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COST ANALYSIS OF ABORTION IN ADDIS ABABA PUBLIC HOSPITALS

By

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Dedication

In the memory of my brother, Deneke Negash

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Abstract

This is an institution based cross-sectional study conducted in four public hospitals in Addis Ababa, Ethiopia, with the objective of analyzing the cost of treating patients with abortion complications and provision of safe abortion services. The data on unsafe cases were collected for three months and patients with abortion complications who attended these hospitals during the study period were interviewed (n=401). Four hundred twenty four medical records were reviewed and observation was done in ten percent of the cases (n=42) and administrative records were reviewed, to obtain data on direct, indirect and opportunity cost in treating abortions complications.

The cost in provision of safe abortion service was estimated and the average unit cost ranges from 40.97 to 65.32 birr while the actual average unit cost in treating a patient with abortion complication was 131.7 birr with out including the patient side cost. Moreover the sensitivity analysis showed that the cost of treating complication of abortion could rise up to 323.23 birr. Thus, the health care system is spending a lot of resources for treating complications of abortion, which could be possible to prevent it through provision of safe abortion services. The average patient side cost which includes medical, non-medical and opportunity cost was found to be 535.5 birr.

If the existing law were liberalized to allow provision of early and safe abortion services with feasible promotion of family planning, in addition to cost reduction

in the health system and individual patients, it could save life and minimize suffering of a lot of women who undergo unsafe abortion.

Introduction

Throughout the world approximately 500,000 women die every year from pregnancy related causes (1). Abortion is one of the most common obstetric events in the world being only second to childbirth. Maternal deaths due to unsafe abortions, the enormous cost to victims, families, health systems and nations are basically preventable problems. However unsafe abortions are causing 50,000 to 100,000 deaths each year (2). In some countries complications of unsafe abortion cause the majority of maternal deaths and are thus the leading causes of deaths for women of reproductive age (3,4,5,6,7).

The World Health Organization estimates that as many as 20 million abortions each year are unsafe. Ten to fifty percent of the women that undergo unsafe abortion need medical care for complications (8). Often women do not receive medical treatment soon enough. This delay put their lives at risk and requires additional cost for treatment. Every year an estimated 36 to 53 million abortions are performed worldwide. Out of these, 20 million take place outside the health care system, and are performed by unskilled providers under unsanitary conditions or both (9). In developed countries mortality from legal abortion is about 0.6 per 100,000 procedures compared to 1,000 deaths per 100,000 procedures in countries where the procedure is largely illegal (10).

It is African women, however, who are most likely to be affected when they undergo unsafe abortions. An estimated 3.7 million unsafe abortions are performed each year

in Sub-Saharan Africa and about 23,000 Africans die from complications (11). Maternal deaths attributed to abortion complications are about 35% in both Kenya and Nigeria and about 28% in Zimbabwe (3,4,5). Similarly in a hospital in Zaire around 60% of all gynecological patients were reported to be abortion complications while in one hospital in Accra the comparable rate was over 50% (11).

In Latin America complications of illegal abortion are considered to be the main cause of death in women between the ages 15-39 years with proportions as high as 33% in Jamaica and 35% in Colombia (12). In some countries hospital based study reports give much higher percentage. In Nigeria, during the 1980's, 20 to 35% of maternal deaths at teaching hospitals were due to abortion complications (13). Furthermore, since most abortion studies are hospital based it is expected that unknown numbers of complications of abortion are occurring outside these institutions.

Incomplete abortion, sepsis, hemorrhage, and intra-abdominal injuries are the commonest complications of unsafe abortion. Unsafe abortion is a very serious public health problem in Ethiopia. With low modern contraceptive prevalence rate (6.2) and high total fertility rate (6-7 children per women) (14), many Ethiopians are faced with unwanted pregnancies. Ethiopia is one of the countries with restrictive abortion laws (Annex 1). Restrictive abortion laws force many women with unwanted pregnancies to seek the service of unqualified providers practicing in unsafe conditions. A community-based study in Addis Ababa has found that unsafe abortion was the leading cause of maternal mortality (6). Another study in five hospitals in Addis

Ababa has also estimated that up to 50% of gynecological beds are occupied by abortion related causes (7).

Among the estimated 175,000,000 pregnancies that take place in the world every year, 75 million of them are expected to be unwanted (15). The women with unwanted pregnancies will have only two options about her pregnancy. One is continuing with pregnancy and to having an unwanted child and the second one is terminating the pregnancy by whatever means they can afford. Those women with unwanted pregnancies that live in areas with restrictive abortion laws are more likely to end up using clandestine abortion services. More than 60 % of the world population is living in areas where abortion laws are restrictive (9).

The cost of abortion is significant since it involves suffering and loss of life. There are also costs to the health system for treating complications of unsafe abortions. These include treatment cost (including blood, drugs, staff time and other hospital services) which consume a huge proportion of health service budget. Illegal abortions are more likely to be unsafe, septic and requiring more expensive medical care. The cost of treating a septic abortion is estimated to be four times greater than giving a delivery service (2). Repairing the damage made by illegally induced unsafe abortions often requires surgery, blood transfusion, antibiotics and long stay in hospitals. In some developing countries expenditure for treatment of abortion complications consumes up to 60% of gynecological budget (1,2,4,).

Literature review

The World Health Organisation defines abortion as the termination of pregnancy before the foetus is viable or capable of living outside of the uterus. The common legal definition of abortion that is found in many countries is that the loss of foetus before the 28th week of gestation after last menstrual period (16). Unsafe abortion is the termination of pregnancy performed or treated by untrained or unskilled people or performed in area, which lack minimum medical standard. Complications of abortion are the major direct cause of death among women of reproductive age (2).

Abortion is a method to resort to when contraceptive method is unavailable, inaccessible, or unacceptable and resulting in unwanted pregnancy. According to the Cairo declaration, (17) in no case should abortion be promoted as a method of family planning. The present status of contraceptives in terms of availability, accessibility, acceptability and efficacy is not in a position to replace the need for abortion. Review of findings from 32 studies in 27 countries to examine the reasons women having abortion (18), found that the decision to have an abortion is usually motivated by multiple and complex factors rather than simply not intending to become pregnant. According to the review, improved contraceptive use can help to reduce unintended pregnancy and abortion but it cannot totally prevent it, because of limits to women's ability to determine and control all circumstances of their lives.

The relation between contraception and abortion is complex and a variety of different patterns have been observed. It ranges from correlation between increased use of

contraceptives and decrease in the number of women admitted to the hospital for complication of abortion to positive relationship of contraception and abortion (12,19,20). Therefore induced abortion is the oldest, and probably still the most widely used method of fertility control.

The actual magnitude of illegally induced abortion cannot be known in countries where abortion laws are restrictive. In countries where abortion is legally permitted, data are available in health institutions, public health departments and health statistics offices. Although abortion laws have become generally less restrictive over the last two decades, still a significant segment of the world's population live in an environment where access to safe abortion services is severely restricted. Around 40% of the world population is living in countries where abortion is totally prohibited by law. Since 1985, 19 nations have significantly liberalized their abortion law (21).

Distinguishing induced from spontaneous abortion is very difficult because the history of clandestine abortion is often suppressed. Induced abortions are often denied in fear of legal actions and societal discrimination (22). Hospital based studies mostly underestimate the magnitude of the problem especially in countries where people have limited access to health care services. Community based surveys can give better representative data, but their cost is usually very expensive. However, even without the full picture, it is apparent that illegally induced abortion constitutes a very serious public health problem (4,5,6,7,12).

According to the WHO, the expected case fatality rate of abortion for settings in which abortion is legally restricted is 0.4 per 100 unsafe abortions (23). According to studies in Addis Ababa, the case fatality rate of abortion ranges from 0.2 to 1.6% (7,24).

In Ethiopia abortion was the first cause of hospital admission in 1994 among women and accounted for more than 50 % of the total gynaecological and obstetrics admission (25). It was the leading cause of maternal mortality according to a study in 1986 (6). It also accounted for 54% of direct obstetric deaths (7). Abortion operations accounted for 81.1% of all minor surgeries from august 1993 to April 1995 in Ghandi Memorial Hospital, Addis Ababa (which is providing exclusively Gynaecology and Obstetrics service) (26). In a hospital in Accra 60-80% of all minor surgery cases were for abortion complications, which accounted for half the hospital's supply of blood for transfusion (11).

Hospital operating expenses are one of the major components of the health care costs at the core of growing gap between required and available resources in the health sector of many countries (27). In most developing countries, the available scarce health resources are already stretched beyond reasonable limits. However, expenditure for treatment of abortion complications including medication, blood, staff, bed and operating room consume up to 60 % of the gynaecology and obstetrics budgets in these countries (16,18,28,29,30). Therefore, hospitalization for treatment of abortion complication taxes already overburdened health resources out of proportion to the actual number of women served in terms of requirements for hospital beds, blood

transfusion, medicine and personnel. Treatment of women with infection places the greatest demand on hospital resources. Different studies have documented that up to half of all hospital obstetrics and gynecology beds in certain countries are dedicated to treatment of women with complication of not safely performed abortions (3,4,5, 26,27). Conversely, studies of elective abortions generally show that providing these services leads to savings in money and other scarce resources otherwise required to treat the complication of unsafe abortion (22,28,30).

A study in a hospital in Turkey in the mid 1970s has found that the cost of treating complications following an unskilled termination was about four times the cost of performing medical abortion (30). Blood transfusion was the single most expensive item of treatment, accounting for 49% the total cost. The cost of occupying hospital beds is also considerable. A hospital in Chile reported that during the six months of 1974 the cost of bed for illegal abortion cases was US$ 23,690. It was latter estimated that if these illegal abortions had been legal, the saving in bed occupancy alone would have been around US$ 20,576 (28).

Thus reducing the number of complicated abortions could considerably decrease the cost of abortion. In 1970s a pilot project conducted in Chile furnished impressive evidences of the relative cost of legal and illegal abortion to the health services (28). For a brief period abortion was approved as a medical procedure in a selected area of Santiago. Using money available for the research purpose from an international health organization, Chilean physicians performed a total of 3,250 hospital abortions during

the period of the study. There was no publicity, but as word spread, the demand for the hospital service increased until a ratio of one abortion for every two births was reached. This transfer of abortion from the back street to medical facilities was able to bring a marked decline of admission for complication of illegal abortion. The birth rate and infant mortality in the area also fell dramatically. The savings achieved by replacing a high proportion of back -street abortions with medical termination for that time was US$ 200,000.

In Poland the cost of abortion was 2.5 to 3 million Zloty in summer of 1992 where abortion was a medical procedure. The government endorsed antiabortion law in November 1992. Then the cost of abortion went up in Poland to 6 to 14 million Zloty due to the antiabortion law (22).

Illegally induced abortion is more likely to be septic and more likely to consume relatively more drugs and materials. In a study in Egypt, the cost of materials, medication and supplies found to be LE25.7 ($7.54) and LE 25.3 ($7.44) for two public hospitals. The overhead cost per day for the two hospitals found to be LE 27.00($7.96) and LE27 ($9.22). The final per patient cost in the two study sites were LE48.8 ($14.4) and LE26.2 ($7.73) (31).

The 1999 cost investigation in Peru (32) revealed that the total average cost to treat post-abortion patients was 118.72 US dollars when dilatation and curettage was the procedure. Hospitalization consumes 84.2%, medication supplies and equipment has

taken 11.6% of the average total cost and the rest 4.93% was the share of personnel cost. The average total cost of Manual Vacuum Aspiration was lower on the other hand (about 45.14 US dollars).

Antibiotics were widely used in the treatment of incomplete abortion (24) and only 10 % of patients do not received antibiotics. Approximately one half of the patients (56%) received oxitocine. More than half of the patients received intravenous fluids (58%). Seven percent of the patients received blood transfusion. The result of a comparative study between incomplete abortion and menstrual regulation done in Addis Ababa showed that out of 372 women who were admitted for incomplete abortion, 73.4% were treated with antibiotics and 18.8 % received intravenous fluid but no antibiotics or intravenous fluid for menstrual regulation. The cost of antibiotics and other drugs range from 5 to 409.80 birr. The mean cost of drug treatment was 28.16 and the median cost was 17.15 Ethiopian birr (24).

The average time spent by the patients from the admission to discharge was 1109 minutes (18.5 hour) in Egypt, with range of 100-2600 minutes. Another cost study on post-abortion service conducted in Mexico (33) revealed that the mean length of patient stay was 17.9 hours for Dilatation and Curettage and 11.1 hours for Manual Vacuum Aspiration. According to a 1993 study in Ethiopia, the mean length of stay in hospital was 2.69 days for induced abortion and 1.69 for spontaneous abortion (7). A retrospective Analysis done on a total of 1540 abortion admissions in Jimma Hospital have also shown that the mean hospital stay to be was 4.03 days (SD=5.96) (34).

Manpower is one of the scarce resources in hospitals found in developing countries. The cost analysis of post abortion services conducted in two government hospitals in Egypt (31) showed that general practitioner doctors were the major providers of services to post abortion patients. They spent 45 minutes on direct per patient contact, nurses spent 50 minutes and specialist spent 5 minutes. The average personnel cost was calculated to be LE2.24($0.66) and LE1.22($0.36) for the two hospitals.

Although no detailed study has been conducted in Ethiopia to determine the cost of abortion, the study conducted in 1992 in five hospitals in Addis Ababa (7) has shown that induced abortion on average costs 98.38 birr ($47.53) with a maximum cost of 4166.00 birr ($2,012.56) on the other hand the mean cost of legally induced abortion was 88.85 birr ($42.92) and the mean cost of spontaneous abortion was 63.72 birr ($30.75).

Another study conducted in 1997 to compare the cost of safe and unsafe abortion has shown that treatment of incomplete abortion is very expensive compared to menstrual regulation. Women admitted for incomplete abortion stayed on average stay in hospital for 2-3 days. The mean total cost of treating incomplete abortion was found to be 114.54 birr whereas the mean total cost of menstrual regulation was 70.1 birr. The mean cost of drug treatment was 28.16 birr. The mean cost of surgical intervention in the treatment for menstrual regulation was 70 birr and 98.4 to that of incomplete abortion. This study also calculated the cost of clandestine induction of abortion. The

cost ranged from no payment to 400.00 birr. The mean cost of induction was 104.9 birr (24).

The use of Manual Vacuum Aspiration in the treatment of incomplete abortion has advantages over the commonly used method of uterine clearing in terms of cost. Manual Vacuum Aspiration has proved to be simpler, cost effective, less time consuming and could be easily handled by low-level health professionals. This has been proved in Kenya, Ethiopia, Mexico, Peru and Egypt (3,26,31,32,33).

Rationale for doing the study

Ethiopia is one of the low-income countries with per-capita GNP only US$100. The share of the health sector from the national budget was 3.32% and per-capita health expenditure was 8.9 birr. The Ethiopian health sector is confronting a crisis due to the present low economic status of the country in the face of increasing demand (rapid growth of population). Not more than half of the population has potential health service coverage. There is shortage of trained health manpower resources. Physician per population and nurse per population ratios are much lower than the WHO's standard (35). Appropriate utilization of scarce resources is one of the methods of controlling health care crisis. The prime purpose of cost analysis is to guide the allocation of these scarce resources in the health sector towards maximum benefit in health gain. Hospital cost studies have been used to encourage decision makers to plan and implement alternative cost effective programs and services.

The issue of liberalization of abortion is also one that has generated policy level debates. One of the reasons against liberalising abortion law in Ethiopia is the claimed inadequacy of medical facilities and manpower to take care of large volume of abortions. However the treatment of unsafe abortion and the demand of pregnancy such as prenatal care, delivery, postnatal care and child care (all of which abortion could avoid) may probably create greater demand on the scarce health care resources than the provision of safe and early abortion. Medical resources in Ethiopia are quite meagre. As a result the cost of medical services should seriously be taken into account before any change in the health service delivery is made. The present study is aimed at

providing information on the relative costs of managing complications of abortion and providing abortion services safely. This may be an input for policy level debates on this important issue.

Study Objectives

General objective

To analyse the cost of treating patients with abortion and provision of safe abortion service in Addis Ababa public hospitals (Tikur Anbassa, Zewditu Memorial, Yekatit 12 and Ghandi Memorial Hospitals) during the study period.

Specific objectives

- To determine the direct and indirect costs related to management of unsafe abortion in Addis Ababa public hospitals.

- To calculate the average unit cost of treating a case of unsafe abortion in Addis Ababa public hospitals.

- To estimate the average unit cost of provision of safe abortion services.

- To compare the unit cost of management of unsafe abortion and provision of safe abortion services.

Methods and Materials

Study Area

Addis Ababa is the capital of Ethiopia and located in the central part of the country. The population of Addis Ababa as of 2001 is 2.5 million (sex ratio 92.8). Women in reproductive age group (15-49) are estimated to be 874,867. The population of Addis Ababa has been growing at an average annual rate of 3.8 percent during the last 10 years. The 1994 census further indicated that nearly half (47%) of the total population of Addis Ababa are migrants from different part of the country. The average household density is about 5.1 persons per household. The religious composition of Addis Ababa population is: 82% Orthodox Christian, 12.7% Muslim, 3.9% Protestant and 1.4% followers of other religious groups. The major ethnic groups are Amhara (48.3%), Oromo (19.2%), (Gurage 17.5%) and Tigre (7.6%). About 56.2% of the females are never married and 27.9% are currently married. Concerning the employment status, 34.7% are unemployed. The total fertility rate in Addis Ababa, 2.14, is lower than the national rate. There are 18 hospitals, 24 health centres and 161 health stations run by Ministry of Health, NGOs and other government organizations (36,37).

Hospitals are the only institutions providing services to women with the problem of abortion in Addis Ababa. Among the ten government hospitals located in the city, five are under the federal Ministry of Health, four are under Addis Ababa City Administration Health Bureau and one is under Addis Ababa University. Five hospitals are expected to deliver post abortion care services. Among these one hospital

was closed for maintenance during the data collection period and the study was conducted in remaining four hospitals. Tikur Anbassa hospital is a specialised central referral and teaching hospital run by Addis Ababa University and it has different specialty units. The other three are regional hospitals found under Addis Ababa City Administration Health Bureau. Ghandi Memorial hospital is the only hospital providing exclusively obstetrics and gynecology services and Yekatit 12 and Zewditu Memorial Hospitals are general hospitals with different specialty units. All the hospitals do not have separate fixed budget for gynecology and obstetrics departments so that these departments are sharing the total hospital budget with other departments in the hospitals. These hospitals are selected for the study because these were the only public hospitals in Addis Ababa, which were providing post abortion care service during the study period.

Study Design

This is an institution based cross sectional study to analyze the cost of safe and unsafe abortion in Addis Ababa public hospitals that are providing abortion related services. The study was conducted during the period of November 2001 to January 2002.

Study subjects

All patients who were attending the four hospitals' gynaecology units for the management of abortion related problems and completed their treatment during the data collection period.

Sampling method and sample size

The required sample size for the study was determined by the formula of determining sample size for single population proportion.

$$n= \frac{Z^2_{\alpha/2}\, p\,(1-P)}{d^2}$$

It was assumed that the proportion of abortion cases among all gynecological cases would be 50% with a margin of error 5%, confidence level 95% and non-response rate of 10%. The sample size was calculated as follows:

$$n= \frac{(1.96)^2\,(0.5)\,(0.5)}{(0.05)^2} =384$$

384+ 38= 422

Operational definitions

Women who are visiting the health institutions for seeking treatment for any type of complications of abortion (Incomplete abortion, sepsis, hemorrhage and intra-abdominal injuries and others) are considered to have unsafe abortion.

Women who are visiting the health institutions for termination of pregnancy in the heath care unit due to any reason, and handled by skilled health professional in an elective manner are considered having safe abortion.

Direct cost:

Those costs traceable to particular cases that include (medication, disposable medical supplies, investigation, staff time spent on direct care, equipments, and furnishing used).

Indirect cost:

Administrative costs that including salary of staff not included in the direct care of the patients, capital and recurrent cost of the hospitals.

Variables

Independent variables

Age, occupation, educational status, marital status, parity, family size, religion, ethnicity and income.

Dependent variables

Cost of medication, blood, supplies, investigations, treatment and personnel cost.

Patient side cost that include travel cost, lodging and opportunity cost (due to time lost for investigation treatment and sick leave and transport) other costs.

Data Collection

The data on cost of unsafe abortion was collected through exit interview, patient record review, observation and administrative record review. Since it was not possible to collect actual data on provision of safe abortion service due to the legal status of the country towards abortion, assumption were taken to estimate the unit cost of provision of safe abortion.

Exit interview

Since the materials used to develop the instrument were written in English, a questionnaire was first designed in English language and translated to Amharic and back translated to English to see the consistency. Pre-test was done on 21 patients (5%) of the sample size. Patients were interviewed after completing their treatment and when they were ready to be discharged from the hospitals. Data collection was

made for 24 hours in a day with two shifts in Ghandi memorial hospital since there was a possibility of discharging patients in the evening and night hours. In the other hospitals, data were collected during the day and in the early evening hours. The exit interview has been done with the major objective of obtaining data on patient's socio-demographic and reproductive characteristics, medical and non-medical patient side costs and the time spent by patients in seeking treatment.

Five twelve-grade completed, non-health professional females were recruited for data collection. Training on data collection was given for five days by the principal investigator and the questionnaire was pretested in Ghandi memorial hospital. A trained supervisor and the principal investigator supervised the process of data collection. Subjects interviewed for pre-test were not included in the actual study.

Patient record review

Separate instruments were developed to collect data on the type and amount of materials, medication and supplies used; investigation and treatment procedures performed. Five nurses were recruited to review the patients' charts after the physician in charge signed the discharge and before the chart is returned to the registrar unit. Training of the data collectors was given for two days on how to identify desired information from medical records and to transcribe the obtained information on the checklist. The principal investigator performed supervision of the data collection process by comparing the checklist with records.

Observation

Observation has been made on the treatment of 10% of the patients to obtain information on health professionals' time (to calculate personnel cost) to treat a patient. A checklist was prepared to note the type and number of personnel involved, the time spent per direct contact by different category of personnel for different activities. The same nurse data collectors recruited to do the chart review did observation on staff time. The patients selected for observation were selected using systematic sampling. Every 10^{th} case from each hospital observed. The observation was made in three areas; emergency room for history taking, physical examination, prescription, treatment and others; Procedure room for evacuation and other treatment; recovery room and/or ward for treatment, consultation, advise and others. Observation on the time spent on selected laboratory and radiology procedures was noted by the principal investigator.

Administrative record review

Data on a full year's hospital capital and recurrent cost for 2000-2001(1993 E.C.) were gathered from administrative section of the hospitals, from the federal Ministry of Health and Addis Ababa city Administration Health Bureau. The total data collection period was three months. One would have required to collect data on at least one completed year for cost analysis study to control seasonal variation on case load.

However using the last completed year service statistics, assumption has been taken that the trend will be similar through out the year.

Data were collected using a checklist on the type, amount, cost and service year of the needed items. The capital cost estimate (comprising hospital building, equipment and vehicle) was based on each item's estimated replacement value. The equivalent annual costs were calculated assuming a useful life span of 30 years for buildings and 10 years for equipment and vehicles. A 10% rate of interest was used to allow for depreciation and the opportunity cost of capital purchases.

Data analysis

Data were entered, cleared and analyzed using EPI-INFO version 6.04b. Microsoft Excel was used for some mathematical calculations. Frequency tables were used for presenting the descriptive results and cross tabulations were done for bivariate analysis. In addition multivariate analysis was done to predict the most important item for the cost incurred.

Cost estimation

The study employed accounting method for cost estimation.

Drug and pharmaceutical cost

To determine the drug and pharmaceutical cost, information on type and quantity of drugs and disposable medical supplies was collected for each patient. Then the current prices of these items in public hospitals were used for the estimation.

Diagnostic investigation cost

The cost of diagnostic investigation were estimated by using the cost of reagents and other materials used during investigation.

Personnel cost

Personnel cost was calculated by multiplying the total time spent by different category of personnel by their hourly salary.

Overhead cost

Overhead costs are the sum of capital and recurrent costs. Capital costs are those that have life expectancy of more than one year and recurrent costs are those resources that are expected to be consumed or replaced with in one year prorated on per case basis. Capital cost includes the cost of buildings, vehicles (bicycles, motorcycles, four wheel drive vehicles, and trucks) and equipment (refrigerators, sterilizers, machineries, scales and other equipments with unit cost (price) of $100 and more). In recurrent cost salary of administrative staff, vehicles operation and maintenance costs, building operation and maintenance costs, hotel cost, supplies with unit cost less than $100 and other running costs were included. Average overhead cost was calculated by per bed day and per out patient department visit. One inpatient day was considered to be equivalent to three outpatient visits.

Sensitivity Analysis

Sensitivity analysis was conducted to explore the sensitivity of unit costs. The selected items for sensitivity analysis (vehicles and different kinds of operating machineries) were those items with the least certain costs. In addition to these, sensitivity analysis

was done to the average unit cost. Estimation was done in high and low cost scenario considering that if all the necessary investigations and treatments apply for a case.

Ethical Considerations

The study was approved by the ethical committee of the Department of Community Health, Faculty of Medicine, Addis Ababa University. Written consent was obtained from Addis Ababa City Administration Health Bureau, Department of Obstetrics and Gynecology, Medical Faculty, and the respective hospitals. Verbal informed consent was obtained from the study subjects. Privacy of the respondent during the interview and confidentiality maintained.

Results

Distribution of study subjects

A total of 424 patients attended the four hospitals for the management of abortion complications during the data collection period. Ghandi Memorial hospital provided about half of the patients that is 208 (49.1%). One fifth 86 (20.3%) of the cases were from Tikur Anbassa hospital and the rest 72 (17%) and 58 (13.7%) were from Zewditu Memorial and Yekatit 12 hospitals respectively.

Four hundred twenty four medical records were reviewed and consent to be interviewed obtained from 401(94.6%) of the patients, which makes a non-response rate 5.4%. Patients were asked for the when they are ready for discharge. The main reason for non-respondents was the short recovery period after the treatment procedures to be comfortable for the interview. Some of them refused with out giving reason.

Three patients died before they had been interviewed which makes the case fatality rate of 0.7 per 100 cases. Sixty-nine (17.2%) of the women admitted that they had intentionally induced abortion. Around 15% of the patients had a diagnosis of abortion with mentioning sepsis and the rest 85% of the patients had a diagnosis of abortion without mentioning sepsis.

From the study subjects a total of 456 OPD visits and 648 bed days were registered. The mean number of OPD visit and bed days was 1.05 and 1.5 respectively. The

maximum number of bed days was 15. The numbers of patients exempted from payment were 38 (9%) and the rest were charged by the hospitals. Patients were entitled to receive medical care free of charge, if they could be able to bring a certificate from local administrative units, stating that the patients have no income and could not afford to pay for the treatment they received.

Demographic characteristics

Among the 401 post-abortion patients interviewed 384 (86.8%) were residents of Addis Ababa and the rest 53 (13.2%) were from outside Addis Ababa. The mean age of abortion patients was 26.2. More than half (56.6%) of the patients were between the ages of 20-29 years. A large proportion (70.9%) of the post abortion patients had formal education. More than 40% of the educated had secondary school education (Table 1).

Forty-four percent of the patients were of Amhara ethnic group, followed by Oromo (25.4%), Gurage (18.7%) and Tigre (6.5%). The predominant religions were Orthodox Christian (76.6%) and Muslims (14.7%). Married women were around two third (72.8%) of the cases followed by never married (22.9%). Sixty-four percent of the women are unemployed at the time of the study.

More than 30% of the respondents were economically dependent on some one else for their living. The monthly income of 202 (50.3%) of the respondents was less than 180 birr while 199 (49.6%) of them had monthly income greater than 180 birr (Table 2).

Table 1: Socio-demographic Characteristics of Patients with Abortion, Addis Ababa Public Hospitals, Jan.-Mar. 2002. (n=401)

Variable	Frequency	Percent
Age (mean 26.2 ± 6.3)		
15-19	56	14
20-24	126	31.4
25-29	101	25.2
30-34	54	13.5
>35	64	17.1
Place of residence		
Addis Ababa	348	86.8
Out of Addis Ababa	53	13.2
Education		
Illiterate	118	29.4
Read and write	2	0.5
Primary	116	28.9
Secondary	143	35.7
Beyond secondary	22	5.5
Ethnicity		
Amhara	180	44.9
Oromo	102	25.4
Gurage	75	18.7
Tigre	26	6.5
Others	18	4.5
Religion		
Orthodox Christian	307	76.6
Muslim	59	14.7
Others	35	8.7
Marital status		
Married	292	72.8
Never Married	92	22.9
Others	17	4.2
Occupation		
Unemployed	270	72.3
Employed	75	52.8
Private businesses	32	22.5
House made	14	9.9
Others	10	7
Family size (mean 4 ± 2.4)		
1-4	228	56.8
>4	173	43.1
Monthly income		
Dependents	131	32.6
1-180 birr	71	17.7
>180 birr	199	49.6
(Median 180, mean 268 ± 366.4)		

Reproductive characteristics

Childless women were only 110 (24.7.5%) and the rest had at least one child. Seventy two percent of the cases had no previous abortion. For some of the women (27.4%) this was not the first treatment of abortion. Fifty-six (13.9%) of them had one previous abortion and 54 (13.4%) had more than one previous abortion. The mean number of previous abortion was 1 (Table 2).

Table 2: Distribution of Reproductive Characteristics of Patients with Abortion, Addis Ababa Public Hospitals, Jan.-Mar. 2002. (n=401)

Variable	Frequency	Percent
Number of pregnancy		
1-3	126	31.4
>3	275	67.8
(Median 2, mean 3 $\pm$ 2.3)		
Number of live birth		
0	110	24.7
$\geq$1	291	72.9
(Median 1.8, mean 1 $\pm$ 2.0)		
Previous abortion		
No	291	72.9
1	56	13.9
>1	54	13.4
(Median 0.8, mean 0 $\pm$ 1.05)		
Induced abortion		
Yes	69	17.2
No	332	82.8

Cost Analysis

To determine the cost of drugs, medical supplies and investigation a total of 424 medical records were reviewed immediately after patients completed treatment and were ready for discharge.

Cost of drugs and disposable medical supplies

The cost of disposable medical supplies were analyzed separately. Gloves, syringes, cotton/gauze, intravenous cannula and antiseptic solutions were the common disposable items in the treatment of post-abortion patient. The total cost for surgical gloves was 5,128 birr and it accounted for 42.2% of the total cost of disposable medical supplies. Cotton/gauze and intravenous cannula were the second and the third most expensive disposable medical supplies next to gloves. These accounted for 26.6% and 17.2% of the total cost of disposable medical supplies respectively. The total cost of disposable medical supplies were 12,154 birr making the average unit cost 28.7 birr (Table 3).

Out of the 424 women more than two third (328) were treated with antibiotics. The total cost for antibiotics was 10,610 birr and accounted for 46.8% of the total cost of drugs. Intravenous fluids were administered for 246 (58%) of the patients and these were the second most expensive items among the total medication cost. These and other common drugs like pitocine, ergometrine, analgesics, sedatives and blood were make the total medication cost to 22,626 birr. The average cost of drugs was 53.3 birr and the median was 51 birr. The cost of medication and supplies together was 34,7 80 birr and average cost per patient for medications and supplies was 82 birr (Table 3).

Table 3: Cost of drugs and medical supplies for treating patients with abortion, Addis Ababa Public Hospitals, Jan.-Mar. 2002 (n=424)

Variable	Total cost ETB (%)	Average cost per case
Cost of disposable medical supplies		
Glove	5128 (42.2)	12.09
Syringe	937 (7.7)	2.25
Antiseptic	719 (5.9)	1.75
Cotton/gauze	3240 (26.6)	7.64
IV cannula	2094 (17.2)	4.9
Others	36 (0.2)	0.1
Total cost of supplies	**12,154 (100)**	**28.7**
Cost of medication ETB)	563 (2.4)	1.3
Anaesthesia	158 (0.6)	0.4
Sedatives	65 (0.28)	0.1
Analgesics	8678 (38.3)	20.4
IV fluid	10610 (46.8)	25.02
Antibiotics	372 (1.6)	0.9
Blood	514 (2.2)	1.2
Pitocine	518 (2.2)	1.2
Ergometrine	1148 (5)	2.7
Feso4	36 (0.1)	0.1
Others	**22,626 (100)**	**53.3**
Total cost of drugs	**34,780 (100)**	**82**
Total cost of drugs and medical supplies		

Diagnostic cost

The common diagnostic procedures were Hematocrit, blood group and RH factor. Hemotocrit and blood group with RH factor determination has been ordered for 354 (83.5%) and 338(79.9%) of the patients respectively. Other laboratory investigations like complete blood count and urine analysis were also ordered. The total cost of laboratory investigation, with the cost of reagents and others was 3,406.2 birr (Table 4).

Ultrasound was the commonest radiological investigation and it was ordered for 79 (18.7%) of the patients. Only two patients had X-ray examination. Radiological investigations accounted for 11% of the total investigation cost. Both laboratory and radiological investigations make the total cost of diagnostic investigation 3894.2 birr. The average investigation cost was calculated to be 9.08 birr (Table 4).

Table 4: Cost of investigation for treating patients with abortion, Addis Ababa Public Hospitals, Jan.-Mar. 2002 (n=424)

Variable	Total cost ETB (%)	Average cost per case (ETB)
Investigation cost ETB)	3406.2 (87.4)	8.03
Laboratory	443 (11.6)	1.04
Radiology	**3,894.2 (100)**	**9.08**
Total investigation cost		

Professionals' time

Based on the observations made, nurses had the largest contact time with patients. On average they were spending 49 minutes in direct contact. General practitioner doctors spent 47.7 minutes in direct patient contact. Laboratory technicians spent on average 20.5 minutes. Less participation by specialists (about 4 minutes) was observed (Table 5).

Table 5: Professional time spent (in minutes) to treat patients with abortion, Addis Ababa Public Hospitals, Jan.-Mar. 2002

Variable	Total time spent minutes(%)	Average time spent pe case
Gynecologist	1514.2 (5.6)	4
GP	20251.2 (47.7)	47.7
Nurse	20543.8 (48.6)	49
Health assistant	1463.8 (3.5)	26.8
Laboratory technicians	8722.2 (1.3)	20.5
X-ray technicians	1615.2 (1.4)	2.9
Total	**54110.4 (100)**	127.6

Based on the observation made on number and category of health professional and their direct contact time for different investigation and treatment activities in treating the patients, the total personnel cost was calculated to be 5,834 birr. The personnel cost for general practitioner doctors (2876.3 birr) has taken the highest proportion of personnel cost followed by nurses (1750.6 birr). Personnel cost for laboratory and X-ray technician were 742.84 birr and 137.56 birr respectively from the total personnel cost. The mean personnel cost is fond to be 13.76 birr (Table 6).

Table 6: Personnel cost for treating patients with abortion, Addis Ababa Public Hospitals, Jan.-Mar. 2002

Variable	Total cost ETB(%)	Average cost per case
Gynecologist	257.9 (3)	0.7
GP	2876.3 (49.3)	5.7
Nurse	1750.6 (30)	3.5
Health assistant	69.3 (1.1)	0.15
Laboratory technicians	742.8 (12.7)	0.72
X-ray technicians	137.5 (2.3)	0.3
Total	**5,834 (100)**	**13.76**

Overhead cost

Hospital cost for the last completed year (during year 2000-01(1993E.C.) was collected. It includes capital and recurrent cost including salary of non-medical professional. The cost was divided for the total number of OPD visits and bed days and all patients spending at least 24 hours in the hospitals considered as having bed day/days. The estimated overhead cost was 14.1 birr per bed day and 4.7 birr per OPD visits. The total overhead cost for the post abortion patients was 11,388. The average overhead cost per patient was 26.8 birr.

Patient's time

The mean length of stay in hospital was 33.01 hours (1.4 days) with minimum 5 hours and maximum 408 hours. The total time lost by the patients due to the current abortion (for travel, investigation treatment and sick leave and others) was 39,104 hours. A patient spent 3.8 days on average due to the current abortion. About 30% of the patients had waiting time before treatment for more than six hours. Fifty-five (29.3%)

of the patients spent more than six hours in other places before they reached to the hospitals (Table 7).

Table 7: Time spent by Patients due to current abortion (in hour), Addis Ababa Public Hospitals, Jan.-Mar. 2002

Variable	Frequency	Percent
Time spent with abortionist		
0-24	37	61.7
>24	23	38.8
(Median 24)		
Time spent to travel to the hospital		
0-6	377	94
>6	24	6
(Median 1)		
Time spent in other place for treatment		
0-6	133	70.7
>6	55	29.3
(Median 2)		
Waiting time		
0-6	273	78.7
>6	74	21.3
(Median 1)		
Length of stay in hospital		
0-24	290	68
>24	134	32.6
(Median 24)		
Absence from work (in days)		
1-3	166	59.7
>3	112	40.2
(Median 3)		
Sick leave (in days)		
1-5	14	58.3
>5	10	41.71
(Median 5)		

Patient side cost

Patient side cost is the cost incurred by patients because of the current abortion. It includes: medical cost which are expenses paid for drugs, investigation and treatment

out of the hospitals (it does not include those provided and charged by the hospitals), non medical costs also includes cost of transport, lodging and food when patients were visiting the hospitals, the opportunity cost of travel to and waiting time at the hospitals.

Patients were asked to buy drugs and other supplies, which are not available in the department's dispensary. The total medical patient side cost for 256 patients, which included drugs, laboratory tests and treatment was found to be 17,571 birr. Among the 401 patients, two hundred twenty-nine patients had incurred travel costs. The median cost for travel was 15 birr. Four patients had been paid for bed and 67 paid for food. There were 61 patients who paid for abortionist. The mean cost of clandestine abortion was 150 birr and the median was 100 birr. The total non medical patient side cost was found to be 18,031 birr. The total opportunity cost calculated by the total time spent due to the current abortion and the hourly income of the patients was found to be 191,436 birr which make the average opportunity cost 451.5 birr. Therefore the total patient side cost will be 227,038 birr. The average unit patient side cost was found to be 535.5 birr (table 8).

Table 8: Patient side cost, for patients treated as a case of abortion in Addis Ababa Public Hospitals, Jan.-Mar. 2002 (n=424)

Variable	Total cost ETB (%)	Average cost per case
Medical patient side cost	17571 (7.7)	41.4
Non-medical cost	18031 (7.9)	42.5
Opportunity cost	191436 (84.3)	451.5
Total	**227,038 (100)**	535.5

Unit cost of treating a patient with abortion.

Without including the patient side cost, the unit cost to the health system to treat a patient with abortion was found to be 131.7 birr. When the patient side cost is included it would be 667.2 birr. Medications and medical supplies consumed more than half (62.3%) of the total cost, followed by overhead cost which account one fifth (20.3%) of the total cost (Table 9).

Table 9: Unit cost of treating patients with abortion, Addis Ababa Public Hospitals, Jan.-Mar. 2002

Variable	Total cost ETB (%)	Average unit cost per case
Cost of medication & supplies	34780 (62.3)	82
Investigation cost	3894 (7.0)	9.18
Personnel cost	5834 (10.4)	13.7
Overhead cost	11338 (20.3)	26.7
Total	**55,846 (100)**	**131.7**

The sensitivity analysis in the high cost scenario was calculated to be 323.23 birr per case. In this calculation all diagnostic procedures (Haematology and urine analysis) drugs (intravenous fluid, antibiotics, sedatives, ergometrine, blood and iron) and treatment procedure (dilatation and curettage) were applied with necessary medical supplies and health manpower cost. One OPD visit and two bed days were assumed for a case.

Hospital charge range from no charge (for free patients) to a maximum of 332 birr. The mean which includes free patients was 62.8 birr while the mean actual cost is 131.7 birr to the hospitals.

Average cost estimation to provide safe abortion service

The cost for safe abortion was estimated in high and low cost scenario by considering the two common treatment procedures, Dilatation and Curettage and Manual Vacuum Aspiration. All the needed items including disposable medical supplies, drugs, materials, personnel cost were included for the estimation. The cost of mild sedative and relatively higher personnel cost was considered when the procedure is Dilatation and Curettage. There was no need of other medications such as intravenous fluid and antibiotics as in unsafe abortion. It was assumed that there will be no cost for bed-days to provide safe abortion services and only one out patient department visit is assumed because patients will wait from 6-12 hours in hospital in case of Dilatation and Curettage and less than 6 hours in case of Manual Vacuum Aspiration. The estimated average cost for safe abortion service in high cost scenario (when Dilatation and Curettage is a procedure with other necessary costs) was 65.32 and 40.97 in low cost scenario (if Manual Vacuum Aspiration was used).

Bivariate and Multivariate Analysis

To identify the factors that most strongly predict the cost incurred to treat abortion, bivariate analysis was performed. Using the median as a cut-of point, patients were categorized as high (above 180 birr) and low (up to 180 birr) cost incurred group. Demographic and reproductive behaviors were analyzed with the cost category (Table10).

A statistically significant association was observed between marital status and high cost in bivariate analysis. Those who are never married were 1.7 times more likely to incur high cost on the treatment. However when logistic regression was done controlling for confounding effect this variable lost its statistical significance. Only induced abortion found to be statistically significant in both bivariate analysis and logistic regression. Women with induced abortion were 9.4 times more likely to incur high cost for the treatment. However the large confidence interval may indicate the inadequacy of the sample size to make firm conclusion (table 10).

Table 10: Distribution of socio demographic Variables on cost incurred

Variables	Cost grade category		Unadjusted	Adjusted
	High cost N (%)	Low cost N (%)	OR (95% CI)	OR (95% CI)
Age				
15-25	110 (27.4)	95 (23.7)	1.36 (0.96,2.06)	1.17 (0.37,3.72)
>25	90 (22.4)	106 (26.4)		
Education				
Literate	144 (35.9)	137 (32.4)	1.20 (0.77,1.98)	0.29 (0.07,1.13)
Illiterate	56 (14.0)	64 (16.0)		
Occupation				
Employed	70 (17.4)	72 (17.9)	0.92 (0.6,1.42)	0.99 (0.32,3.03)
Unemployed	133 (33.2)	126 (31.4)		
Place of residence				
Addis Ababa	174 (43.4)	174 (43.4)	1.04 (0.56,1.92)	7.26 (1.76,29.9)
Out of Addis Ababa	26 (6.5)	27 (6.7)		
Marital status				
Never married	56 (13.9)	36 (8.9)	**1.71 (1.04,2.83)**	0.94 (0.18,4.85)
Others	147 (36.6)	162 (40.3)		
Monthly income				
1-180	37 (13.7)	34 (12.59)	1.08 (0.6,1.93)	1.07 (0.6,1.8)
>180	100 (37.3)	99 (36.6)		
Family size				
1-4	106 (26.4)	122 (30.4)	0.73 (0.74,1.11)	1.0 (0.31,3.19)
>4	94 (23.4)	79 (19.7)		
Delivery				
0-2	162 (40.4)	150 (37.4)	1.45 (0.88,2.4)	0.26 (0.06,1.17)
>2	38 (9.5)	51 (12.7)		
Induced abortion				
Yes	60 (15.0)	9 (2.2)	**9.4 (4.21,20.48)**	**28.16 (1.86,124)**
No	140 (34.9)	192 (47.9)		

Discussion

Because of fear of prosecution and humiliation, most women deny the history of abortions in settings where it is legally prohibited. Therefore it is expected that the proportion of induced abortion measured hear is lower than the actual. Less than 20% of patients admitted having induced abortion. This finding is similar with the study conducted in Gondor (38) and lower than that in the study done in 1997 in Addis Ababa hospitals (24). This difference could be due to inclusion of patients who came for menstrual regulation with missed menses and who were less likely to deny induced abortion in the 1997 study.

Abortion is one of the major pregnancy related problems, taking the life of many women in reproductive age group. Three patients have died among the 424. This figure is higher than the WHO estimate (23) but lower than that in the previous study conducted in Addis Ababa (7). The lower case fatality rate from the study done nine years back could be due to the presence of menstrual regulation services in some private and NGOs health institutions.

The proportion of cases with the diagnosis of abortion with sepsis was only 15%. Most of the time physicians were writing the diagnosis of incomplete abortion. This can be septic or non septic. Only some of them wrote diagnosis with detail description. So that it is believed that the number of cases with sepsis could be under estimated in this study.

Concerning the characteristics of the patients, patients were young (mean age 26.2). Abortion patients are generally younger than that of the general population of women of reproductive age. This finding is similar with other studies conducted in Ethiopia and other part of the world (38.39,40,41).

Seventy percent of the women in this study had formal education and this is comparable with previous studies (39,41,42,43). This reflects the fact that most of them are urban residents and have more access to education. The finding of ethnicity and religion is consistent with the general population of Addis Ababa in the 1994 census (36).

The proportion of married women among the study subjects was 72.8%. Most of the patients had at least one child. The same finding was obtained in other studies too (39,43,44,45). However, the number of married women in this study is much higher than the figure obtained in 1997 study conducted in Ghandi hospital. This could be due to the increasing interest of married women to have limited number of children and fear of the opportunity cost of having more children. Seventy two percent of the patients had no previous abortion. The median previous abortion was 0.8, which is almost similar with the 1997 study in Addis Ababa.

More than two thirds (77.4%) of the patients were treated with antibiotics. This is similar with the study done in Ghandi Hospital in 1997 (24). Intravenous fluid was given to 58% of the patients that is much higher than the study done in Ghandi

Hospital in 1997, which was 18.8% (24). This could be due to the inclusion of patients from specialized central referral hospitals which are more likely to receive serious and critical cases who are more liable to receive intravenous fluid.

The unit cost of medications and supplies was 82 birr. This cost is near to the one obtained in Egypt (31) and less than those obtained in other countries (32,33). The average investigation cost was calculated to be 9.1 birr. The average personnel cost was found to be 13.7 birr, which is less than that obtained in than Mexico and Peru (32,33). The involvement of high-grade health professionals, specialists who are expected to have high salary were very low in this study. In addition to this, health professionals could be less paid in this country, which might make the personnel cost lower. Nurses had the highest contact time with patients. On average they were spending 49 minutes with direct contact. General practitioner doctors spent 47.7 minutes. Other studies revealed almost similar findings (31,32,33) on the other hand, gynecologists spend less time than that in other studies (32,33). The less involvement of specialists could be due to their limited number they tend to be involved on other treatments, which cannot be handled, by non-specialist doctors and other health professionals.

Overhead cost was also lower than in other studies (31,32,33). Usually the lifetime of capital materials is not considered in replacing them. Therefore their lifetime could be over 10 years and makes the cost lower. We may also have lower recurrent costs.

The unit cost of treating patient with abortion is found to be 131.7birr without including the patient side cost. Medication and supplies took a huge amount of the share (63.5%). The same has been found in Egypt (31).

The mean length of stay was 33.01 hours. This is similar with the finding in Peru (33) where the average length of stay was 33.3 hours. This was 17.9 hours in Mexico and 18.5 hour in Egypt (32,33). Patients spent more time before they got treatment in some of the hospitals. That could be one of the reasons that made the length of stay high.

Nowadays it is very common to see patients being asked to buy drugs and other supplies which are not available in the department's dispensary. This is one indicator of the inadequacy of the hospitals budget to provide the necessary materials for treatment. The total medical patient side cost for 256 patients, which include drugs, laboratory tests and treatment was found to be 17,571 with a median of 45 birr. The mean cost of clandestine abortion was found to be 150 birr with a median of 100 birr. The average opportunity cost was 451.5 birr.

The charge of the hospital is very low when it is compared with the actual cost. With an average total treatment cost of 131.7 birr and the cost recovery 62.8 birr through fee collection, the health sector is subsidizing around 50% of the actual cost, which is 68.9 birr per post abortion patient. However patients are spending a lot of money (451 birr).

The estimated cost to provide safe abortion services ranges from 40.7 in low cost scenario to 65.32 birr in high cost scenario while management of abortion complication is on average costing 131.7 birr in low cost scenario (based on the actual data) and 323.23 birr in high cost scenario (by assuming the worst) without including the patent side cost. If safe abortion services are to be provided in the public hospitals and if it is possible to transfer illegal induced abortion from the back street to the hospitals, the saving for the health care system will be from a minimum of 68.9 birr to the maximum of 88.03 birr per case. In addition to saving by reducing the number or complicated abortion cases, the long-term effect of safe abortion in reducing the demand for pregnancy and childbirth and care is expected to increase the saving. When the cost of treating unsafe abortion for the health care system is compared with the estimated cost of provision of safe abortion service, it is three times expensive in low cost scenario and five times expensive in high cost scenario.

The number of patients who seek abortion services from the public hospitals could increase when people are become aware of the services. As some people argue, making abortion safe by liberalizing the law does not increase the incidence of abortion, but will help those women who will be obliged to seek services of clandestine abortion to get safe and legal service from the public hospitals. This saves the women's life, reduces suffering and minimizes cost both to the women and the health system.

The reduction of having unwanted child may result from this service. However abortion should not be considered as a method of birth control. In this study most (72.8%) of the cases were married and more than half (60%) of the women have at least one child. The shift of more abortion cases in unmarried and nilipara to those in married and parous is not only because of fear of societal discrimination. It could also be that the married and parous women may use abortion as last option to avoid having large number of children. In areas where legal and safe abortion is not available, these women are using illegal back-street abortion with all of its negative consequences.

Even if not included in this study, based on the review of the literature, the importance of family planning services with provision of safe abortion will have a high impact on reduction of induced abortions which ultimately reduce cost to the health system.

Using Manual Vacuum aspiration seems to be cost effective. It was found less costly in other studies too (31,32,33,46,47). The reduction of cost over the traditional method was about 24.35 birr per patient. The cost reduction is through reducing patients' length of stay in hospital and due to handling the procedure.

In today's world most of those women who are faced with unwanted pregnancies will also face society's unwillingness to acknowledge their plight or to offer them safe solutions (22) and thus they world find their own solution in the back-streets. Liberalizing abortion laws by itself cannot be a solution to the problem abortion. The

service should also be available and accessible to all categories of people with different socio-economic background.

Strength of the study

The study covered all public health institutions providing abortion related health care serves in Addis Ababa. Therefore, the unit cost will be representative of the services in all these hospitals.

Unlike previous cost analysis studies conducted on abortion in Ethiopia which were used price instead of cost, this study used accounting method of cost analysis which can address all cost centers (personnel, pharmaceutical, diagnostic and over-head costs). The price that the patients are paying for investigation and treatment cannot give actual cost estimate. Cost is the actual value of goods or services. In countries where cost is not totally recovered, price cannot give the true value. The price may be lower because it is subsidized or higher because of profit.

In addition to the cost of abortion to the health care system, this study has come up with the finding of cost of abortion to individual patient including the opportunity cost.

The study analyzed costs of patients who were at the institution at the time of data collection. This reduces recall bias and avoids missing of medical records.

Limitations of the study

The objective of this study was to compare the cost of safe and unsafe abortions to the health care system and to individual patients. Getting actual data on safe abortion services was difficult since these are not performed routinely. However, it was possible to estimate the cost of safe abortion based on the available management protocol and the trend of the two procedures (Dilatation and Curettage and Manual Vacuum Aspiration) that are being used for diagnostic purpose. The estimation may vary a little bit from the actual situation.

Anyone who uses accounting methodology for cost analysis will face the significant problem of not getting cost information as needed. This has also been the case in the current study. The cost of some capital items was not known. Therefore sensitivity analysis was performed to enhance the validity of the result.

The data collection was not done for a whole year. Since previous service statistics did not show major variations, assumption was made that the trend will be similar through out the year. However, this may not be the case in actual situation.

Conclusions and Recommendations

Abortions take precious human life in addition to consuming already scarce available medical resource from the health sector. Even if the main objective of this study was to analyze the monetary cost of abortion to the health care system and to individual patients the mortality was also seen to be quite high (0.7/100cases) in the current study.

Hospitals in Addis Ababa are spending a lot of resources to treat patients with different kinds of abortion complications (on average 131.7 birr per case without including the patient side cost which is 535.5 birr) when it was possible to reduce the problem of abortion complications through provision of safe abortion services. Based on the finding the estimated cost of provision of safe of abortion service (which ranges from 40.7 to 65.3 birr) is less expensive than treating patients with abortion complications (131.7 birr). The presence of enormous, cultural, religious and morale obstacles towards legalization of abortion has made the shift towards provision of safe abortion services difficult. However to attain cost reduction through provision of safe abortion services, the existing law should be liberalized to accommodate the need for abortion on wider medical and social grounds. This should go with provision of education to the public and feasible family planning promotion.

Provision of legal menstrual regulation services in the private sector should be encouraged. The expected high caseload in the public hospitals when safe abortion services are allowed will be shared through this procedure.

Using Manual Vacuum Aspiration for provision of safe abortion services has been found to be less costly (40.97 birr) than that of Dilatation and Curettage (65.32 birr). It is simple enough to be handled by non-physician health care providers, it helps to economize the time and cost of high level professional who are needed for other purposes. Therefore, expansion of the use Manual Vacuum Aspiration with proper training should be done. The services should be available at low-level health institutions.

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Declaration

I, the undersigned, declared that this is my work and that all sources of materials used for this thesis have duly acknowledged.

Name Selamawit Negash (B.Sc)

Signature _____

Place Addis Ababa, Ethiopia

Date of submission _____

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

Name Dr. Damen Hailemariam (MD,MPH,PHD)

Signature _____

Annex 1

Abortion Law in Ethiopia

PENAL CODE (1957)

Book 5: OFFENCE AGAINST INDIVIDUALS AND THE FAMILY

SECTION II: Offence Against Life Unborn Abortion

Art. 528 – *Principle.*

1. The deliberate termination of a pregnancy, at whatever stage or however effected, is punishable. The nature and the extent of punishment awarded for intentional abortion shall be determined according to whether it is procured by the pregnant women her self or by another. In the latter case whether or not the pregnant women gave her consent or not.

Art. 529 – *Abortion procured by the pregnant women*

1. A pregnant woman who procures her abortion is punishable with simple imprisonment from three month to five years.
2. Any other person who procures for her the means of, or aids her in the abortion shall be punished … with simple imprisonment from one to five years

Art. 530 – *Abortion procured by another person*

1. Whosoever performs an abortion on another, or assist in the commission of the offence, is punishable with rigorous imprisonment not exceeding five years.
2. Rigorous imprisonment shall be from three to ten years where the women is incapable of giving her consent

Art. 531 – *Aggravated cases.*

1. When the offender acted for gain…

Art 534. – *Termination of pregnancy on medical grounds.*

1. Termination of pregnancy is not punishable where it is done to save the pregnant woman from grave and permanent danger to life or health, which it is impossible to avert in any other way, provided that it is performed in conformity of the legal requirements.
2. The termination of pregnancy shall be conditional up on:
    a. The finding and concurrent opinion, after a prior of observation where necessary, of the second doctor qualified as a specialist in the alleged defect of health from which the pregnant women is suffering, and empowered by the competent authority, either generally or in each specific case, to issue the necessary authorization.

Annex 2
Questionnaire for Exit interview

General information

001. Date of Interview _____
002. Study ID code _____
003. Joint number_____
004. Patient's medical record number _____
005. Name of the hospital
- 5.1 Tikur Anbassa
- 5.2. Yekatit 12
- 5.3. Ghandi Memorial
- 5.4. Zewditu Memorial

Part 1: Socio-demographic			
S. No.	Question	Answers	Code
101	Where is Your residence?	1. Addis Ababa 2. Out of Addis Ababa 99. No data	
102	How old Are you?	1. _____Years 99. No data	
103	Are you able to read and write(in any language)?	1. Yes 2. No 99. No data	
104	If yes, then what is the highest grade you have completed?	_____	
105	What is year ethnicity?	1. Amhara 2. Oromo 3. Gurage 4. Tigre 5. Others, specify_____ 99. No data	
106	What is your religion?	1. Orthodox Christian 2. Muslim 3. Protestant 4. Catholic 5. Others, specify _____ 99. No data	
107.	What is your current marital status?	1. Married 2. Never married 3. Separated 4. Divorced 5. Widowed 99. No data	

108.	Do you currently work outside of the home?	1. Yes 2. No 99. No data	
109	If you do work outside of home, then what is your occupation?	1. Government employee 2. NGO employee 3. Private organization employee 4. Private business 5. Student 6. Others, specify _____ 99. No data	
110	Hoe many family members do you have(including yourself)?	1. _____ 2. No data	
111	Please estimate your monthly income?	1. _____ 99. No data	

Part 2: Reproductive

S. No.	Question	Answers	Code
201	How many times have you ever been pregnant?	1. _____ 99. No data	
202	How many deliveries did you have?	1. _____ 2. None 99. No data	
203	How many live births do you have?	1. _____ 2. None 99. No data	
204	Have you had abortion previously?	1. Yes 2. No 99. No data	
205	If yes how many times did you have abortion?	1. _____ 99. No data	
206	Is the current abortion induced?	1. Yes 2. No (to 301) 99. No data (to 301)	
207	Where dose the induction took place?	1. Health institution 2. In my home 3. in the home of the abortionist 4. Others, specify 99. No data	
208	What was used to induce the abortion?	1. Plastic tube 2. Metal 3. Herbs 4. Injection/oral medication 5. Others, specify 99. No data	

Part 3: Expense for patients

S. No.	Question	Answers	Code
301	How did you get to this hospital	1. Private car 2. Taxi 3. Bus 4. Ambulance 5. Walking 6. Others, specify_____ 99. No data	
302	Did any one from your family accompany you to the hospital?	1. Yes 2. No 99. No data	
303	How much did you pay for the travel (for you and your accompany, if any)?	1. _____ 2. No data	
304	How much did you pay in fees to the hospital	1. _____ 99. No data	
305	Did you pay extra for medication and supplies?	1. Yes 2. No 99. No data	
306	If yes how much?	1. _____ 2. No data	
307	Did you have to buy food while you were traveling to and receiving treatment at the hospital (for you and your accompany, if any)?	1. Yes 2. No 99. No data	
308	If yes how much?	1. _____ 2. No data	
309	Did you have to pay for bed while you were traveling to and receiving treatment at the hospital (for you and your accompany, if any)?	1. Yes 2. No 99. No data	
310	If yes how much?	1. _____ 2. No data	
311	Did you have to pay for any thing else while you were traveling to and receiving treatment at the hospital	1. Yes 2. No 99. No data	
312	If yes how much?	For _____ birr_____ For _____ birr_____ For _____ birr_____ 2. No data	
313	Did you have costs related to inducing the abortion?	1. Yes 2. No 99. No data	
314	If yes how much?	1. _____ 2. No data	

Part 4: Time spent Expense for patients

S. No.	Question	Answers	Code
401	Did you first go to another place for inducing the abortion?	1. Yes 2. No 99. No data	
402	If yes, how much time did you spent for this?	1. _____ 99. No data	
403	How long did it take you to come to the hospital?	1. _____ 99. No data	
404	Did you first go to another place for treatment?	1. Yes 2. No 99. No data	
405	If yes, how much time did you spent for the treatment in another health institution?	1. _____ 99. No data	
406	How long did you wait to get treatment after you have arrived to the hospital?	1. _____ 99. No data	
407	How long you have stay absent from your work due to the current abortion?	1. _____ 99. No data	
408	Do you have sick-leave?	1. Yes 2. No 99. No data	
409	If yes, how may days?	1. _____ 99. No data	

I have finished the interview
Thank you very much.

Annex 3: Questionnaire Amharic

1. **ቃለመጠይቁ የተደረገበት ቀን** ----------
2. **የመጠይቁ መለያ ቁጥር** ----------
3. **የጥንድ ቁጥር**----------
4. **የህመምተኛዋ የሀክምና ካርድ ቁጥር**----------
5. የሆስፒታሉ መለያ ቁጥር
   5.1. ጥቁር አንበሳ ሆስፒታል
   5.2. ዘውድቱ መታሰቢያ ሆስፒታል
   5.3. ጋንዲ መታሰቢያ ሆስፒታል
   5.4. የካቲት 12 ሆስፒታል
   5.5. ቅዱስ ™ሙሉስ ሆስፒታል

መግቢያ

ስሜ ----------ይባላል:: ከአዲስ አበባ ዩኒቨርሲቲ እና ከጤና ጥበቃ ሚኒስቴር የጥናት ቡድን ጋር ነው የምሰራው:: እ**ኔ የ**ዚህ ሆስፒታል ሰራተ**ኛ አይደለሁ**ም:: እዚህ **አዲ**ስ አበባ ---------- ስህክም**ና** የሚመጡትን ሴቶችን እናነጋግራለን:: የጥናቱ ዓላማ ውርጃን በተመለከተ አስፈላጊው ጤና ነክ አቅድና እርምጃ በፖሊሲ አውጪዎች እንዲወሰድ ለማመቻቸት ነው:: በመሆኑም ለጥያቄው መልስ የእርስዎ እውነተኛና ታማኝ ተሳትፎ ከፍተኛ ዋጋና አድናቆት ይኖረዋል::

ምስጥራዊነት እና ስምምነት/ፈቃደኝነት

መልስዎ በፍፁም ሚስጥራዊ ነው:: ስምዎ በዚህ ፎርም ላይ አይፃፍም:: መመለስ የማይፈልጉትን ጥያቄ የግድ መመለስ የለብዎትም:: በመሆኑም ይህንን ቃለ መጠይቅ በፈለጉት ጊዜ ሊያቆሙኝ ይችላሉ:: ነገር ግን ለጥያቄው እርስዎ የሚሰጡትን እውነተኛና ትክክለኛ መልስ ለለ አገልግሎቱ ግንዛቤ እንዲኖረን በጣም ይጠቅመናል:: ለጥያቄው ለሚሰጡን መልስ አድናቆታችን በጣም ከፍ ያለ ነው:: ጥያቄው ---------ያህል ጊዜ ይወስዳል:: ስለዚህ በጥያቄው ለመሳተፍ ፈቃደኛ ነዎት?"

አዎ 1
አይደለሁም 2

(መልስ ሰጭዎች ለመጠየቅ ለለመስማማታቸው የሚያረጋግጥ የጠያቂው ፊርማ)

የጠያቂው: ስም----------

ተቁ.	መጠይቅ	መልስ	ኮድ
ክፍል አንድ ማህበራዊና ስነህዝባዊ			
101	የመኖሪያ ስፍራዎ የት ነው?	1.አዲስ አበባ ውስጥ 2.ከአዲስ አበባ ውጪ 99.መረጃው የለም	
102	እድሜዎ ስንት ነው?	1.----------ዓመት 2. አላውቅም	
103	ማንበብና መጻፍ ይችላለ□ (በማንኛውም □ን□)?	1. አዎን 2. የለም /ወደ 105/ 99. መረጃው የለም /ወደ 105/	
104	ማንበብና መጻፍ እችላለሁ ካለ□ የደረሰ□በት ከፍተኛው የትምህርት ደረጃ ስንተኛ ክፍል ነዉ?	----------	
105	የየትኛዉ ብሄረሰብ አባል ነዎት?	1. ኦሮሞ 4. ትግሬ 2. አማራ 5. ለ?ላ (ይግለፀ□)_____ 3. ጉራ?? 99. መረጃዉ የለም	
106	የየትኛዉ እምነት ተከታይ ነዎት?	1. ኦረቶዶክስ 2. እስልምና 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌላ_____ 99. መረጃዉ የለም	
107	በአሀ' ሰአት የጋብቻዎ ሁ♠ታ እንዴት ነዉ?	1. ያገባች 2. Ã§gÆC 3. የተለያየች4. 4 የተፋታች 5. ባለበ?ትዋ የሞተ 99. መረጃው የለም	
108	በአሀነ□ ሰአት ከበ?ት ውስጥ ስራ ውጪ ስራ አለዎት?	1.አዎ 2.የለም /ወደ 110/ 99. መረጃው የለም /ወደ 110/	
109	ከበ?ት ዉጪ የሚሰሩ ከሆነ ስራዎ ምንድን ነዉ?	1. የመንግስት ተቀጣሪ 2. መንግስታዊ ያለሆነ ድርጅት ተቀጣሪ 3. የግል ድርጅት ተቀጣሪ 4. የራስዎን ስራ የሚሰሩ 5. ተማሪ 6. ከዘ>ህ ዉጪ (ይግለፀ□) _____ 99. መረጃዉ የለም	
110	እራስዎን ጨምሮ የቤተሰብዎ ቁጥር ስንት ነዉ?	1.---------- 2. አላውቅም	
111	የወር ገቢዎ ስንት ነዉ?	1.---------- 2.የለኝም 3. አላውቅም	

ክፍል ሀ□ለት ስነ ተዋልዶ			
201	የአሁኑን ጨምሮ እስከዛሬ ድረስ ስንት ገ>ዘ? አርግዘዉ ያዉ.ቃለ□?	*1*.---------- 99. *መረጃ የለም*(ወደ 206)	
202	ምን ያህል ልጆች ወልደዋል?	*1*. ---------- *2*. ምንም (ወደ 204) 99. *መረጃ የለም* (ወደ 204)	
203	ከወለዷቸው ልጆች መሀከል ምን ያህለ□ ልጆች በህይወት ተወልደዋል?	----------	
204	ከዚህ በፊት ውረጃ ኖሮዎት ያውቃል?	*1*. አዎን ያውቃል *2*.የለም አያዉቅም /ወደ 206/ *99*. *መረጃው የለም* /ወደ 206/	
205	ውረጃ ኖሮዎት የሚያውቅ ከሆነ ምን ያህል ገ>ዘ? ውረጃ ኖሮዎት ያውቃል?	----------	
206	ያ□′ ዉረጃ የተከሰተዉ ለማስወረድ በተደረገ ሙከራ ነዉ?	*1*. አዎን *2*. የለም /ወደ 301/ *99*. *መረጃው የለም* /ወደ 301/	
207	የማስወረድ ሙከራ ተደርጎ ከሆነ የማስወረድ ሙከራዉ የተደረገዉ የት ነዉ?	1/ ጤና ተቋም 2/ በራሴ ቤት 3/ በሰራልኝ ሰው ቤት 4/ ሌላ /ይገለጽ/ ---------- 99. *መረጃ የለም*	
208	ምን አይነት ዘዴ ነው የተጠቀሙት/መው/ችው?	1/ ላስቲክ 2/ ብረት 3/ ስራስር 4/ መድኃኒት /የመፀወጥ/ በመርፌ/ 6/ ሌላ /ይገለጽ/ --------- 99. *መረጃ የለም*	

ክፍል ሶስት የገንዘብ ወጪ			
301	ወደዚ]ህ ሆስፒታል ለመምጣት የተጠቀሙበት መገ_ገ_ፅ ምንድን ነው?	1. በራስዎ/ የግል መኪ>ና/ 2. ታክሲ> 3. አዉቶበ□ስ 4. አምበ□ላንስ 5. የእግር ገ□ዞ 6. ለ?ላ (ይግለፀ□) ---------- 99. መረጃው የለም	
302	ወደዘ]ህ ሆስፒታል ሲ>መጡ□ ከበ?ተሰብዎ መህከል አብሮዎት የመጣ ሰዉ አለን?	1. አዎን 2. የለም 99. መረጃው የለም	
303	ወደዘ]ህ ሆስፒታል ሲ>መጡ□ (ለራስዎና አብሮዎት ለመጣው ሰዉ% አብሮዎት የመጣ ሰው ካለ) የመገ_ገ_ፅ ወጪ አዉጥተዋል?	1. አዎን 2. የለም 99. መረጃው የለም	
304	/መልስዎ አዎን ከሆነ/ ምን ያህል የመገ_ገ_ፅ ወጪ አዉጥተዋል?	1.---------- 2. አላውቅም 99. መረጃው የለም	
305	ለሆስፒታል□ ለህክምና ምን ያህል ከፈለ□?	1.---------- 2. አላውቅም 99. መረጃው የለም	
306	ለሆስፒታል□ ከከፈለ□ት ዉጪ ለመድህነ>ት % ለምርመራና ለለ?ለ√ች የህክምና መገልገያዎች ተጨማሪ ወጪ አዉጥተዋልን?	1. አዎን አዉጥቻለሁ□ 2. የለም አላወጣሁ□ም /ወደ 308/ 99. መረጃው የለም /ወደ 308/	
307	ምን ያህል ተጨማሪ ወጪ አዉጥተዋል?	1. ለመድህነት ብር ---------- 2. ለምርመራ ብር ---------- 3. ለለ?ላ (ይግለፀ□) ---------- 4. አላውቅም 99. መረጃው የለም	
308	ወደዘ]ህ ሆስፒታል ለመምጣት በገ□ዞ ላይ እያለ□ና በሆስፒታል□ በህክምና ላይ እያለ□ (ለራስዎና አብሮዎት ለመጣው ሰዉ% አብሮዎት የመጣ ሰው ካለ) ለምግብ ወጪ አዉጥተዋል?	1. አዎን አዉጥቻለሁ□ 2. የለም አላወጣሁ□ም /ወደ 310/ 99. መረጃው የለም /ወደ 310/	
309	/መልስዎ አዎን ከሆነ / ለምግብ ምን ያህል አዉጥተዋል?	1.---------- 2. አላውቅም 99. መረጃው የለም	
310	ወደዘ]ህ ሆስፒታል ለመምጣት በገ□ዞ ላይ እያለ□ና በሆስፒታል□ በህክምና ላይ እያለ□ (ለራስዎና አብሮዎት ለመጣው ሰዉ% አብሮዎት የመጣ ሰው ካለ) የመኝታ ወጪ ነበረብዎት?	1. አዎን አዉጥቻለሁ□ 2. የለም አላወጣሁ□ም /ወደ 312/ 99. መረጃው የለም /ወደ 312/	
311	/መልስዎ አዎን ከሆነ/ ለመኝታ ምን ያህል አዉጥተዋል?	1.---------- 2. አላውቅም 99. መረጃው የለም	
312	ወደዘ]ህ ሆስፒታል ለመምጣት በገ□ዞ ላይ እያለ□ና በሆስፒታል□ በህክምና ላይ እያለ□ (ለራስዎና አብሮዎት ለመጣው ሰዉ% አብሮዎት የመጣ ሰው ካለ) ያወጠ□ት ለ?ላ ተጨማሪ ወጪ ነበር	1. አዎን ነበር□ 2. የለም አልነበረም /ወደ 315/ 99. መረጃው የለም /ወደ 315/	
313	ወደዘ]ህ ሆስፒታል ለመምጣት በገ□ዞ ላይ እያለ□ና በሆስፒታል□ በህክምና ላይ እያለ□ (ለራስዎና አብሮዎት ለመጣው ሰዉ% አብሮዎት የመጣ ሰው ካለ) ያወጠ□ት ለ?ላ ተጨማሪ ወጪ ነበር ካሉ ለምን ለምንና ምን ያህል አዉጥተዋል	1. ለ ---------- ብር ---------- ለ---------- ብር ---------- ለ---------- ብር ---------- 2. አላውቅም 99. መረጃው የለም	

314	ለዉርጃ ሙከራ ያወጡት ወጪ ነበር	*1*. አዎን ነበር□ *2*. የለም አልነበረም /ወደ 401/ *99*. መረጃው የለም /ወደ 401/	
315	ለዉርጃ መ□ከራ ያወጡት ወጪ ከነበረ ካለ□ ምን ያህል አዉጥተዋል	*1*.---------- *2*. አላውቅም *99*. መረጃው የለም	
ክፍል አራት የጊዘ? ወጪ			
401	ወደ ሆስፒታለ□ ከመምጣትዎ በፊት ለዉርጃ ሙከራ ወደ ለ?ላ ቦታ ሄደዉ ነበር?	*1*. አዎን ሄጂ ነበር *2*. የለም ልሄድኩም /ወደ 403/ *99*. መረጃው የለም /ወደ 403/	
402	ወደ ሆስፒታለ□ ከመምጣትዎ በፊት ለዉርጃ ሙከራ ወደ ለ?ላ ቦታ ሄደዉ ከነበረ ለዘ>ህ ገ□ዳይ ምን ያህል ገ>ዘ? አጠፉ?	*1*.---------- *2*. አላውቅም	
403	ከቤትዎ ወደዚህ ሆስፒታል ለመምጣት ምን ያህል ጊዜ ፈጀብዎ?	*1*.---------- *2*. አላውቅም *99*. መረጃው የለም	
404	ወደ ሆስፒታለ□ ከመምጣትዎ በፊት ከዉርጃዉ ጋር ለተያያዘ ህክምና ወደ ለ?ላ ቦታ ሄደዉ ነበር?	*1*. አዎን ሄጂ ነበር *2*. የለም ልሄድኩም /ወደ 406/ *99*. መረጃው የለም /ወደ 406/	
405	ወደ ሆስፒታለ□ ከመምጣትዎ በፊት ከዉርጃዉ ጋር ለተያያዘ ህክምና ወደ ለ?ላ ቦታ ሄደዉ ከነበረ ለዘ>ህ ገ□ዳይ ምን ያህል ገ>ዘ? አጠፉ?	*1*.---------- *2*. አላውቅም *99*. መረጃው የለም	
406	ሆስፒታሉ ከደረሱ በ□ላ ህክምና ለማግኘት ምን ያህል ገ>ዘ? ጠበቁ?	*1*.---------- *2*. አላውቅም *99*. መረጃው የለም	
407	በአህነ□ የዉርጃ ችግር ምክንያት ለምን የህል ገ>ዘ? ከስራ ቀርተዋል?	*1*.---------- *2*. አላውቅም *99*. መረጃው የለም	
408	በሆስፒታለ□ ህክምናዎን ካጠናቀቁ በ□ላ የህከ>ም እረፍት ተሰጥቶዎታል?	*1*. አዎን *2*. የለም *99*. መረጃው የለም	
409	በሆስፒታለ□ ህክምናዎን ካጠናቀቁ በ□ላ የህከ>ም እረፍት ተሰጥቶዎት ከሆነ የተሰጠዎት ለምን ያህል ቀን ነዉ?	*1*.---------- *2*. አላውቅም *99*. መረጃው የለም	

ጊዜዎን ወስደው ስላነጋገሩኝ ከልብ አመሰግናለሁ
ጨርሻለሁ::

Annex 4

Checklist used for chart review

Instruction:

1. Chart review will be made on all charts of patients with any type of abortion who are admitted during the data collection period.
2. Write all costs in ETB

1. Name of health institution
    1. Tikur Anbessa
    2. St. Paul
    3. Ghandi memorial
    4. Zewditu memorial
    5. Ykatit 12
2. Medical record number of the patient _____
3. Checklist number _ _ _
4. Date of data collection(dd/mm/yyyy) _____
5. Date of admission _____
6. Date of discharge _____
7. Class of admission
    1. 1st class
    2. 2nd class
    3. 3rd class
8. Current diagnosis _____
9. Out come of treatment
    1. Improved
    2. Not improved
    3. Dead
10. Is the patient paying
    1. Yes
    2. No

Cost of disposable materials used for examination and treatments

Type of Material	Amount/ number of material	Cost/unit	Total cost	Provided by the hospital	Bought by the patient
Glove					
Syringe and needle					
Cotton/Gauze					
Intravenous cannula					
Savalon					
Others (Specify)					

Medication cost

Drug type	Amount/dose ordered	Cost/unit	Total cost	Provided by the hospital	Bought by the patient
Anesthesia (Specify)					
Oxygen					
Sedative (Specify)					
Analgesics (Specify)					
IV fluid (Specify)					
Antibiotics (Specify)					
Blood products					
Others					

Investigation cost

Type of investigation	Number of times performed	Cost/unit	Total cost	Provided by the hospital	Bought by the patient
Laboratory (specify)					
Radiology (Specify)					
Others					

Treatment cost

Type of treatment	Amount/ number of treatment performed	Cost/unit (ETB)	Total cost (ETB)
MVA			
D&C			
E &C			
Hysterioctomy			
Laparatomy			
Dialysis			
Others:			

Total number of OPD visits _____
Total number of bed days _____

Amount charged from individual patient during OPD visit _____
Amount charged from individual patient during inpatient stay _____
Total amount charged from individual patient _____

Annex 5.

Checklist for observation of staff time

Personnel cost per OPD visit

Total number of OPD visits											
Time taken by	History taking	Physical examin-Ation	Hemo-gram	Urin-anlysis	Stool exam	Blood chem-istry	X-ray	Con-sutation/ advise	Prescript ion/treat ment	Other	total
Specialist											
GP											
Nurse											
Lab. Tech.											
x- ray tech.											
H.assis.											
Others											

Personnel cost per bed day

Total number of bed days										
Time taken by	History taking	Physical examin-Ation	Hemo-gram	Urin-anlysis	Stool exam	Blood chem-istry	X-ray	Con-sutation/ advise	Prescription/ treatment	Other	total
Specialist											
GP											
Nurse											
Lab.tec.											
x- ray tec											
H.assis.											
Others											

Annex 6

Informed Consent

This study is designed to evaluate and compare the cost of safe and unsafe abortion on the health care system and individual patients. The study is going to be conducted in four public hospitals, which are providing post abortion care services and located in Addis Ababa. The result of the study will be helpful in provision of safe and cost effective services to those who are in need and we hope that policy makers will utilize it. Hence, we would like you to respond to the following questions. Your response will be kept confidential and your identity will not be part of the record. We would also like to guarantee you that your health and that of your family will not jeopardized in relation to this interview. You are free not to answer any question that you feel stressful. Please fell free to ask any question related to the interview.

Are you willing to participate in the study?

Yes____

No____

Thank you very much

Selamawit Negash

Name of interview _____

Signature of the interview _____

Date of interview _____

Annex 7: (Consent form: Amharic)

<u>የስምምነት መጠየቂያ ቅፅ</u>

ይህ ጥናት የህክምና ጥንቃቀኣ የጎደለውና በህክምና ጥንቃቄ የተከናወነ ውርጃ በጠ?ና ተቂማት ላይና በህመምተኛው ላይ የሚ_ያስከትለውን ወጪ ለማወቅና ለማነፃፀር የተዘጋጀ ነው## ጥናቱ በአዲስ አበባ ውስጥ በሚገኙ አራት የመንግስት ሆስፒታሎች ይካሄዳል## የዚህ ጥናት ውጤት አስተማማኝ የጤና አገልግሎትን በተመጣጣኝ ዋጋ ለአገልግሎቱ ተጠቃሚዎች ለማዳረስ የሚቻልበትን ሁኔታ ለማመቻቸት ይረዳል## የጥናቱን ዉጤት የሚመለከታቸው የመንግስት ሀላፊዎች እንደሚጠቀሙበት ይታመናል## ስለሆነም እርሶም በዚህ ጥናት ላይ ተሳታፊ በመሆን የሚከተሉትን ያቂዎች እንዲመልሱ ይጠየቃሉ## ለመጠይቁ የሰጡት ማንኛውም መልስ ሚስጥርነቱ የተጠበቀ ይሆናል## ማንነትዎ የጥናቱ አካል አይሆንም## በጥናቱ መሳተፍዎ በእርሶም ሆነ በቤተሰብዎ ላይ ምንም አይነት አደጋ እንደማያስከትልብዎ እናረጋጥልዎታለን## ለመመለስ የሚየስቸግረዎትን ወይም ለመመለስ ያልፈለጉትን ጥያቄ የመተው መብት አለዎት## መጠይቁን በተመለከተ ማወቅ የሚፈልጉትን በሙሉ ይጠይቁ##

በጥናቱ ለመሳተፍ ፍቃደኛ ነዎት?

ፍቃደኛ ነኝ ----------
ፍቃደኛ አይደለሁም ----------

በጣም አመሰግናለሁ

ሰላማዊት ነጋሽ

የቃለመጠይቅ አድራጊው ስም ----------
ፊርማ----------
ቀን----------