | 13630  | 42        |
|                 | Kruskal Wallis Test (p < 0.2382)  |        |           | Kruskal Wallis Test (p < 0.184)  |        |           |
| Marital status  |                                   |        |           |                                  |        |           |
| Single          | 2295                              | 1603   | 35        | 3399                             | 3399   | 18.25     |
| Married         | 6877                              | 4886   | 61        | 6867                             | 3014   | 26.21     |
| Widowed         | 3752                              | 2725   | 48        | 3124                             | 1930   | 15.05     |
| Separated       | 7089                              | 3081   | 55        | 7345                             | 7515   | 29.75     |
| Divorced        | 7695                              | 3430   | 59        | 0                                | 0      | 0         |
|                 | Kruskal Wallis Test (p < 0.1435)  |        |           | Kruskal Wallis Test (p < 0.0813) |        |           |
| Stage at Dx**   |                                   |        |           |                                  |        |           |
| Stage 1         | 3257                              | 2530   | 48        | 2842                             | 2842   | 17        |
| stage 2         | 6352                              | 3522   | 55        | 6116                             | 2871   | 22        |
| stage 3         | 6419                              | 3727   | 59        | 5521                             | 3130   | 25        |
| stage 4         | 3250                              | 2856   | 48        | 2416                             | 3014   | 19        |
|                 | Kruskal Wallis Test (p < 0.6993)  |        |           | Kruskal Wallis Test (p < 0.758)  |        |           |
| Occupation      |                                   |        |           |                                  |        |           |
| Farmer          | 10006                             | 5320   | 72        | 3806                             | 2933   | 23        |
| House wife      | 4913                              | 2530   | 49        | 7373                             | 3505   | 27        |
| Other           | 5873                              | 3927   | 60        | 4969                             | 2646   | 20        |
|                 | Kruskal Wallis Test (p < 0.0230)* |        |           | Kruskal Wallis Test (p < 0.2791) |        |           |
| Distance to TAH |                                   |        |           |                                  |        |           |
| <50 km          | 3890                              | 1850   | 70        | 8477                             | 3630   | 29.5      |
| 50-300 km       | 3162                              | 2260   | 68        | 5235                             | 2852   | 20        |
| 301-500 km      | 4325                              | 2072   | 66        | 3451                             | 3000   | 22        |
| >500 km         | 10569                             | 3355   | 79        | 5361                             | 2530   | 22        |
|                 | Kruskal Wallis Test (p < 0.6094)  |        |           | Kruskal Wallis Test (p < 0.2795) |        |           |

\*Significant at 95 % level of confidence, \*\*stage at diagnosis

Table 19b: Mean, median and mean rank for patient side cost for different group, Addis Ababa, Ethiopia 2010 (Kruskal Wallis Test p-value)

|                       | Outpatient cost                   |        |           | Inpatient cost                    |        |           |
|-----------------------|-----------------------------------|--------|-----------|-----------------------------------|--------|-----------|
|                       | Mean                              | Median | Mean Rank | Mean                              | Median | Mean Rank |
| Monthly income        |                                   |        |           |                                   |        |           |
| <300                  | 5398                              | 1778   | 58        | 4377                              | 2852   | 18        |
| 300-600               | 3399                              | 1930   | 53        | 7772                              | 2890   | 19        |
| >600                  | 8807                              | 3280   | 68        | 5705                              | 3000   | 17        |
|                       | Kruskal Wallis Test (p < 0.1318)  |        |           | Kruskal Wallis Test (p < 0.8691)  |        |           |
| Source of income      |                                   |        |           |                                   |        |           |
| agriculture           | 8389                              | 5345   | 68        | 3698                              | 2852   | 20        |
| Trade                 | 7111                              | 4923   | 62        | 4871                              | 2465   | 19        |
| daily wage            | 2618                              | 1360   | 30        | 6213                              | 2842   | 20        |
| Monthly salary        | 5712                              | 3890   | 55        | 8994                              | 5905   | 32        |
| Other                 | 2202                              | 1521   | 32        | 2723                              | 2915   | 20        |
|                       | Kruskal Wallis Test (p < 0.0002)* |        |           | Kruskal Wallis Test (p < 0.0978)  |        |           |
| Source of energy      |                                   |        |           |                                   |        |           |
| Fire wood             | 5195                              | 3225   | 47        | 5515                              | 2401   | 17        |
| Charcoal              | 3996                              | 3081   | 41        | 4365                              | 4365   | 26        |
| animal doge           | 19900                             | 19900  | 93        |                                   |        |           |
| petroleum             | 20540                             | 20540  | 94        | 2117                              | 2117   | 14        |
| Electricity           | 7389                              | 6453   | 66        | 8233                              | 6980   | 29        |
|                       | Kruskal Wallis Test (p < 0.0108)* |        |           | Kruskal Wallis Test (p < 0.0274)* |        |           |
| Working family member |                                   |        |           |                                   |        |           |
| No one                | 4706                              | 2650   | 46.98     | 7328                              | 2852   | 21        |
| One                   | 4039                              | 2380   | 49.17     | 3812                              | 2890   | 21        |
| More than one         | 7906                              | 5151   | 66.26     | 6493                              | 3322   | 25        |
|                       | Kruskal Wallis Test (p < 0.0107)* |        |           | Kruskal Wallis Test (p < 0.6010)  |        |           |

\*Significant at 95 % level of confidence

Table 20: Mean, median and mean rank for patient side cost for different group, Addis Ababa, Ethiopia 2010 (*Mann-Whitney Test p-value*)

|                             | Outpatient cost             |        |           | Inpatient cost              |        |           |
|-----------------------------|-----------------------------|--------|-----------|-----------------------------|--------|-----------|
|                             | Mean                        | Median | Mean Rank | Mean                        | Median | Mean Rank |
| <b>Residency</b>            |                             |        |           |                             |        |           |
| Addis ababa                 | 5824                        | 3604   | 55        | 4656                        | 2852   | 20        |
| out of Addis                | 6210                        | 3727   | 58        | 9702                        | 4210   | 32        |
|                             | Mann-Whitney (p < 0.6301)   |        |           | Mann-Whitney (p < 0.0082 )* |        |           |
| <b>Companion</b>            |                             |        |           |                             |        |           |
| YES                         | 6549                        | 4100   | 52        | 6944                        | 3630   | 23        |
| NO                          | 4539                        | 1934   | 37        | 2235                        | 1939   | 13        |
|                             | Mann-Whitney (p < 0.0582 )* |        |           | Mann-Whitney (p < 0.0564 )* |        |           |
| <b>Visit other facility</b> |                             |        |           |                             |        |           |
| YES                         | 6221                        | 3925   | 59        | 6159                        | 3007   | 24        |
| NO                          | 3323                        | 511    | 31        | 2750                        | 2391   | 16        |
|                             | Mann-Whitney (p < 0.0040)*  |        |           | Mann-Whitney (p < 0.2748 )  |        |           |
| <b>Ever admitted</b>        |                             |        |           |                             |        |           |
| YES                         | 7029                        | 4923   | 64        | 5863                        | 3000   | 23        |
| NO                          | 4651                        | 3013   | 46        | —                           | —      | —         |
|                             | Mann-Whitney (p < 0.0045)*  |        |           |                             |        |           |
| <b>Surgery</b>              |                             |        |           |                             |        |           |
| YES                         | 6282                        | 4923   | 59        | 8118                        | 3630   | 26        |
| NO                          | 5763                        | 3430   | 54        | 4413                        | 2945   | 21        |
|                             | Mann-Whitney (p < 0.4542)   |        |           | Mann-Whitney (p < 0.2033 )  |        |           |
| <b>Chemotherapy</b>         |                             |        |           |                             |        |           |
| YES                         | 7828                        | 5332   | 66        | 6755                        | 3380   | 25        |
| NO                          | 4806                        | 3372   | 49        | 4595                        | 2842   | 19        |
|                             | Mann-Whitney (p < 0.0059)*  |        |           | Mann-Whitney (p < 0.1348 )  |        |           |

\*Significant at 95 % level of confidence

## Multiple linear regressions

To determine which socio-demographic and clinical characteristics influenced cost, a multiple linear regression model was fitted to the cost data for both outpatient and inpatient separately. The socio-demographic, economic and clinical variables considered for inclusion in the model are partially listed in Table 19a, 19b, and 20. Since no a priori hypotheses had been made to determine the order of entry of the predictor variables, a direct method was used for the multiple linear regression analyses.

The final model include seven variables, all of which were simultaneously significantly associated with patient side outpatient cost of cervical cancer ( $P < 0.05$ ): residency distance from TAH, number of employed household members, number of facility visited, occupation(farmer), companion, source of energy (animal dug) and residency (out of Addis Ababa). The adjusted  $R^2$  value for this model was 44.2% ( $F(7, 87) = 10.97, P = .0001$ ), indicating that the variability in cost is only partly explained by the predictor variables in the model.

Table 21: Linear regression model for outpatient cost of cervical cancer; Addis Ababa, Ethiopia 2011

|                                                                                                        | Unstandardized |            | Standardized | <i>t</i> | <i>P</i> |
|--------------------------------------------------------------------------------------------------------|----------------|------------|--------------|----------|----------|
|                                                                                                        | B              | Std. Error | Beta         |          |          |
| (Constant)                                                                                             | 3422.45        | 1287.48    |              | 2.66     | 0.0095   |
| Residency distance from TAH (Km)                                                                       | 9.7            | 3.11       | 0.36         | 3.12     | 0.0025   |
| Number of employed household members                                                                   | 1434.26        | 369.4      | 0.31         | 3.88     | 0.0002   |
| Number of facility visited $\begin{cases} 0 = \text{otherwise} \\ 1 = \text{if} > 1 \end{cases}$       | 3629.08        | 1112.98    | 0.27         | 3.26     | 0.0016   |
| Occupation $\begin{cases} 0 = \text{otherwise} \\ 1 = \text{if Farmer} \end{cases}$                    | 7831.77        | 1618.64    | 0.4          | 4.84     | 0.0001   |
| Source of Energy $\begin{cases} 0 = \text{otherwise} \\ 1 = \text{Animal dug} \end{cases}$             | 15452.69       | 5105.89    | 0.25         | 3.03     | 0.0033   |
| Companion $\begin{cases} 0 = \text{had companion} \\ 1 = \text{had no companion} \end{cases}$          | -4584.74       | 1512.45    | -0.25        | -3.03    | 0.0033   |
| Residency $\begin{cases} 0 = \text{Addis Ababa} \\ 1 = \text{out of Addis Ababa} \end{cases}$          | -5805.61       | 1784.69    | -0.37        | -3.25    | 0.0017   |
| Dependent Variable: Patient side outpatient cost of cervical cancer (n=88),<br>Adjusted $R^2 = 44.2\%$ |                |            |              |          |          |

Similar with outpatient cost, the prediction model for patient side inpatient cost of cervical cancer was developed. The final model included three variables, all of which were simultaneously significantly associated with patient side outpatient cost of cervical cancer ( $P < 0.05$ ): duration of inpatient stay, co-morbidity and current stage of cervical cancer (II). These three variables together gives an adjusted  $R^2$  value of 46.6% ( $F(3, 45) = 14.08, P = .0001$ ).

According to the model, longer duration of inpatient hospital stay and existence of co-morbidity were associated with higher inpatient cost. Patients currently (at the time of interview) at stage II incur additional ETB 4282.92 compared with patient in other stages.

Table 22: Linear regression model for inpatient cost of cervical cancer; Addis Ababa, Ethiopia 2010

|                                                                                                       | Unstandardized<br>B | Std. Error | Standardized<br>Beta | <i>t</i> | <i>P</i> |
|-------------------------------------------------------------------------------------------------------|---------------------|------------|----------------------|----------|----------|
| (Constant)                                                                                            | -415.96             | 1206.85    |                      | -0.34    | 0.7321   |
| Duration of inpatient stay (day)                                                                      | 61.55               | 24.19      | 0.31                 | 2.54     | 0.0147   |
| Co morbidity $\begin{cases} 0 = No \\ 1 = Yes \end{cases}$                                            | 4274.68             | 1566.39    | 0.33                 | 2.73     | 0.0092   |
| Current stage $\begin{cases} 0 = otherwise \\ 1 = Stage II \end{cases}$                               | 4282.92             | 1499.33    | 0.33                 | 2.86     | 0.0066   |
| Dependent Variable: Patient side inpatient cost of cervical cancer (n=46),<br>Adjusted $R^2 = 46.6\%$ |                     |            |                      |          |          |

## 6. Discussion

Cervical cancer is costly disease. It affects individual patient, families, society, healthcare institutions and national productivity (40). This study has produced some important key findings related to the economics of cervical cancer that may contribute to better healthcare planning. It indicates how much society is spending. This can be used as an input for further economic evaluation. This study has also recognized the cost of cervical cancer in relation to different socio-demographic and clinical characteristics.

The large differences between mean and median values of the various cost data indicated that the distribution of costs was quite skewed. Hence, we used the non parametric tests that used to examine significance of difference when comparing the same mean in two or more sub-groups. The standard deviations presented in this study are large, sometimes exceeding the means. Such a pattern is commonly observed when there is wide variation in treatment patterns between patients, even amongst those apparently exhibiting the same pattern of disease (36).

The mean age of the respondents was 48.7 years, which is an early menopausal period. Most of the respondents, 124 (54.6%), were illiterate followed by 102 (23.2%) respondents that hadn't attend any formal schooling but can read and write. The vast majorities were also, 52%, housewives. These give a picture of who were more affected; the poor, marginalized and uneducated segment of population. It may be used as information for health policymakers to solve the inequity problem. These characteristics of the study participants were consistence with other studies conducted in Ethiopia, and some other African and Latin American counties (20, 40-43).

Majority diagnosed at advanced cancer stage. They were also enforced with more severe (may be with danger sign) symptoms. This delay and stage advancements incurs higher cost; not only to the patient but also for the health system. In this study, the cost for stage I was lower compared with stage II and stage III. This finding was similar with the findings from other study on cervical cancer (28, 37, 44, 45). The cost for stage IV was less compared with other lower stages. This implausible finding ignites a notion; there may be non linear relation between cervical cancer stage progression and cost of illness. It may also be due to unavailability of treatment option for stage IV cervical cancer patients in Ethiopia.

Great variation was seen among the cases regarding the time interval from the symptoms appeared to diagnosis at TAH, with minimum of five day up to eight years. This implies that there was long delay in seeking treatment. The median duration of illness was 180 days. Number of working days lost was also quite large (Median = 60 days). The delay may be due to low health seeking behavior, lack of access to transportation or financial problem. Knowledge of mother about available treatment options could be mentioned as a reason for the delay. The quality and structure of the referral linkage can also be raised at this point. Misdiagnosis due to lack of access to diagnostic instruments and skilled professionals at the peripheral health facilities may extend the time lag. Above all the status of women on decision making at household level is the main contributing factor (37, 46-49). One study from US on cervical and Breast cancer survivors reported that "Fear of finding cancer" as the most frequently cited reason for diagnostic delay (50).

There have been no previous studies examining the cost of cervical cancer in sub Saharan Africa. Comparison of our findings with those of other cost of illness studies of cervical cancer in other countries or other disease in Ethiopia would be of limited value because of the difference in the categories of cost, the methods used, the pattern of health services utilization and the health-care system.

Total outpatient cost born by eligible cervical cancer patient was ETB 649,501 (\$44793). The average outpatient cost per patient for cervical cancer was Birr 5,905 (\$407.2) (median = 3,000 (\$206.9)). Mean direct outpatient cost (Birr 4,845.3 (\$334.2) takes the largest share compared with the indirect counterpart (Birr 2,173.7 (\$150)); even more than double. The outpatient cost for almost half of the respondent falls in a range between Birr 6,933 (\$478) and Birr 1,359 (\$93.7).

Mean inpatient cost for hospitalized patients was Birr 5,863.2 (\$404.4). The average direct inpatient cost was Birr 4,771 (\$329) (74% medical costs and 26% non medical costs). The mean value for total inpatient cost for nearly half of the respondent were in a range of Birr 7,161(\$493.9) and 1,936 (\$133.5).

Even though it is difficult to compare the above mentioned findings with other study done elsewhere it is crystal clear that this costs were big enough to brought economic burden for the patients and their family members (34).

The median cost for surgical treatment was ETB 1,500. Single cycle chemotherapy costs on average ETB 180. Median cost for a single radiotherapy episode was ETB 100. This shows the procedures and treatment options were costly. These findings were comparable with study in Spain (32).

The results of this study suggested that residency distance from TAH, number of employed household members, number of Facility visited, occupation(farmer), companion, source of energy used by patients house hold (animal dug) and residency (out of Addis Ababa) were significantly associated with costs. Some previous studies supported this finding (51, 52).

The three best predictors of patient side inpatient cost of cervical cancer were; duration of inpatient stays (day), presence of co morbidity and stage of cervical cancer.

## 7. Conclusion

The research question aimed to be answered in this thesis was first; how much economic burden do have cervical cancer (ICD-10 C53) on patients, their family and on the society at large? Second, what are parameters that explain variability of patient side cost in different group? Generally, this cost of illness study is helpful to estimate the actual direct and indirect costs attributable to cervical cancer. In spite of its limitation, this cost of illness study is the pioneer to estimate both the direct and indirect costs associated with cervical cancer in Ethiopia.

Cervical cancer creates an immense economic burden on patients and their families. It is a costly disease. The poor, vulnerable, and uneducated were the segment of population who suffered at most.

Outpatient treatment cost was found to be dependent on patient residence distance from the hospital, number of employed household members, number of facility visited and occupation. Inpatient treatment cost was predicted with duration of inpatient stay, existence of co-morbidity and current stage of cervical cancer. Longer duration of hospital stay and existence of co-morbidity were associated with higher inpatient cost.

Hence, the high prevalence of the disease supplemented with its immense direct and indirect costs inflict that cervical cancer is a health problem; demanding attention and public health priority from health program managers, planners and policy designer.

## **8. Strengths and limitations of the study**

### **Strengths**

- This study estimates cost from the societal perspective; which enable us to include more cost components.
- This study used approach that did not require normative assumptions; more appropriate for this kinds of data
- This study used non-logged models, which are easier to interpret than log model.

### **Limitations**

- This economic cost evaluation study is limited to patient side and their accompanies cost, due to time constraints, even though it would be more comprehensive if it includes other costs such as: health system, health care budget, health care provider, and psychosocial cost (stigma and discrimination). In addition to time constraint, the preliminary assessment depict that there were no clearly documented data source.
- The limitations of self-reported data must be recognized upfront: there was no local external or objective record of costs of illnesses against which the results could be validated. Recall bias; could cause incomplete recording of the number and cost of tests, prescriptions and consultations.
- It is quite difficult to compare costs as reported in different economic evaluations. This was due to differences in study design. Another limitation is that the cost-of-illness studies showed also differences in the types of costs involved in the studies.
- Those patients who were critically sick and unable to communicate were not included in this study; which may partly affect the representativeness of the sample we used.

## 9. Recommendations

- Prevention of occurrence of cervical cancer shall be the prime focus in order to ultimately avoid the problem in all aspects including its economic burden.
- Screening and Vaccination facility:
  - Government-supported delivery of HPV vaccination in schools or the community, with appropriate education and financing.
  - Mass Screening methods: focused on once a life time methodology involving 36-45 year old women.
  - Public Health education for all.
- Once the cancer develops then it needs to be controlled to avert the co-morbidities and complications, which can again cause significant cost.
- Capacitating regional hospitals in order to enable them to provide appropriate treatment for cervical cancer including radiotherapy and chemotherapy.
- Low cost payment or fee exemption system shall be arranged and strengthen for those who are very poor cervical cancer patients.
- Effective social support systems for cervical cancer patients should be designed and implemented.
- There is no other estimate for the cost of cervical cancer exists in Ethiopia, whereas few estimates are now available in other counties. Future studies in this area would be helpful for identifying the potential costs that can be reduced if it is prevented.

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## ANNEXES

### Annex I: English Version Questionnaire

#### Introduction

Good Morning/Good Afternoon. My name is \_\_\_\_\_. I work for a research team from Addis Ababa University School of Public health. This team is conducting a study on *“Cost and Predictors of Cost of Cervical Cancer treatment in Tikur Anbessa Hospital; Addis Ababa, Ethiopia.”*. This study is very helpful to estimate economic burden of cervical cancer on patients and their family and to design appropriate strategies in local and national level by different stakeholders.

You are selected for this study randomly and participation in this study is based on Voluntariness. You have full right not to participate in this study however we encourage you to participate since your responses are very crucial to look at the economic burden of cervical cancer. It may also help to design appropriate strategies and improve the health of cervical cancer patients and their family. During our stay we will ask you some questions.

These questions include socio-demographic variables, Health status, behavioral information and cost information. In the study there are no procedures and questions that may harm or give you a feeling of discomfort. We would like to assure you that your personal identifications will not be written in the questionnaire. Your response will be kept confidential. All records of this study will be kept in a locked cabinet. If findings of this study are ever presented in a workshop or seminar your name or other personal identification will not be mentioned.

If you agree to participate in this study, our questionnaire interview may take us 30-45 minutes. If you feel discomfort or want to withdraw in the middle of our interview, it is your right to discontinue without any penalty. It is also your right not to give a response to some of our question if you don't want to respond.

Do you have any questions?

If you want to ask questions for clarification about the study later on; you can contact Mr. Alemayehu Desalegne, the principal investigator, by cell phone numbers 0913-579507 during the working hours in the week days.

May I have your permission to proceed to the interview?

Yes ..... (Continue)

No ..... (Stop)

## Section I. Socio-economic and demographic characteristics

| Ser. No | Questions                                             | Possible answers and coding                                                                                                                                                                                                                                                    | Skip |
|---------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| 101     | How old are you?                                      | 1. _____ years<br>98. I don't know<br>99. Refused to tell                                                                                                                                                                                                                      |      |
| 102     | What is your current marital status?                  | 1. Single (never been married)<br>2. Married<br>3. Widowed<br>4. Separated<br>4. Divorced                                                                                                                                                                                      |      |
| 103     | What is your educational status?                      | 1. Illiterate<br>2. Read and write only<br>3. Grade 1-8 (specify completed ) _____<br>4. Grade 9-12 (specify completed ) _____<br>5. College, University graduated                                                                                                             |      |
| 104     | What is your main occupation<br>(Past twelve months)? | 1. Farmer<br>2. House wife<br>3. Government employed<br>4. NGO employed<br>5. Employed private for profit sector<br>6. Merchant (private business)<br>7. Pupil/ student<br>8. Daily laborer<br>9. Unemployed<br>10. Retired<br>11. Disabled/ sick<br>12. Other (specify) _____ |      |
| 105     | What is your monthly income?                          | 1. _____ Birr or _____ in Kind<br>98. I don't know<br>99. Refused to tell                                                                                                                                                                                                      |      |
| 106     | What is your religion?                                | 1. Christian orthodox<br>2. Christian protestant<br>3. Muslim<br>4. Catholic<br>5. Others (specify) _____                                                                                                                                                                      |      |
| 107     | What is your ethnicity?                               | 1. Tigray<br>2. Amhara<br>3. Oromo<br>4. Gurage<br>4. Others (specify) _____                                                                                                                                                                                                   |      |
| 108     | Where is your permanent residence area?               | 1. Region _____<br>2. woreda _____<br>3. distance from _____ Km                                                                                                                                                                                                                |      |
| 109     | Number of people living in your family?               | 1. _____<br>98. Refused to tell                                                                                                                                                                                                                                                |      |
| 110     | How many are employed/ working at the moment?         | 1. _____<br>99. Refused to tell                                                                                                                                                                                                                                                |      |
| 111     | What is their regular total monthly income?           | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                                                                                                                                                                                                                       |      |

## Section II. Outpatient costs of cervical cancer out of Tikur Anbessa Hospital

| Ser. No | Questions                                                                                   | Possible answers and coding                                                                                                                                                                                                     | Skip                       |
|---------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 201     | What was the major symptom you first encounter at the beginning?                            | 1. Abnormal bleeding<br>2. Unusual heavy discharge<br>3. Pelvic pain<br>4. Pain during urination<br>5. Bleeding between regular menstrual periods, after sexual intercourse, douching, or pelvic exam<br>6. Other specify _____ |                            |
| 202     | How long did you have your complaints before becoming a patient at this hospital?           | 1. ____ years ____ months ____ days<br>98. I don't know<br>99. Refused to tell                                                                                                                                                  |                            |
| 203     | How many days had you remained from work?                                                   | 1. ____ days<br>98. I don't know<br>99. Refused to tell                                                                                                                                                                         |                            |
| 204     | Amount of wages lost for days lost from work                                                | 1. ____ Birr<br>98. I don't know<br>99. Refused to tell                                                                                                                                                                         |                            |
| 205     | Did you visit any other providers to get treatment of this disease before you come to here? | 1. yes<br>2. No                                                                                                                                                                                                                 | If no,<br>Skip to<br>Q 215 |
| 206     | If yes to Q 204, number of health services/providers visited before?                        | 1. ____<br>98. I don't know<br>99. Refused to tell                                                                                                                                                                              |                            |
| 207     | Which health services did you visit?                                                        | 1. Government<br>2. NGO<br>3. Private<br>4. Traditional Healer<br>5. religious places<br>6. other (specify) _____                                                                                                               |                            |

|    | 208. Consultation fees? | 209. Investigations fee (Laboratory, X-ray, etc)? | 210. Total cost of drugs purchased? | 111. What is the means of transportation to get to the health facilities? | 212. How long does it take you to get the health services site? | 213. Total cost of Transportation fee? | 214. Other costs? |
|----|-------------------------|---------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------|-------------------|
| #1 |                         |                                                   |                                     |                                                                           |                                                                 |                                        |                   |
| #2 |                         |                                                   |                                     |                                                                           |                                                                 |                                        |                   |
| #3 |                         |                                                   |                                     |                                                                           |                                                                 |                                        |                   |
| #4 |                         |                                                   |                                     |                                                                           |                                                                 |                                        |                   |
| #5 |                         |                                                   |                                     |                                                                           |                                                                 |                                        |                   |

|     |                                                                               |                                  |                         |
|-----|-------------------------------------------------------------------------------|----------------------------------|-------------------------|
| 215 | Has anyone from your family or friends looked after you prior to coming here? | 1. Yes<br>2. No                  | If no, skip to<br>Q 301 |
| 216 | If yes to Q 215, number of days lost from work to accompany You?              | 1. ____ days<br>98. I don't know |                         |

|     |                                                                                                     |                                                                          |                      |
|-----|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------|
|     |                                                                                                     | 99. Refused to tell                                                      |                      |
| 217 | If yes to Q 215, what is their monthly income?                                                      | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                 |                      |
| 218 | If yes to Q 215, Do any of the care-givers lose any income because they cared for you?              | 1. Yes<br>2. No                                                          | If no, skip to Q 220 |
| 219 | If yes to Q 218, amount of wages lost per days lost from work?                                      | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                 |                      |
| 220 | What is the means of transportation for caregivers to get to the health facility?                   | 1. On foot<br>2. On animal Back<br>3. Taxi/bus<br>4. Other(specify)_____ |                      |
| 221 | How long does it take them to get the health services site?                                         | 1. _____ hours/minutes<br>98. I don't know<br>99. Refused to tell        |                      |
| 222 | How much did he/she spend for fee transportation?                                                   | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                 |                      |
| 223 | How much did he/she spend for other expenses like food, drink bed room on the way to here with you? | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                 |                      |
| 224 | If yes to Q 215, amount of cost for other expenditures?                                             | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                 |                      |

### Section III. Outpatient costs of cervical cancer at Tikur Anbessa Hospital

| Ser. No | Questions                                                                                                     | Possible answers and coding                              | Skip               |
|---------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------------|
| 301     | How long have you been an outpatient for cervical cancer treatment?                                           | 1. _____ days<br>98. I don't know<br>99. Refused to tell |                    |
| 302     | How many outpatient visits have you had in that time?                                                         | 1. _____<br>98. I don't know<br>99. Refused to tell      |                    |
| 303     | How many days have you remained from work being an outpatient?                                                | 1. _____ days<br>98. I don't know<br>99. Refused to tell |                    |
| 304     | Amount of wages lost for days lost from work                                                                  | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell |                    |
| 305     | Did you have to pay anything for your treatment, prescribed drugs or tests since you have been an outpatient? | 1. Yes<br>2. No                                          | If no, skip to 309 |
| 306     | If yes, How much have you spent on prescribed drugs while you were an outpatient?                             | 1. _____ Birr<br>98. I don't know                        |                    |

|     |                                                                                                                      |                                                                           |                      |
|-----|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------|
|     |                                                                                                                      | 99. Refused to tell                                                       |                      |
| 307 | If yes, How much have you spent on investigations while you were an outpatient? (Laboratory, x-ray, ultrasound etc.) | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                  |                      |
| 308 | If yes, How much have you spent on registration cards? (consultation)                                                | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                  |                      |
| 309 | How much have you spent on any other non-prescribed remedies?                                                        | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                  |                      |
| 310 | How much have you or any visitors spent on your food?                                                                | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                  |                      |
| 311 | What is the means of transportation to get to the health facility (Black lion Hospital)?                             | 1. On foot<br>2. On animal Back<br>3. Taxi/bus<br>4. Other(specify) _____ |                      |
| 312 | How long does it take you to get the health services site?                                                           | 1. _____ hours /minutes<br>98. I don't know<br>99. Refused to tell        |                      |
| 313 | Total cost of Transportations fee?                                                                                   | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                  |                      |
| 314 | Has anyone from your family or friends looked after you during your treatment?                                       | 1. Yes<br>2. No                                                           | If no, skip to Q 401 |
| 315 | If yes to Q 314, number of days lost from work to accompany You?                                                     | 1. _____ days<br>98. I don't know<br>99. Refused to tell                  |                      |
| 316 | If yes to Q 314, what is their monthly income?                                                                       | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                  |                      |
| 317 | If yes to Q 315, Do any of the care-givers lose any income because they cared for you?                               | 1. Yes<br>2. No                                                           |                      |
| 318 | If yes to Q 317, amount of wages lost per days lost from work?                                                       | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                  |                      |
| 319 | What is the means of transportation for caregivers to get to the health facility?                                    | 1. On foot<br>2. On animal Back<br>3. Taxi/bus<br>4. Other(specify) _____ |                      |
| 320 | How long does it take them to get the health services site?                                                          | 1. _____ hours /minutes<br>98. I don't know<br>99. Refused to tell        |                      |
| 321 | How much did he/she spend for transportation fee?                                                                    | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                  |                      |

|     |                                                                                                     |                                                          |  |
|-----|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------|--|
| 322 | How much did he/she spend for other expenses like food, drink bed room on the way to here with you? | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell |  |
| 323 | If yes to Q 314, amount of cost for other expenditures?                                             | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell |  |

#### Section IV. Household economic status and spending

|     |                                                                              |                                                                                                                                                                                                                   |     |
|-----|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 401 | What is the average monthly income of the household                          | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell                                                                                                                                                          |     |
| 402 | What is the main source of income for the family                             | 1. Farming<br>2. Trade<br>3. Production of handicraft<br>4. Daily Labor<br>5. Monthly income from employment<br>6. other Specify _____                                                                            |     |
| 403 | What is the main food crop produced by the household?<br>(select only one)   | 1. Teff<br>2. Bean<br>3. Maize<br>4. Barely<br>5. Wheat<br>6. Other legumes<br>7. Is not crop producer-----                                                                                                       | 405 |
| 404 | How many quintals of this crop were produced in the previous harvest season? | 1. _____ quintals<br>98. I don't know<br>99. Refused to tell                                                                                                                                                      |     |
| 405 | Do you have the following cultivation in your farm or backyard?              | 1. coffee<br>2. chat<br>3. pepper<br>4. Ginger<br>5. Cabbage                                                                                                                                                      |     |
| 406 | Does your family/household own _____?<br>(Check all that applies.)           | 1. Electricity<br>2 Watch<br>3. Radio<br>4. Television<br>5. Mobile Phone<br>6. Non mobile phone<br>7. Refrigerator<br>8. Table<br>9 Chair<br>10 Bed<br>11 .Cattle (specify in number)<br>Oxen _____<br>Cow _____ |     |

|     |                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                 |  |
|-----|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|     |                                                                                                 | Sheep____<br>Goat____<br>Donkey____<br>Hen____<br>Other(specify _____)                                                                                                                                                                                                                                                                                                                          |  |
| 407 | What is the main source of energy in the house?                                                 | 1. fire wood<br>2. Charcoal<br>3. Animal dung<br>4. Kerosene<br>5. Electricity<br>6. Other(specify) _____                                                                                                                                                                                                                                                                                       |  |
| 408 | What is your household expenditure in the last month for the items listed in average (in Birr)? | 1. Food items_____<br>2. water _____<br>3. Electricity _____<br>4. Education_____<br>5. Clothing_____<br>6. Seeds_____<br>7. Transport_____<br>8. Telephone_____<br>9. House Rent_____<br>10. Kerosene_____<br>11. Milling_____<br>12. Fertilizer_____<br>13. ``Eder``_____<br>14. ``Equb``_____<br>15. Savings_____<br>16. Utensils_____<br>17. Health_____<br>18. Tax_____<br>19. Others_____ |  |

### Section V. Inpatient costs of cervical cancer (only for ever hospitalized)

| Ser. No | Questions                                                                                                         | Possible answers and coding                              | Skip                 |
|---------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------|
| 501     | How many days did you stay in hospital?                                                                           | 1. _____ days<br>98. I don't know<br>99. Refused to tell |                      |
| 502     | Did you have to buy anything special for your stay in hospital (i.e. towels, home dressing gown, sleepers, etc.)? | 1. Yes<br>2. No                                          | If no, skip to Q 504 |
| 503     | If yes, How much have you spent?                                                                                  | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell |                      |
| 504     | How many days have you remained from work being an inpatient?                                                     | 1. _____ days<br>98. I don't know                        |                      |

|     |                                                                                                          |                                                          |                      |
|-----|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------|
|     |                                                                                                          | 99. Refused to tell                                      |                      |
| 505 | Did you lose any income as a result of being in hospital?                                                | 1. Yes<br>2. No                                          | If no, skip to Q 507 |
| 506 | If yes, How much have you spent per days lost from work?                                                 | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell |                      |
| 507 | Did you have to pay anything for your treatment, prescribed drugs or tests since being in this hospital? | 1. Yes<br>2. No                                          | If no, skip to Q 511 |
| 508 | If yes, How much have you spent on prescribed drugs while you were an inpatient?                         | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell |                      |
| 509 | If yes, How much have you spent on investigations while you were an inpatient                            | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell |                      |
| 510 | If yes, How much have you spent on registration cards?                                                   | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell |                      |
| 511 | How much on any other un-prescribed remedies?                                                            | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell |                      |
| 512 | How much have you or any visitors spent on your food while in hospital?                                  | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell |                      |
| 513 | Amount of cost for transportation?                                                                       | 1. _____ Birr<br>98. I don't know<br>99. Refused to tell |                      |
| 514 | Has anyone from your family or friends looked after you during your stay in the hospital?                | 1. Yes<br>2.No                                           | If no, skip to Q 601 |
| 515 | If yes, number of days lost from work to accompany You?                                                  | 1. _____ Birr<br>98.I don't know<br>99. Refused to tell  |                      |
| 516 | If yes, what is their monthly income?                                                                    | 1. _____ Birr<br>98.I don't know<br>99. Refused to tell  |                      |
| 517 | If yes, Do any of the care-givers lose any income because they cared for you?                            | 1.Yes<br>2.No                                            |                      |
| 518 | If yes, amount of wages lost per days lost from work?                                                    | 1. _____ Birr<br>98.I don't know<br>99. Refused to tell  |                      |

|     |                                                                                                     |                                                                        |  |
|-----|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--|
| 519 | If yes, what is the means of transportation for caregivers to get to the health facility?           | 1.On foot<br>2.On animal Back<br>3.Taxi/bus<br>4.Other(specify)_____   |  |
| 520 | If yes, how long does it take them to get the health services site?                                 | 1.____ hours or ____ minutes<br>98.I don't know<br>99. Refused to tell |  |
| 521 | If yes, amount of cost for transportation?                                                          | 1.______ Birr<br>98.I don't know<br>99. Refused to tell                |  |
| 522 | How much did he/she spend for other expenses like food, drink bed room on the way to here with you? | 1.______ Birr<br>98.I don't know<br>99. Refused to tell                |  |
| 523 | If yes, amount of cost for other expenditures?                                                      | 1.______ Birr<br>98.I don't know<br>99. Refused to tell                |  |

### Section VI: Cost of radiotherapy, chemotherapy and surgery

| Radiotherapy |                                                                                                                                       |            |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------|------------|
| 601          | How many times per month did you come for radiation therapy?                                                                          |            |
| 602          | How many Birr did you pay for one day radiation therapy?                                                                              | _____ Birr |
| 603          | When you come for radiation therapy how much did you spend for expenses other than the therapy (transport, food drink, bed room etc)? | _____ Birr |

| Chemotherapy |                                                                                                                                  |            |
|--------------|----------------------------------------------------------------------------------------------------------------------------------|------------|
| 604          | How many times per month did you come for chemotherapy?                                                                          |            |
| 605          | How many Birr did you pay for one time chemotherapy                                                                              | _____ Birr |
| 606          | When you come for chemotherapy how much did you spend for expenses other than the therapy (transport, food drink, bed room etc)? | _____ Birr |

| Surgery |                                                                                  |                 |
|---------|----------------------------------------------------------------------------------|-----------------|
| 607     | In relation to your cervical cancer problem have you had any surgical treatment? | 1. Yes<br>2. No |
| 608     | How much did you pay for the surgery                                             | _____ Birr      |

## Section VII Check List for document review

|       |                                        |     |    |     |    |
|-------|----------------------------------------|-----|----|-----|----|
| s. no |                                        |     |    |     |    |
| 701   | Current Stage                          | I   | II | III | IV |
| 702   | Metastatic                             | YES |    | NO  |    |
| 702dx | Stage at diagnosis                     | I   | II | III | IV |
| 703   | a. Histological diagnosis              |     |    |     |    |
|       | b. Date of report                      |     |    |     |    |
| 704   | Pap smear result (if available)        |     |    |     |    |
| 705   | Time from onset to presentation to TAH |     |    |     |    |
| 706   | Treatment status                       |     |    |     |    |
| 707   | Other complication                     | YES |    | NO  |    |
| 708   | Other co morbidity                     |     |    |     |    |

|              |                   |                             |                   |
|--------------|-------------------|-----------------------------|-------------------|
| Result code  |                   | To be filled by interviewer |                   |
| Quality code |                   | To be filled by supervisor  |                   |
| Results code |                   | Quality code                |                   |
| 1=           | Complete          | 1=                          | Complete          |
| 2=           | Problems as noted | 2=                          | Problems as noted |
| 3=           | Refused           | 3=                          | Refused           |

Questionnaire ID: \_\_\_\_\_

Interviewer's Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Date of interview: \_\_\_\_ (day)/ \_\_\_\_ (month)/2010

Supervisor's Name \_\_\_\_\_ Signature: \_\_\_\_\_

Checked on: \_\_\_\_\_ (day)/ \_\_\_\_ (month)/2010

## Annex II: English Version Information Sheet

### Information Sheet

**Title of the Research Project:** Cost and Predictors of Cost of Cervical Cancer Treatment in Patients Attending Tikur Anbessa Hospital; Addis Ababa, Ethiopia.

**Name of Principal Investigator:** Alemayehu Desalegne (Bsc in Public Health)

**Name of the Organization:** Addis Ababa University College Health Sciences, School Of Public Health

**Introduction:** Information sheet prepared for the study on cervical cancer in Tikur Anbessa Hospital, for who are going to participate in Research Project, Total Cost and Predictors of Cost in Patients with cervical cancer: cross sectional study in Addis Ababa, Ethiopia.

This information sheet is prepared with the aim of explaining the research project that you are asked to join by the group of research investigators. The main aim of the research project is to assess economic burden of cervical cancer on Patients and their Families. The investigator team includes Diploma Nurse (data collector), and supervisor who are Degree graduates. We also include senior advisor from Addis Ababa University (Professor Damen Haile Mariam).

**Purpose of the Research Project:** The core assumption underlying the study is that this health impairment increases time taken to seek health care, of absenteeism due to sickness, and expenditure for treatment. As it is long time disease, where productivity loses on a daily basis are inevitable, its economic impact would best be highlighted by estimating its cost on individuals and families.

Despite the intensive problem there is no similar study in the study area done, and then the result of this study greatly will generate baseline information to formulating and designing appropriate and integrated cost effective intervention strategies on cervical cancer.

**Procedure:** In order to estimate total cost and predictors of cost in patients with cervical cancer: cross sectional study in Addis Ababa, Ethiopia is being conducted. We invite you to take part in our project. If you are willing to participate in our project, you need to understand and sign the consent form. Then you will be requested to give your response by

the data collectors. For this questionnaire based study all cervical cancer patients, who are coming in the study period and selected by systematic sampling technique will be involved.

**Risk and /or Discomfort:** By participating in this research project you may feel that it has some discomfort especially on wasting your time (30 minutes) but this may not be too much as you are wasting your time and money for cervical cancer. There is no potential risk in participating in this research project.

**Benefits:** If you are participating in this research project, there may not be direct benefit to you but your participation is likely to help us in looking the Economic Burden of cervical cancer on patients and their families and helps to develop better strategies to have the cost effective quality service.

**Incentives/Payments for Participating:** You will not be provided any incentives or payment to take part in this project.

**Confidentiality:** All the response given by participants and the result obtained will be kept confidential and all records will be kept in a locked cabinet. The data collected from this research project will kept confidential and information about you that will be collected by this study will be stored in a file, without your name, but a code number assigned to it. Which number belong to which will be locked with key, and it will not be revealed to anyone except the principal investigator.

**Right to Refusal or Withdraw:** You have full right to refuse from participating in this research. You can choose not to response some or all the questions and this will not affect you from getting any kind of health service. You have also the full right to withdraw from this study at any time you wish, without losing any of your right.

**Person to contact:** This research project is reviewed and approved by Addis Ababa University school of Medicine Institutional Review Board. If you want to know more information you can contact the Board through the address below. If you want to ask questions for clarification about the study later on, you can contact Mr. Alemayehu Desalegne the principal investigator by cell phone number 0913-579507 during the working hours in the week days.

Alemayehu Desalegne  
P.O.Box: 57659  
Addis Ababa  
Tel: 0913-579507  
E-Mail: alemayehu4all@gmail.com

Addis Ababa University  
School of Public Health  
P.O.Box: 9086  
Addis Ababa  
Tel: +251-1-5157701  
Fax: +251-1-5517701

## Annex III: English Version Consent Form

### Consent Form

**Instruction to Interviewer:** Ask respondent the following: ‘Are you willing to participate in an interview to discuss the issues that I’ve just mentioned? Please remember that you don’t have to participate if you don’t want too.’

Yes \_\_\_\_

No \_\_\_\_

### Interviewer’s Declaration

I, \_\_\_\_\_ Date \_\_\_\_\_

*Hereby I declare that, I have explained clearly to the participants the aim and objectives of this study and I have obtained the participant’s consent.*

### Participant’s Declaration

*“I have been given an opportunity to ask any questions I may have, and all such questions or inquiries have been answered to my satisfaction. I have been informed orally and in writing of whom to contact in case I have questions. I hereby give my consent to participate in this study.”*

Respondent’s Name: \_\_\_\_\_ (optional)

Signature \_\_\_\_\_ Date: \_\_\_\_\_

## Annex IV: Amharic Version Questionnaire

### በአዲስ አበባ ዩኒቨርሲቲ፤ የጤና ሳይንስ ኮሌጅ፤ የህብረተሰብ ጤና አጠባበቅ ትምህርት ቤት የመረጃ መስብሰቢያ መጠይቅ

#### መግቢያ

ጤና ይስጥልኝ፤ እንደምን አረፈዱ/ ዋሉ። እኔ \_\_\_\_\_ እባላለሁ፤ የምሰራውም ከአዲስ አበባ ዩኒቨርሲቲ፤ የህብረተሰብ ጤና አጠባበቅ ትምህርት ቤት የምርምር እና ጥናት ቡድን ጋር ነው። ይህ የጥናት ቡድን የሚያካሂደው ጥናት «የማህጸን በር ካንሰር በበሽተኛዋ እና በቤተሰቡ ላይ ያስከተለው ኢኮኖሚያዊ ጫና እና ተያያዥ ችግሮች» ይሰኛል። ይህ ጥናት፤ የማህጸን በር ካንሰር በበሽተኛዋ እና በቤተሰቡ ኢኮኖሚ ላይ ያስከተለውን ጫና ለመገመት ያለው ጠቀሜታ እጅግ በጣም የጐላ ነው።

እርስዎ፤ ለዚህ ጥናት የተመረጡት ያለምንም ቅድመ ሁኔታ ሲሆን፤ በእርስዎ ፈቃደኝነት ላይ ብቻ የተመሰረተ ነው። በዚህ ጥናት ላይ ያለመሳተፍ መብትዎ የተጠበቀ ነው፤ ነገር ግን የእርስዎ ተሳትፎ ለዚህ ጥናት ያለው አስተዋፅኦ የላቀ ስለሆነ፤ በበሽታው ምክንያት የተከሰተውን የኢኮኖሚ ጫና (ወጪ) በተጨማሪም ለመገመት ስለሚረዳ እና ለችግሩ መፍትሄ ለማፈላለግ ስለሚያግዝ እንዲሳተፉ እናበረታታለን።

በሚኖረን የአፍታ ቆይታ የተወሰኑ ጥያቄዎች እናቀርብሎታለን። የሚቀርብልዎ ጥያቄዎች፤ አጠቃላይ መረጃዎች፤ የጤናዎትን ሁኔታ የተመለከቱ፤ በሽታው ያስከተለው ወጪ እና እንዲሁም ሌሎች ተያያዥ ጉዳዮችን የሚዳስሱ ይሆናሉ። በዚህ ጥናት ሳቢያ ሊደርስብዎ የሚችል ምንም አይነት ጉዳትም ሆነ ሊያሳስብዎ የሚችል ነገር የለም። በዚህ መጠይቅ ላይ የእርስዎን ማንነት ሊገልፅ የሚችል መረጃ አይፃፍም። መጠይቆቹ በሙሉ ሌላ ሰው በማይደርስበት የመረጃ ሳጥን ውስጥ ይቆላሉ። ስለዚህም የሚሰጡት መረጃ ሚስጥራዊነት በጥብቅ የተጠበቀ ነው። የዚህ ጥናት ውጤት እንዳስፈላጊነቱ በሚቀርብበት ሁኔታ ሁሉ የእርስዎን የግል ማንነት ሊገልፅ የሚችል መረጃ አይቀርብም።

በዚህ ጥናት ለመሳተፍ ፈቃደኛ የሚሆኑ ከሆነ፤ ጥያቄዎቹ በአጠቃላይ ከ 30-45 ደቂቃ ሊወስዱ ይችላሉ። በዚህ መጠይቅ ያሚረብሽዎ ወይም ያላመኑበት ነገር ቢኖር በማንኛውም ሰዓት የማቋረጥ መብት አለሁ። ለመናገር ፈቃደኛ ካልሆኑ፤ ከጥያቄዎ በከፊል አለመመለስ ይችላሉ። በዚህም ሳቢያ ሊደርስብዎ የሚችል አንዳች የመብት ወይም የጥቅም መጓደል አይኖርም።

ጥያቄ አለዎ?

ይህን ጥናት የተመለከተ ማንኛውም ግልፅ ያልሆነልዎ ነገር ወይም ጥያቄ ካለዎ በ ስልክ ቁጥር 0913579507 በሳምንቱ ማንኛውም የስራ ሰዓት በመደወል አቶ አለማየሁ ደሳለኝን ማነጋገር ይችላሉ።

በዚህ ጥናት ለመሳተፍ መልካም ፈቃድዎን ሊሰጡኝ ይችላሉ?

አዎ.....(ቃለ መጠይቁን መጀመር ይችላሉ)

አይደለሁም.....(አቁም)

|                         |            |
|-------------------------|------------|
| የመረጃ ሰብሳቢ ስም: _____     | ፊርማ: _____ |
| መረጃው የተሰበሰበበት ቀን: _____ |            |
| የተቆጣጣሪው ስም: _____       | ፊርማ: _____ |
| የተመሳከረበት ቀን: _____      |            |

ክፍል ፩፡ ማህበራዊ፣ ኢኮኖሚያዊ እና ስነ-ህዝባዊ መረጃ ጥያቄዎች።

| ተራ ቁጥር | ጥያቄዎች                                                 | አማራጭ ምላሾች                                                                                                                                                                          | ወደ ቁጥር ዝለል |
|--------|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 101    | እድሜዎ ስንት ዓመት ነው?                                      | 1. _____ አመት<br>98. አላውቅም<br>99. መረጃ የለም                                                                                                                                           |            |
| 102    | በአሁኑ ወቅት የጋብቻዎ ሁኔታ እንዴት ነው?                           | 1. ያላገባች<br>2. ያገባች<br>3. የትዳር አጋሯ በሞት የተለያት<br>4. ያገባች፣ ከትዳር አጋሯ ጋር አብራ የማትኖር<br>5. በህግ አግባብ የፈታች                                                                                 |            |
| 103    | ያጠናቀቁት የትምህርት ደረጃ ስንት ነው?                             | 1 ያልተማረ<br>2. መፃፍ እና ማንበብ ብቻ የምትችል<br>3. ከ 1 እስከ 6 _____<br>4. ከ 7 እስከ 12 _____<br>5. ኮሌጅ ወይም ዩኒቨርሲቲ የተመረቀች                                                                        |            |
| 104    | በአሁኑ ወቅት ስራዎ ምንድን ነው?                                 | 1 አርሶ አደር<br>2 የቤት እመቤት<br>3 የመንግስት ሰራተኛ<br>4 መንግስታዊ ያልሆነ ድርጅት ተቀጣሪ<br>5 የግል ድርጅት ተቀጣሪ<br>6 ነጋዴ<br>7 ተማሪ<br>8 የቀን ሰራተኛ<br>9 ስራ አጥ<br>10 ጡረተኛ<br>11. በአካል ጉዳት/በህመም ምክንያት መስራት የማይችል |            |
| 105    | ወርሃዊ ገቢዎ ምን ያህል ነው?                                   | 1 _____ ብር<br>98. አላውቅም<br>99. መረጃ የለም                                                                                                                                             |            |
| 106    | ሃይማኖትዎ ምንድን ነው?                                       | 1 ኦርቶዶክስ ክርስቲያን<br>2 ፕሮቴስታንት ክርስቲያን<br>3 እስልምና<br>4 ካቶሊክ ክርስቲያን<br>5 ሌላ _____                                                                                                      |            |
| 107    | ብሄርዎ ምንድን ነው?                                         | 1 ትግሬ<br>2 አማራ<br>3 ኦሮሞ<br>4 ጉራጌ<br>5 ሌላ _____                                                                                                                                     |            |
| 108    | በቋሚነት የሚኖሩበት ቦታ የት ነው?                                | 1 ክልል _____<br>2 ወረዳ _____<br>3 ከሆስፒታሉ ያለው ርቀት በ ኪ.ሜ _____                                                                                                                         |            |
| 109    | እርስዎ በሚገኙበት ቤተሰብ ውስጥ እርስዎን ጨምሮ የቤተሰብ አባላት ብዛት ስንት ነው? | 1 _____<br>99 መረጃ የለም                                                                                                                                                              |            |
| 110    | ከነዚህ ውስጥ ስንቶቹ ስራ አላቸው?                                | 1 _____<br>99. መረጃ የለም                                                                                                                                                             |            |
| 111    | አጠቃላይ ወርሃዊ ገቢያቸው ስንት ነው?                              | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም                                                                                                                                               |            |

**ክፍል ፪፡ በጥቁር አንበሳ ሆስፒታል የተመላላሽ ታካሚ ከመሆንዎ በፊት፥ በበሽታው ሳቢያ የደረሰ የኢኮኖሚ ጫና።**

| ተራ ቁጥር | ጥያቄዎች                                                                 | አማራጭ ምላሾች                                                                                                                                                          | ወደ ተራ ቁጥር ዝለል         |
|--------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 201    | ከዚህ በሽታ ጋር በተያያዘ በመጀመሪያ ያጋጠመዎ የጤና መታወክ ምልክት ምን ነበር?                   | 1 የደም መፍሰስ ችግር<br>2 ያልተለመደ የማህፀን ፈሳሽ መጨመር<br>3 የታችኛው የሆድ ክፍል/ የማህፀን አካባቢ ህመም<br>4 በመሽናት ወቅት የህመም ስሜት ችግር<br>5 ያለወቅቱ፤ ከግብረ ስጋ ግኑኙነት በኋላ የደም መፍሰስ ችግር።<br>6 ሌላ _____ |                       |
| 202    | እዚህ ሆስፒታል ህክምና መከታተል ከመጀመርዎ በፊት ምልክቱ ለምን ያህል ጊዜ ቆየብዎ?                 | 1 _____ ቀናት<br>98 አላውቅም<br>99 መረጃ የለም                                                                                                                              |                       |
| 203    | በህመሙ ሳቢያ ለስንት ቀናት ከወትሮ ስራዎ ቀሩ?                                        | 1 _____ ቀናት<br>98 አላውቅም<br>99 መረጃ የለም                                                                                                                              |                       |
| 204    | በቀሩባቸው ቀናት ውስጥ ያጡት የገቢ መጠን በገንዘብ ምን ያህል ነው?                           | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም                                                                                                                               |                       |
| 205    | እዚህ ጥቁር አንበሳ ሆስፒታል ከመምጣትዎ በፊት፥ ህክምና ለማግኘት የሄዱበት የጤና ተቆም ወይም ሌላ ቦታ አለ? | 1 አዎ<br>2 የለም                                                                                                                                                      | የለም ከሆነ ወደ ቁ. 215 ዝለል |
| 206    | እዚህ ከመምጣትዎ በፊት ስንት ተቋማት ሄደዋል?                                         | 1 _____<br>98 አላውቅም<br>99 መረጃ የለም                                                                                                                                  |                       |
| 207    | የሄዱባቸው ተቋማት በአይነት ምን አይነት ናቸው?                                        | 1 የመንግስት ተቆም<br>2 መንግስታዊ ያልሆነ ተቆም<br>3 የግል ተቆም<br>4 የባህል ህክምና ተቆም                                                                                                  |                       |

**በሄዱባቸው ተቋማት ያወጡት ወጪ**

|   | 208. የካርድ ክፍያ | 209. የምርመራ ክፍያ (የላብራቶሪ፣ የራጅ፣ ወ.ዘ.ተ) | 210. የመድሃኒት ግዢ የክፍሉት ገንዘብ? | 211. ወደ ቦታው የተጓዙበት መጓጓዣ ምን ነበር?* | 212. ከቦታው ለመድረስ በተጠቀሰው መገኘት ምን ያህል ጊዜ ወሰዱብዎ? (በሰዓት) | 213. ለመጓጓዣው ምን ያህል ገንዘብ ከፈሉ? | 214. ሌሎች ያልተጠቀሱ ተጨማሪ ወጪዎች? |
|---|---------------|-------------------------------------|----------------------------|----------------------------------|-----------------------------------------------------|------------------------------|----------------------------|
| 1 |               |                                     |                            |                                  |                                                     |                              |                            |
| 2 |               |                                     |                            |                                  |                                                     |                              |                            |
| 3 |               |                                     |                            |                                  |                                                     |                              |                            |
| 4 |               |                                     |                            |                                  |                                                     |                              |                            |
| 5 |               |                                     |                            |                                  |                                                     |                              |                            |

\*1 = በአግር, 2 = በእንሰሳት, 3 = በአውቶብስ/ቢታክሲ, 4 = ሌላ

|     |                                                    |                                       |                       |
|-----|----------------------------------------------------|---------------------------------------|-----------------------|
| 215 | ከቤተሰቡ አባላት፣ ዘመድ፣ ጎደኛ ወይም ሌላ፣ እርስዎን የሚያስታምምዎ ነበረዎት? | 1 አዎ<br>2 የለም                         | የለም ከሆነ ወደ ቁ. 301 ዝለል |
| 216 | እርስዎን ለማስታመም ለምን ያህል ቀናት ከመደበኛ ስራው/ዋ ቀርተዎል?        | 1 _____ ቀናት<br>98 አላውቅም<br>99 መረጃ የለም |                       |

|     |                                                                                       |                                                   |                       |
|-----|---------------------------------------------------------------------------------------|---------------------------------------------------|-----------------------|
| 217 | የሚያስታምምዎ ሰው ወርሃዊ ገቢ ምን ያህል ነው?                                                        | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                       |
| 218 | የሚያስታምምዎ ሰው እርስዎን ሲያስታምም የሚያጣው ገቢ አለ?                                                 | 1 አዎ<br>2 የለም                                     | የለም ከሆነ ወደ ቁ. 220 ዝለል |
| 219 | አስታማሚዎ ለማስታመም በቀሩት ቀን ውስጥ ያጡት የገቢ መጠን በገንዘብ ምን ያህል ነው?                                | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                       |
| 220 | የሚያስታምምዎ ሰው ወደ ቦታው የተጓዙበት መጓጓዣ ምን ነበር?                                                | 1 በእግር<br>2 በእንስሳት<br>3 በአውቶብስ/ቢታክሲ<br>4 ሌላ _____ |                       |
| 221 | የሚያስታምምዎ ሰው ከቦታው ለመድረስ በተጠቀሰው መገኘት ምን ያህል ጊዜ ወሰደባቸው?                                  | 1 _____ ሰዓት<br>98 አላውቅም<br>99 መረጃ የለም             |                       |
| 222 | የሚያስታምምዎ ሰው ለመጓጓዣው ምን ያህል ገንዘብ ከፈሉ?                                                   | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                       |
| 223 | የሚያስታምምዎ ሰው ከእርስዎ ጋር በሚመጣበት ወቅት ለሌሎች ነገሮች (ለምግብ ለመጠጥ ለማደሪያ ለታክሲ ወዘተ) ምን ያህል ገንዘብ ከፈለ? | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                       |
| 224 | ያልተጠቀሱ ሌሎች ተጨማሪ ወጪዎች ካሉ?                                                              |                                                   |                       |

**ክፍል ፫: የማህፀን በር ካንሰር በጥቁር አንበሳ ሆስፒታል የተመላላሽ ታካሚ ከሆኑ በኋላ የወጣ ወጪ**

|     |                                                                              |                                       |                       |
|-----|------------------------------------------------------------------------------|---------------------------------------|-----------------------|
| 301 | በጥቁር አንበሳ ሆስፒታል በተመላላሽ ታካሚነት ምን ያህል ጊዜ ቆዩ?                                   | 1 _____ ቀናት<br>98 አላውቅም<br>99 መረጃ የለም |                       |
| 302 | በተመላላሽ ታካሚነት ለስንት ጊዜያት ተመላለሱ                                                 | 1 _____<br>98 አላውቅም<br>99 መረጃ የለም     |                       |
| 303 | ተመላላሽ ታካሚ ሆነው በህመሙ ሳቢያ ለስንት ቀናት ከወትሮ ስራዎ ቀሩ?                                 | 1 _____ ቀናት<br>98 አላውቅም<br>99 መረጃ የለም |                       |
| 304 | ተመላላሽ ታካሚ ሆነው በቀሩባቸው ቀናት ውስጥ ያጡት የገቢ መጠን በገንዘብ ምን ያህል ነው?                    | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም  |                       |
| 305 | ተመላላሽ ታካሚ በሆኑበት ወቅት ለህክምናዎ የሚደረገውን ወጪ (ለመድሃኒት፣ ለምርመራ ወዘተ) ይከፍሉ ነበር?          | 1 አዎ<br>2 አልከፍልም                      | ‘2’ ከሆነ ወደ ቁ. 309 ዝለል |
| 306 | ተመላላሽ ታካሚ በሆኑበት ወቅት በሐኪምዎ ለታዘዘልዎ መድሃኒት መግዣ ምን ያህል ገንዘብ አወጡ?                  | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም  |                       |
| 307 | ተመላላሽ ታካሚ በሆኑበት ወቅት የምርመራ ክፍያ (የላብራቶሪ፣ የራጅ፣ አልትራሳውንድ ወ.ዘ.ተ) ምን ያህል ገንዘብ አወጡ? | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም  |                       |
| 308 | ተመላላሽ ታካሚ በሆኑበት ወቅት ለካርድ ምን ያህል ገንዘብ አወጡ?                                    | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም  |                       |

|     |                                                                                      |                                                   |                       |
|-----|--------------------------------------------------------------------------------------|---------------------------------------------------|-----------------------|
| 309 | ተመላላሽ ታካሚ በሆኑበት ወቅት በሐኪምም ከታዘዘልዎ መድኃኒት ውጪ ከህመምም ጋር በተያያዘ ምን ያህል ገንዘብ አወጡ?            | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                       |
| 310 | ተመላላሽ ታካሚ በሆኑበት ወቅት ለምግብም እርስዎ ወይም ተንከባካቢዎ ምን ያህል ገንዘብ አወጡ?                          | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                       |
| 311 | ወደ ቦታው የተጓዙበት መጓጓዣ ምን ነበር?*                                                          | 1 በእግር<br>2 በእንስሳት<br>3 በአውቶብስ/ቦታክሲ<br>4 ሌላ _____ |                       |
| 312 | ጥቁር አንበሳ ሆስፒታል ለመድረስ በተጠቀሰው መጓጓዣ ምን ያህል ጊዜ ወስደባቸው?                                   | 1 _____ ሰዓት<br>98 አላውቅም<br>99 መረጃ የለም             |                       |
| 313 | ለመጓጓዣው ምን ያህል ገንዘብ ከፈሉ?                                                              | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                       |
| 314 | ከቤተሰቡ አባላት፣ ዘመድ፣ ጎደኛ ወይም ሌላ፣ እርስዎን የሚያስታምም ነበረዎት?                                    | 1.አዎ<br>2 የለም                                     | የለም ከሆነ ወደ ቁ. 401 ዝለል |
| 315 | እርስዎን ለማስታመም ለምን ያህል ቀናት ከመደበኛ ስራው/ዋ ቀርተዎልዎ?                                         | 1 _____ ቀናት<br>98 አላውቅም<br>99 መረጃ የለም             |                       |
| 316 | የሚያስታምም ሰው ወርሃዊ ገቢ ምን ያህል ነው?                                                        | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                       |
| 317 | የሚያስታምም ሰው እርስዎን ሲያስታምም የሚያጣው ገቢ አለ?                                                 | 1 አዎ<br>2 የለም                                     |                       |
| 318 | አስታማሚዎ ለማስታመም በቀሩት ቀን ውስጥ ያጡት የገቢ መጠን በገንዘብ ምን ያህል ነው?                               | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                       |
| 319 | የሚያስታምም ሰው ወደ ቦታው የተጓዙበት መጓጓዣ ምን ነበር?                                                | 1 በእግር<br>2 በእንስሳት<br>3 በአውቶብስ/ቦታክሲ<br>4 ሌላ _____ |                       |
| 320 | የሚያስታምም ሰው ከቦታው ለመድረስ በተጠቀሰው መገኘት ምን ያህል ጊዜ ወስደባቸው?                                  | 1 _____ ሰዓት<br>98 አላውቅም<br>99 መረጃ የለም             |                       |
| 321 | የሚያስታምም ሰው ለመጓጓዣው ምን ያህል ገንዘብ ከፈሉ?                                                   | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                       |
| 322 | የሚያስታምም ሰው ከእርስዎ ጋር በሚመጣበት ወቅት ለሌሎች ነገሮች (ለምግብ ለመጠጥ ለማደሪያ ለታክሲ ወዘተ) ምን ያህል ገንዘብ ከፈለ? | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                       |
| 323 | ያልተጠቀሱ ሌሎች ተጨማሪ ወጪዎች ካሉ?                                                             |                                                   |                       |

**ክፍል ፬፡ የቤተሰቡ የሀብት ደረጃና ወጪ**

|     |                               |                                    |  |
|-----|-------------------------------|------------------------------------|--|
| 401 | የቤተሰቡ ወርሃዊ አማካኝ ገቢ ምን ያህል ነው? | 1 _____ ብር<br>2 አላውቅም<br>3 መረጃ የለም |  |
|-----|-------------------------------|------------------------------------|--|

|     |                                                     |                                                                                                                                                                    |                                                                                                                                                             |                           |
|-----|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| 402 | የቤተሰቡ ዋና የገቢ ምንጭ ምንድን ነው?                           | 1 ግብርና<br>2 ንግድ<br>3 የእጅ ሙያ                                                                                                                                        | 4 የቀን ስራ<br>5 ወርሃዊ ደምወዝ<br>6 ሌላ _____                                                                                                                       |                           |
| 403 | በቤተሰቡ በዋናነት የሚመረተው የምግብ አዝዕርት ምንድን ነው? (አንድ ብቻ ምረጡ) | 1 ጤፍ<br>2 ባቄላ<br>3 በቆሎ<br>4 ጉብስ                                                                                                                                    | 5 ስንዴ<br>6 ሌሎች<br>7 አዝዕርት አምራች አይደለም                                                                                                                        | መልሱ “7” ከሆነ ወደ ቁ. 405 ዝለል |
| 404 | ባለፈው የምርት ወቅት ስንት ኩንታል አመረታችሁ?                      | 1 _____ ኩንታል<br>2 አላውቅም<br>3 መረጃ የለም                                                                                                                               |                                                                                                                                                             |                           |
| 405 | በቤትዎ ጓር ወይም በእርሻዎ እነኝህ ተክሎች አለዎት?                   | 1 ቡና<br>2 ጫት<br>3 በርበሬ                                                                                                                                             | 4 ዝንጅብል<br>5 ጐመን                                                                                                                                            |                           |
| 406 | እርስዎ የሚኖሩበት ቤተሰብ _____ አለው?                         | 1 መብራት<br>2 ሰዓት<br>3 ራዲዎ<br>4 ቴሌቪዥን<br>5 ተንቀሳቃሽ ስልክ (ሞባይል)<br>6 የቤት ስልክ<br>7 ፍሪጅ<br>8 ጠረንጴዛ<br>9 ወንበር<br>10 አልጋ                                                    | 11 የኤሌትሪክ ምጣድ<br>12 እንስሳት(በቁጥር)<br>በሬ _____<br>ላም _____<br>በግ _____<br>ፍየል _____<br>አህያ _____<br>ዶሮ _____<br>ሌላ _____                                       |                           |
| 407 | ቤተሰቡ ለኃይል ምንጭ በዋናነት የሚጠቀመው ምንድን ነው?                 | 1 ማገዶ እንጨት<br>2 ከሰል<br>3 ኩብት                                                                                                                                       | 4 ላምባ(ናፍጣ)<br>5 መብራት<br>6 ሌላ _____                                                                                                                          |                           |
| 408 | ባለፈው ወር የቤተሰቡ አማካኝ ወጪ ለተዘረዘሩት ነገሮች ምን ያህል ነው?       | 1 ለምግብ _____<br>2 ለውሃ _____<br>3 ለመብራት _____<br>4 ለትምህርት _____<br>5 ለልብስ _____<br>6 ለዘር _____<br>7 ለመጓጓዣ _____<br>8 ለስልክ _____<br>9 ለቤት ክራይ _____<br>10 ለነዳጅ _____ | 11 ለወፍጮ _____<br>12 ለማዳበሪያ _____<br>13 ለዕድር _____<br>14 ለዕቁብ _____<br>15 ለቁጠባ _____<br>16 ለቤት ዕቃ መግዣ _____<br>17 ለጤና _____<br>18 ለግብር _____<br>19 ለሌላ _____ |                           |

**ክፍል ፭፡ የማህፀን በር ካንሰር ተኝቶ ታካሚ ከሆኑ በኋላ የወጣ ወጪ (ተኝተው ታክመው ለሚያውቁ)**

|     |                                                 |                                       |                       |
|-----|-------------------------------------------------|---------------------------------------|-----------------------|
| 501 | በሆስፒታል ውስጥ ለምን ያክል ቀናት ቆዩ?                      | 1 _____ ቀናት<br>98 አላውቅም<br>99 መረጃ የለም |                       |
| 502 | በሆስፒታል ቆይታዎ የገዙት የተለየ ነገር አለ(ፋሻ፣ ጋውን፣ ሸበጥ ወዘተ)? | 1 አዎ<br>2 የለም                         | የለም ከሆነ ወደ ቁ. 504 ዝለል |
| 503 | የገዙት ነገር ምን ያህል ገንዘብ ፈጅብዎ?                      | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም  |                       |
| 504 | ተኝተው ታካሚ በሆኑበት ወቅት ለስንት ቀናት ከወትሮ ስራዎ ቀሩ?        | 1 _____ ቀናት<br>98 አላውቅም<br>99 መረጃ የለም |                       |

|     |                                                                                             |                                                   |                          |
|-----|---------------------------------------------------------------------------------------------|---------------------------------------------------|--------------------------|
| 505 | ተኝተው ታካሚ በሆኑበት ወቅት ያጡት ገቢ አለ?                                                               | 1 አዎ<br>2 የለም                                     | የለም ከሆነ ወደ ቁ. 507 ዝለል    |
| 506 | ተኝተው ታካሚ በሆኑበት ወቅት በቀን ውስጥ በአማካይ ያጡት የገቢ መጠን በገንዘብ ምን ያህል ነው?                               | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                          |
| 507 | ተኝተው ታካሚ በሆኑበት ወቅት ለህክምና የሚደረገውን ወጪ (ለመድሃኒት፣ ለምርመራ ወዘተ) ይከፍሉ ነበር?                           | 1 አዎ<br>2 አልከፍልም                                  | አልከፍልም ከሆነ ወደ ቁ. 511 ዝለል |
| 508 | ተኝተው ታካሚ በሆኑበት ወቅት በሐኪም ለታዘዘልዎ መድሃኒት መግዣ ምን ያህል ገንዘብ አወጡ?                                   | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                          |
| 509 | ተኝተው ታካሚ በሆኑበት ወቅት የምርመራ ክፍያ (የላብራቶሪ፣ የራጅ፣ ወ.ዘ.ተ) ምን ያህል ገንዘብ አወጡ?                          | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                          |
| 510 | ተኝተው ታካሚ በሆኑበት ወቅት ለካርድ ምን ያህል ገንዘብ አወጡ?                                                    | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                          |
| 511 | ተኝተው ታካሚ በሆኑበት ወቅት በሐኪም ከታዘዘልዎ መድሃኒት ውጪ ከህመም ጋር በተያያዘ (ለልብስ፣ ለተለየ ምግብ ወዘተ) ምን ያህል ገንዘብ አወጡ? | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                          |
| 512 | ተኝተው ታካሚ በሆኑበት ወቅት ለምግብ አርስ ወይም ተንከባካቢ ምን ያህል ገንዘብ አወጡ?                                     | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                          |
| 513 | ለመጓጓዣ ምን ያህል ገንዘብ ከፈሉ?                                                                      | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                          |
| 514 | ከቤተሰቡ አባላት፣ ዘመድ፣ ጎደኛ ወይም ሌላ፣ እርስዎን የሚያስታምም ነበረዎት?                                           | 1 አዎ<br>2 የለም                                     | የለም ከሆነ ወደ ቁ. 601 ዝለል    |
| 515 | እርስዎን ለማስታመም ለምን ያህል ቀናት ከመደበኛ ስራው/ዋ ቀርተዎልዎ?                                                | 1 _____ ቀናት<br>98 አላውቅም<br>99 መረጃ የለም             |                          |
| 516 | የሚያስታምም ሰው ወርሃዊ ገቢ ምን ያህል ነው?                                                               | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                          |
| 517 | የሚያስታምም ሰው እርስዎን ሲያስታምም የሚያጣው ገቢ አለ?                                                        | 1 አዎ<br>2 የለም                                     |                          |
| 518 | አስታማሚ ለማስታመም በቀሩት ቀን ውስጥ በቀን በአማካይ ያጡት የገቢ መጠን በገንዘብ ምን ያህል ነው?                             | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                          |
| 519 | የሚያስታምም ሰው ወደ ቦታው የተጓዙበት መጓጓዣ ምን ነበር?                                                       | 1 በእግር<br>2 በእንሰሳት<br>3 በአውቶብስ/ቢታክሲ<br>4 ሌላ _____ |                          |
| 520 | የሚያስታምም ሰው ከቦታው ለመድረስ በተጠቀሰው መገኘት ምን ያህል ጊዜ ወስደባቸው?                                         | 1 _____ ሰዓት<br>98 አላውቅም<br>99 መረጃ የለም             |                          |
| 521 | የሚያስታምም ሰው ለመጓጓዣው ምን ያህል ገንዘብ ከፈሉ?                                                          | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም              |                          |

|     |                                                                                         |                                      |  |
|-----|-----------------------------------------------------------------------------------------|--------------------------------------|--|
| 522 | የሚያስታምምዎ ሰው ከእርስዎ ጋር በሚመጣበት ወቅት ለሌሎች ነገሮች (ለምሳሌ ለመጠጥ ለማደራጀያ ለታክሲ ወዘተ) ምን ያህል ገንዘብ ከፈለገ? | 1 _____ ብር<br>98 አላውቅም<br>99 መረጃ የለም |  |
| 523 | ያልተጠቀሱ ሌሎች ተጨማሪ ወጪዎች ካሉ?                                                                |                                      |  |

**ክፍል ፮፡ ለጨረር፣ ለመድሃኒት እና ለቀዶ ጥገና ክፍያ የወጣ ወጪ**

| የጨረር ህክምና   |                                                                                                |                   |  |
|-------------|------------------------------------------------------------------------------------------------|-------------------|--|
| 601         | በወር ውስጥ ለስንት ቀናት የጨረር ህክምና ይወሰዳሉ?                                                              |                   |  |
| 602         | ለአንድ ቀን የጨረር ህክምና ምን ያህል ብር ይከፍላሉ?                                                             |                   |  |
| 603         | ለጨረር ህክምና ሲመጡ በአማካይ ከጨረር ህክምናው ውጪ በአጠቃላይ ለሌሎች ነገሮች (ለመሻሻላቸው፣ ለምግብ፣ ለማደራጀያ ወዘተ) ምን ያህል ብር ያወጣሉ? |                   |  |
| ለመድሃኒት ህክምና |                                                                                                |                   |  |
| 604         | በወር ውስጥ ለስንት ቀናት የመድሃኒት ህክምና ይወሰዳሉ?                                                            |                   |  |
| 605         | ለአንድ ቀን የመድሃኒት ህክምና ምን ያህል ብር ይከፍላሉ?                                                           |                   |  |
| 606         | ለጨረር ህክምና ሲመጡ በአማካይ ከጨረር ህክምናው ውጪ በአጠቃላይ ለሌሎች ነገሮች (ለመሻሻላቸው፣ ለምግብ፣ ለማደራጀያ ወዘተ) ምን ያህል ብር ያወጣሉ? |                   |  |
| ለቀዶ ጥገና     |                                                                                                |                   |  |
| 607         | ከማህፀን በር ካንሰሩ ጋር በተያያዘ የቀዶ ጥገና ህክምና ተደርግዎታል?                                                   | 1.አዎ<br>2 አልተደረገም |  |
| 608         | ለቀዶ ጥገናው ምን ያህል ብር ከፈሉ?                                                                        |                   |  |

## Annex V: Amharic Version Information Sheet

### በአዲስ አበባ ዩኒቨርሲቲ፤ የጤና ሳይንስ ኮሌጅ፤ የህብረተሰብ ጤና አጠባበቅ ትምህርት ቤት የመረጃ መስጫ ቅፅ

**የጥናቱ ርዕስ:** የማህፀን በር ካንሰር በህመምተኛዎች እና በቤተሰቧ ላይ የሚያስከትለው ኢኮኖሚያዊ ጫና እና ሌሎች ተያያዥ ችግሮች፤ ዳሰሳዊ ጥናት በአዲስ አበባ፡ 2003 ዓ.ም.።

**የጥናቱ ዋና ተመራማሪ:** ዓለማየሁ ደሳለኝ (በ ህብረተሰብ ጤና አጠባበቅ የመጀመሪያ ዲግሪ)

**የተቋሙ ስም:** በአዲስ አበባ ዩኒቨርሲቲ፤ የጤና ሳይንስ ኮሌጅ፤ የህብረተሰብ ጤና አጠባበቅ ትምህርት ቤት።

**የጥናቱን ወጪ የሚሸፍነው አካል:** አዲስ አበባ ዩኒቨርሲቲ

**መግቢያ:** ይህ የመረጃ መስጫ ቅፅ የማህፀን በር ካንሰር በህመምተኛዎች እና በቤተሰቧ ላይ የሚያስከትለው ኢኮኖሚያዊ ጫና እና ሌሎች ተያያዥ ችግሮች፤ በሚል ርዕስ ለሚካሄደው ዳሰሳዊ ጥናት የተዘጋጀ የመረጃ መስጫ ቅፅ ሲሆን፤ የተዘጋጀበት ዋና አላማ፡ በጥናቱ ላይ እንዲሳተፉ የተጠየቁት ግለሰብ ስለ ጥናቱ በቂ የሆነ ግንዛቤ እንዲኖርዎ ለማስቻል ነው። ጥናቱንም ለማከናወን መረጃ የሚሰበስቡ ነርሶች፤ ተቆጣጣሪ የድግሪ ምሩቃን የጤና ባለሙያዎች፤ እንዲሁም በማማከር የታወቁ ፕሮፌሰር (ፕ/ር ዳመን ኃ/ማሪያም) ከአዲስ አበባ ዩኒቨርሲቲ ይሳተፉበታል።

**የጥናቱ አላማ:** ይህ ጥናት፤ የጤና መጓደል በታማሚው ጊዜ ላይ የሚያስከትለውን ጫና፤ በመደበኛ ሥራው ላይ የሚኖረውን እንከን እንዲሁም ለህክምና የሚያስከትለውን ወጪ መሰረት ያደረገ ነው። እንደሚታወቀው ይህ ህመም በታማሚ ላይ ረዘም ላለ ጊዜ ስለሚሰነብት ጠንከር ያለ የኢኮኖሚ ጫና ማሳደሩ አይቀሬ ነው። ይህንንም ጫና ለማመላከት በሳይንሳዊ መልኩ የሚደረግ የወጪ ዳሰሳዊ (ግምታዊ) ጥናት የሚኖረው ሚና የጎላ ነው። ምንም እንኳን ችግሩ አሳሳቢ ቢሆንም፤ ይህንኑ ጉዳይ አስመልክቶ የተሰሩ ሌሎች ጥናቶች በሀገራችን ዳራ አለመኖራቸው ከዚህ ጥናት የሚመነጩ መረጃዎች አዋጭ እና ወጪን ያገናዘቡ የመፍትሄ አቅጣጫዎችን ለመቀመጥ ጉልህ ፋይዳ ይኖራቸዋል።

**የጥናቱ ሂደት:** የማህፀን በር ካንሰር በህመምተኛዎች እና በቤተሰቧ ላይ የሚያስከትለው ኢኮኖሚያዊ ጫና እና ሌሎች ተያያዥ ችግሮች አስመልክቶ ዳሰሳዊ ጥናት በጥቁር አንበሳ ሆኖ ሊታሰብ ይችላል። እያካሄድን እንገኛለን። በዚህም ጥናት ላይ እንዲሳተፉ በትህትና እንጋብዝዎታለን። ለመሳተፍ ፈቃደኛ ከሆኑ ስለጥናቱ በቂ ግንዛቤ እንዲኖርዎ እና የስምምነት መግለጫ ቅፁን እንዲፈርሙ ያስፈልጋል። ከዚህም በመቀጠል ለሚቀርብላችሁ ጥያቄዎች መልስ ይሰጣሉ። ለዚህ በመጠይቅ ላይ የተመሰረተ ጥናት የሚሳተፉት መረጃውን ለመሰብሰብ በታወቀው ጊዜ ውስጥ ወደ ጥቁር አንበሳ ሆኖ ሊታሰብ ይችላል። ለማህፀን በር ካንሰር ህክምና ከሚመጡት ውስጥ ሲሆን፤ ስልታዊ የናሙና አወሳሰድ ዘዴ ይከተላል።

**አደጋ ወይም ጉዳት:** ከዚህ ጥናት ጋር በተያያዘ ሊሰማዎ የሚችል ቅሬታ ሊኖር ቢችል በጥናቱ ሳቢያ ሊባከን የሚችል ወድ ጊዜዎ ነው። ሆኖም ከ30 ደቂቃ ብዙም ያልበለጠ ጊዜ ውስጥ ስለምናጠናቅቅ ከ ህመሙ (ከችግሩ) አሳሳቢነት አንፃር በዙም ሊያሳስብዎ እንደማይችል ተስፋ አደርጋለሁ።

**ጥቅም:** በዚህ ጥናት ላይ በመሳተፍዎ የሚያገኙት የተለየ ጥቅም ጥቅም አይኖርም።

**ድጎማ ወይም ክፍያ:** በዚህ ጥናት ላይ ለሚሳተፉ ተብሎ የታሰበ የተለየ ድጎማ ወይም የገንዘብ ክፍያ አይኖርም።

**ሚስጥራዊነት:** ከዚህ ጥንት የሚገኙት መረጃዎች ሚስጥራዊነታቸው በከፍተኛ ደረጃ የተጠበቀ ነው። የሚሰጡት መረጃ በሙሉ በጥንቃቄ በተዘጋጀ የመረጃ ማህደር ተሰብስቦ ሌላ ሰው በማይደርስበት ቦታ ይኖራል። የእርስዎን የግል ማንነት በማይገልፅ መልኩ ሚስጥራዊ ቁልፍ ተሰጥቶት ጥናቱን ከሚያከናውነው ዋና አጥኚ በቀር ሌላ ሰው እንዳያውቀው ይደረጋል።

**ያለመሳተፍ ወይም በመሀል የማቋረጥ መብት:** በዚህ ጥንት ላይ ለመሳተፍ አንቢ የማለት ያልተወሰነ መብት አለሁ። ለዚህ ቃለ መጠይቅ ሙሉ በሙሉ ወይም በከፊል ያለመመለስ መብትዎ ያለምንም ገደብ የተጠበቀ ነው። ለመናገር ፈቃደኛ

ካልሆኑ፡ ከጥያቄዎ በከፊል አለመመለስ ይችላሉ። በዚህም ሳቢያ ሊደርስብዎ የሚችል አንዳች የሙብት ወይም የጥቅም መጓደል አይኖርም። በሚያገኙትም የህምና አገልገሎት ጋርም አንዳች ተዛምዶ አይኖረውም።

**ለበለጠ መረጃ ማናገር ከፈለጉ፡** ይህ ጥናት በአዲስ አበባ ዩኒቨርሲቲ፣ የህክምና እና የጤና ሳይንስ ኮሌጅ፣ የህብረተሰብ ጤና አጠባበቅ ትምህርት ቤት የምርምር ስነ-ምግባር ቦርድ አስፈላጊው ግምገማ ተደርጎበት የፀደቀ ነው። ምንኛውም ጥያቄ ካለዎ ከዚህ በታች በተጠቀሰው የቦርዱ አድራሻ መጠየቅ ይችላሉ። ግልፅ ያልሆነልዎ ነገር ወይም ተጨማሪ ማብራሪያ ከፈለጉ በ ስልክ ቁጥር **0913579507** በሳምንቱ ማንኛውም የስራ ሰዓት በመደወል **አቶ ዓለማየሁ ደሳለኝን** ማነጋገር ይችላሉ።

**ዓለማየሁ ደሳለኝ**  
**ፖ.ሳ.ቁ:57659**  
**አዲስ አበባ**  
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## Annex VI: Amharic Version Consent Form

### በአዲስ አበባ ዩኒቨርሲቲ፤ የጤና ሳይንስ ኮሌጅ፤ የህብረተሰብ ጤና አጠባበቅ ትምህርት ቤት የስምምነት ማረጋገጫ ቅፅ

**ለጠያቂዋ መግለጫ፡** ለተጠያቂዋ ግለሰብ የሚከተለውን ጥያቄ አቅርብ። «በዚህ ቃለ መጠይቅ ላይ ለመሳተፍ እንዲሁም የሚቀርብልዎትን ጥያቄዎች በአግባቡ ለመመለስ ፈቃደኛ ነዎት?» ፈቃደኛ ካልሆኑ የመሳተፍ ግዴታ እንደሌለብዎ ላስታውስዎ እወዳለሁ።

አዎ \_\_\_\_\_

አይደለሁም \_\_\_\_\_

#### የጠያቂው ማረጋገጫ

እኔ \_\_\_\_\_ በ ቀን \_\_\_\_\_

ስለ ጥናቱ አላማ፣ ግብ እና ሌሎች ጉዳዮችን በተመለከተ በቂ የሆነ መረጃ ለተሳታፊዋ አቅርቤ የስምምነት ማረጋገጫዋን መቀበሌን አረጋግጣለሁ።

#### የተሳታፊ ማረጋገጫ

ስለ ጥናቱ አላማ፣ ግብ እና ሌሎች ጉዳዮችን በተመለከተ በቂ የሆነ መረጃ ተሰጥቶኝ፤ ግልፅ ያልሆነልኝን ነገር በሙሉ ጠይቄ እና በቂ መልስ አግኝቼ፤ በቃል እንዲሁም በፅሁፍ ገለፃ ተደርጎልኝ፤ ለበለጠ መረጃ ማናገር ያለብኝን ሰው አውቄ፤ ያለምንም ጫና፤ በዚህ ጥናት ላይ ለመሳተፍ ሙሉ ፈቃደኝነቴን በፊርማዬ አረጋግጣለሁ።

የተሳታፊው ስም \_\_\_\_\_ (እንዳስፈላጊነቱ)

የተሳታፊው ፊርማ \_\_\_\_\_ ቀን \_\_\_\_\_

### **Declaration**

I, the undersigned, declare that this is my original work and has not been presented in this or any other University. All sources of materials used for this thesis have been duly acknowledged.

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Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Place: \_\_\_\_\_

This thesis has been submitted for examination with my approval as University advisor

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Place: \_\_\_\_\_