POST-ABORTAL CARE AMONG PATIENTS ADMITTED AT MOI TEACHING AND REFERRAL HOSPITAL, ELDORET, KENYA

BY

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DECLARATION

DECLARATION BY CANDIDATE

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DEDICATION

I dedicate this work to all health care providers who have devoted their lives to improve women's health, promote women's sexual and reproductive health rights, and especially to those who tackle complications of incomplete and unsafe abortions.

ABSTRACT

Background: The magnitude of abortion in Kenya is high, with an estimated 464,690 abortions and 7,900 abortion-related deaths occurring annually. Most of these morbidities and mortalities are preventable through access to quality post-abortal care (PAC) which involves: proper treatment of complications of abortion, post-abortal counseling and provision of contraception. Despite the high proportion of abortion in Kenya, there is very little literature on the services that post-abortal patients receive in health facilities.

Objective: To assess whether post-abortal patients in Moi Teaching and Referral Hospital (MTRH) are receiving PAC in line with IPAS' elements.

Methodology: A facility-based, cross-sectional study was undertaken at the MTRH gynecological ward from January-May 2014, among patients admitted with a diagnosis of abortion and their health care providers. Patients were sampled consecutively while providers were purposively selected. A total of 316 patients and 20 providers were interviewed. Data was obtained from MTRH records to independently calculate the abortion ratio. PAC services were assessed using International Projects Assistance Services' (IPAS') four essential elements: emergency treatment, counseling, contraceptive service and linkage to other reproductive health services. Data was analyzed using STATA version 12. A descriptive analysis of both patients and providers was performed and frequency distributions obtained. Bivariate and multivariate associations between patients' socio-demographic and reproductive characteristics were assessed using the chi-squared test and logistic regression respectively. P-values were reported at 95% significance level.

Results: The hospital based abortion ratio for MTRH during the study period was 9.5 abortions per 100 live births. Most (82%) patients were between 20 and 35 years old and were admitted with complaints of first trimester per vaginal bleeding (76%). Thirty eight percent of post-abortal patients had unintended pregnancies, and 25% had prior abortions. Using IPAS' four essential elements for assessment, we obtained the following results. Uterine evacuation was done mostly (89%) by manual vacuum aspiration (MVA) whereas medical evacuation was not performed. Ceftriaxone and metronidazole (94%) were the most common prophylactic antibiotics administered, while diclofenac (69%) was the most common procedural analgesic given. The majority (74%) of patients reported the MVA procedure as being very painful. The desired duration before the next pregnancy was two to five years, whereas the most common contraceptive methods offered were pills (56%) and barrier methods (50%). Advice on resumption of fertility was offered to only 35% of cases. Logistic regression showed a significant association between "having an unintended pregnancy" and "having a previous abortion" (OR=0.4, p= 0.07) and "adoption of a contraceptive method" and "religion" (OR 6.2, p=0.013). Only 60% of providers were trained on PAC.

Conclusion: The hospital-based abortion ratio of MTRH was low compared to other regions. Most patients didn't receive comprehensive IPAS-recommended PAC. There was appropriate use of MVA for uterine evacuation however; prophylactic antibiotics given to post-abortal patients were inappropriate and procedural analgesia inadequate. Advice on resumption of fertility was rarely given and most of the contraceptives offered were the least effective methods, for the desired inter-pregnancy interval. A limitation to this study was information and recall bias.

Recommendations: Health care providers involved in PAC should ensure the use of appropriate prophylactic antibiotics and adequate procedural analgesia. Post-abortal fertility and contraceptive counseling should emphasize the most effective methods to achieve the desired inter-pregnancy interval. Quality checks should be carried out to ensure adherence to IPAS recommendations for PAC.

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LIST OF ACRONYMS

D&C: Dilatation and Curettage

D&E: Dilatation and Evacuation

FP: Family Planning

HDL: High Disinfection Level

HIV: Human Immunodeficiency Virus

IM: Intra- Muscular (injection)

IPAS: International Projects Assistance Services

IPPF: International Planned Parenthood Federation

IREC: Institutional Research Ethics Committee

IUCD: Intra-Uterine Contraceptive Device

JHPIEGO: John Hopkins Program for International Education in Gynecology and Obstetrics

KDHS: Kenya Demographic Health Survey

KNBS: Kenya National Bureau of Statistics

KNH: Kenyatta National Hospital

MDG: Millennium Development Goals

MOH: Ministry of Health

MTRH: Moi Teaching and Referral Hospital

MVA: Manual Vacuum Aspiration

NC: North Carolina

NGO: Non-Governmental Organizations

NSAIDS: Non-Steroidal Anti-Inflammatory Drugs

OR: Odds Ratio

PAC: Post-Abortal Care/ Post Abortion Care

RH: Reproductive Health

RMBH: Riley Mother Baby Hospital

SOP: Standard Operating Procedures/Protocols

STI: Sexually Transmitted Infection

TOP: Termination of Pregnancy

UN: United Nations

USA: United States of America

WHO: World Health Organization

DEFINITION OF TERMS/OPERATIONAL DEFINITION OF TERMS

Abortion: The termination of a pregnancy resulting in the death of the embryo or fetus or the expulsion of products of conception before viability, which is usually considered to be 28 weeks of gestation in our setting.

There are several types of abortion:

i) **Spontaneous abortion:** Unprovoked intrauterine fetal death or spontaneous expulsion of fetal and placental tissue before viability. Spontaneous abortion is often called a "miscarriage" to differentiate it from induced abortion.

ii) **Threatened abortion:** Vaginal bleeding with a live intrauterine gestation present on ultrasound. This may or may not lead to an abortion.

iii) **Inevitable abortion:** Vaginal bleeding without expulsion of placental or fetal tissue through the cervix, but with cervical dilatation. This will always lead to an abortion.

iv) **Incomplete abortion:** Expulsion of some, but not all, fetal and placental tissue.

v) **Complete abortion:** Spontaneous expulsion of all fetal and placental tissue from the uterine cavity.

vi) **Recurrent spontaneous abortion:** The loss of three or more pregnancies before viability.

vii) **Septic abortion:** Abortion with signs of infection.

Medical abortion/ evacuation: Use of pharmacological agents to terminate a pregnancy or cause expulsion of uterine contents prior to viability.

Patient/Client/Respondent: Any woman admitted to the Gynecological ward (Faraja) ward with a diagnosis of abortion.

Post-abortal care: Refers to a specific set of services offered to women experiencing complications from spontaneous or induced abortions that aim at reducing morbidity and mortality from incomplete and unsafe abortion.

Provider: Medical personnel involved in the provision of post-abortal care to a patient/client. Refers to; doctor, clinical officer or nurse.

Reproductive age: Man/woman aged 15 to 49 years.

Safe abortion: "A procedure for terminating a pregnancy which is carried out both by persons' having the necessary skills and in an environment having the requisite medical standards" (World Health Organization, 1992). In countries where induced abortion is legal, most of them are safe.

Standard operating procedures (SOP): Refers to hospital protocols developed for managing various clinical conditions.

Surgical abortion: Use of surgical means to terminate a pregnancy or cause expulsion of uterine contents. These include the following methods:

i) **Dilatation and Curettage (D&C):** A surgical technique for uterine evacuation of retained products of conception in first trimester. It entails dilation (widening/opening) of the cervix and surgical removal of uterine contents by scraping/ scooping (curettage).

ii) **Dilatation and Evacuation (D&E):** A surgical technique for uterine evacuation of retained products of conception. It entails dilation (widening/opening) of the cervix and surgical evacuation of uterine contents, usually done after 12 weeks of gestation in the second trimester.

iii) **Manual Vacuum Aspiration (MVA):** A surgical technique used to empty the uterus in the first trimester; which entails the use of a manually operated syringe with vacuum to remove uterine contents.

Therapeutic abortion or Termination of pregnancy: Refers to the purposeful ending of an intrauterine pregnancy at any gestational age where there is evidence of fetal cardiac activity through: vacuum aspiration, dilation and curettage, dilation and evacuation or induction of labor.

Unsafe abortion: "Any procedure for terminating an unwanted pregnancy which is carried out either by persons lacking the necessary skills or in an environment lacking the minimum medical standards or both" (World Health Organization, 1992). Most unsafe abortions occur illegally, in that the procedure does not meet legal requirements or is not legally permitted under the law.

CHAPTER 1: INTRODUCTION

This chapter covers the scientific definition of abortion and also provides a background of abortion in relation to maternal morbidity and mortality. It introduces the concept of post – abortal care (PAC), its history, evolution and elements. The chapter finally outlines the problem statement.

1.1 Background

Abortion is defined as the termination of a pregnancy or the expulsion of products of conception before viability, which is generally considered to be at 28 weeks of gestation in our setting, resulting in the death of the embryo or fetus (Ministry of Public Health and Sanitation and Ministry of Medical Services, 2004). Abortion can either be spontaneous or induced. Spontaneous abortion is defined as unprovoked expulsion of fetal and placental tissue before 28 weeks gestational age and is often referred to as a "miscarriage". Induced abortion, on the other hand, is the intentional termination of pregnancy prior to viability, which may be legal or illegal (Barreto et al., 1992).

The intentional termination of a pregnancy can also be safe or unsafe. The distinction between the two is that safe abortion rarely has serious health consequences, while unsafe abortion is a threat to a woman's health and survival. The World Health Organization (WHO) defines unsafe abortion as "any procedure for terminating an unwanted pregnancy, carried out either by persons lacking the necessary skills or in an environment lacking the minimum medical standards, or both" (World Health Organization, 2011). Safe abortion, on the other hand, is defined as one that meets legal requirements in countries in which abortion is legally permitted under a broad range of criteria (G Sedgh, Henshaw, Singh, Åhman, & Shah, 2007). Safe abortion can also be defined as "a procedure for terminating a pregnancy carried out both by persons

having the necessary skills and in an environment having the requisite medical standards"
(World Health Organization, 1992).

Globally, it is estimated that 46 million induced abortions are performed annually, and
about 20 million of these are unsafe abortions, of which 95% occur in developing countries
(Corbett & Turner, 2003). Another report by WHO estimates that about 42 million pregnancies
are voluntarily terminated each year, where 22 million are safe and 20 million are unsafe (World
Health Organization, 2010). It has also been further estimated that one induced abortion takes
place for every three births (World Health Organization, 2012). Unsafe abortions contribute to
13% of all maternal deaths worldwide, and is a major contributor to the slow progress of
achieving the fifth Millennium Development Goal (MDG) for reducing maternal deaths by three
quarters by 2015 (G Sedgh et al., 2007). Table 1 shows the annual incidence of unsafe abortions
globally and regionally, and it is evident that the majority of unsafe abortions occur in
developing countries.

Table 1: Global and regional estimates of annual incidence of unsafe abortion in 2008. Adapted from WHO (World Health Organization, 2012)

Region	Number of unsafe abortions	Unsafe abortion rate (per 1000 women aged 15-44 years)	Number of maternal deaths due to unsafe abortion
World	21,600,000	14	47,000
Developed regions	360,000	1	90
Developing regions	21,200,000	16	46,800
Africa	6,190,000	28	29,000
Asia	10,780,000	11	17,000
Europe	360,000	2	90
Latin America and the Caribbean	4,230,000	31	1,100
Northern America	Negligible	Negligible	Negligible
Oceania	18,000	8	100

The total number of unsafe abortions has increased from 20 million in 2003 to around 22 million in 2008 (World Health Organization, 2011). Approximately 47,000 pregnancy related deaths are due to unsafe abortion, with five million women suffering disability as a result of complications due to abortion (World Health Organization, 2011). Most mortalities and morbidities resulting from such complications are preventable through access to contraception, safe pregnancy termination services, and proper treatment of abortion-related complications.

In a report by the WHO, more than 150 million women of reproductive age in the developing world have an unmet need for contraception, do not use an effective contraceptive method or experience contraceptive failure (WHO, UNICEF, UNFPA, & World Bank, 2010). Many of these women with unplanned or unwanted pregnancies may resort to clandestine unsafe abortion as the only available means for terminating the pregnancy. In sub-Saharan Africa overall, the rate of contraceptive use is 55%, with reports indicating that 37% of unmarried women aged 15 to 24 years use contraceptives (Tripney, Bird, Kwan, & Kavanagh, 2011). In comparison, the Kenya Demographic Health Survey (KDHS) 2008/09 reported that 17% of births in Kenya are unintended, with only 46% of the population of married women using contraception.

Post-abortal care (PAC) is a term commonly used by the international Reproductive Health (RH) community to refer to a specific set of services for women experiencing complications from spontaneous or induced abortions (ACOG Committee Opinion, 2009). Post-abortal care (PAC) is an approach for reducing morbidity and mortality from incomplete and unsafe abortion. The term "post-abortion care" was first articulated as a critical element of women's health initiatives in International Projects Assistance Services' (IPAS) 1991 strategic planning document (Corbett & Turner, 2003). This document encouraged "the integration of

post-abortal care and family planning services in health care systems" as a means of breaking the cycle of repeat unwanted pregnancy and improving the overall health status of women in the developing world (Corbett & Turner, 2003).

IPAS is an international Non-Governmental Organization (NGO) founded in 1973 with the aim of ending preventable deaths from unsafe and incomplete abortion. They work to ensure every woman obtains safe, respectful and comprehensive abortal and post-abortal care. IPAS as an organization is funded and supported by many organizations such as the WHO, United Nations (UN) and other global agencies in its endeavor to promote safe abortion (IPAS, 2015).

IPAS listed post-abortal family planning and other reproductive health care as essential elements of a framework for providing quality abortion care in 1991 (IPAS, 1991). In 1993, Engender Health, IPAS, the International Planned Parenthood Federation (IPPF), the John Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO) and Pathfinder International formed the Post-abortion Care Consortium, to educate the reproductive health community about the consequences of unsafe abortion and promote post-abortion care as an effective public health strategy (Corbett & Turner, 2003) . In 1998, IPAS and the PRIME project published a framework for quality of PAC (Corbett & Turner, 2003). In 2002, IPAS enlarged their model to include two steps that highlight the importance of reproductive health counseling and partnerships between the community and providers to make reproductive services more comprehensive. The PAC consortium's five essential elements for quality PAC are: community and service provider partnerships for prevention, counseling, emergency treatment, contraceptive and family planning services, and linkage to other reproductive and health services (IPAS, 1991). Appropriate care for post-abortal patients includes comprehensive family planning services in order to prevent repeat abortions and unintended pregnancies. A report by the

Population Information Program showed that an effective post-abortal care plan ensures that women receive care that is complete, appropriate, and prompt ("CAP") (Population Reports, 1997).

A WHO technical working group in 1991, identified vacuum aspiration as an essential element of care at the first referral level (Corbett, 2003). Manual Vacuum Aspiration (MVA) is an accessible and low-cost method that enables mid-level providers and other health professionals in primary-level facilities that do not have operating theaters, general anesthesia or electricity to offer uterine evacuation on-site to prevent delays in care, which can cause further complications of hemorrhage and infection (Corbett, 2003).

Despite the high proportion of abortion in sub-Saharan Africa and a high maternal mortality rate, there is very little literature on the management of post-abortal patients in African health facilities. A study that was done in Senegal found that the introduction of PAC services improved community education and contributed to a doubling in the number of women receiving improved healthcare. PAC also increased contraceptive use and substantially reduced unintended pregnancies and unsafe abortions (Thiam, Suh, & Moreira, 2006).

In recognition of the high number of patients admitted with post-abortal complications, Moi Teaching and Referral Hospital (MTRH) developed Standard Operating Procedures/ Protocols (SOP) to streamline the management of post-abortal cases in the facility. The protocol was largely derived from the IPAS recommendations, which is a known authority in post-abortal care and is both recognized and supported by the WHO. These protocols were developed by a team of both university and hospital Reproductive Health consultants. During development of the protocol, IPAS recommendations were adopted and operationalized into actions/ activities that could be offered to post-abortal patients. It is worth noting that despite localizing IPAS

recommendations to fit our setting, the elements that guided the protocol development were from IPAS.

It is with this background of a high incidence of post-abortal complications, a high maternal mortality rate due to abortions, and the known benefits of comprehensive post-abortal care, that this study seeks to assess whether post-abortal patients at MTRH, are receiving PAC services in line with IPAS' essential elements.

1.2 Problem statement

Globally, the incidence of unintended pregnancies is about six million annually, the majority of which occur in developing countries due to low use of contraception (World Health Organization, 2010). Women not using contraception account for about two thirds of unintended pregnancies in developing countries (Tripney et al., 2011). Reports have further shown that in Kenya, 49% of pregnancies are unintended (Population Reference Bureau, 2013). These women with unintended pregnancies may resort to clandestine unsafe abortion as the only available means for terminating the pregnancy.

A study done by the Ministry of Health (MOH) in conjunction with other NGOs estimated that in the year 2012, 464,690 abortions occurred in Kenya. It was also estimated in the same study that 157,762 women received care in Kenyan health facilities for complications of induced and spontaneous abortion, 76% of which were estimated to have been induced (Ministry of Health, 2013). Another study done in Kenyatta National Hospital (KNH) attributed up to 60% of total gynecological emergency admissions to abortion complications (Aggarwal & Mati, 1980) with 62% of total abortion admissions determined to have been "induced" or "likely to have been induced" (Aggrawal & Mati, 1982). Unsafe abortion is a major cause of morbidity and mortality in Kenya, with an estimated case fatality rate of 266 deaths per 100,000 unsafe

abortions (Aggarwal & Mati, 1980; Ministry of Health, 2013). These three studies document a high mortality rate of approximately two to three deaths per 1000 abortion admissions.

Post-abortal complications contribute up to 50% of all admission to the gynecological ward at MTRH (MTRH Records, 2014). These patients suffer from complications of retained products of conception, bleeding, infection, internal organ injury and even more long term complications of infertility and chronic pelvic pain. As mentioned earlier, these patients are predisposed to significant morbidity and mortality.

Despite the adoption PAC, challenges still exists in ensuring women receive care that is complete, appropriate and prompt. A study done by the Guttmacher institute in 2014 looking at ongoing challenges of implementing PAC in the developing world found that post-abortal care in developing countries still remains "incomplete, inferior and sub-optimal" for many women in low resource settings (Sneha, 2014). There is also very little literature on quality of PAC that patients receive in health facilities in Kenya and Africa at large.

CHAPTER 2: LITERATURE REVIEW

This chapter reviews literature on abortion and post-abortal care (PAC). It describes global and regional incidences of abortion, the effects of unsafe abortion and IPAS' essential elements of post-abortal care. It further goes on to elaborate demographic and obstetric characteristics of women seeking PAC and explains the role of health care providers in provision PAC. Finally, the chapter describes on an adopted theoretical framework for assessing post-abortal care services.

2.1 Introduction

Worldwide there are about 210 million pregnancies that occur annually (Singh S, Wulf D, Hussain R, Bankole A, & G, 2009). About 130 million of these women will deliver a live infant, leaving the remaining 80 million pregnancies to end in stillbirth, spontaneous or induced abortion (World Health Organization, 2005). In 2008, the global abortion rate (the number of abortions per 1,000 women of reproductive age) was 29 per 1,000 women, while the abortion ratio (number of abortions per 100 live births) was 32 per 100 live births (Guttmacher Insitute, 2012b). The abortion ratio in developing countries was much lower than that in developed countries (31 vs. 44), due to higher fertility and birth rates in the developing countries (Guttmacher Insitute, 2012b).

It is estimated that 19-20 million unsafe abortions take place every year (Grimes et al., 2006; World Health Organization, 2007). The global incidence of unsafe abortion is about 14 per 1000 women aged 15-44 years, with the highest average rates of about 30 per 1000 women in Eastern Africa and South America (World Health Organization, 2007). Figure 1 below shows incidence of unsafe abortion per region.

Figure 1: Percentage of unsafe abortions by region, 2008. Adapted from (G. Sedgh et al., 2012)

Abortion is also a leading cause of maternal morbidity and mortality in Kenya. It has been reported that unsafe abortion account for about 33% of maternal deaths in Kenya, with 5000 women dying annually from complications arising from unsafe abortions (Kenya Human Rights Commission and Reproductive Health Rights Alliance, 2010). The rate of unsafe abortion in Kenya is 36 per 1000 women of reproductive age (Guttmacher Insitute, 2012a). A study done by the Kenyan MOH in 2012, estimated an induced abortion rate of 48 abortions per 1000 women of reproductive age, and an induced abortion ratio of 30 abortions per 100 live births (Ministry of Health, 2013).

2.2 Effects of unsafe abortion

Research has shown that approximately one of four women who have unsafe abortions will have a complication that is severe and may even lead to death (World Health Organization, 1992). It has been estimated that every year in developing countries five million women are admitted to the hospital as a result of complications related to an abortion, whether spontaneous or induced (World Health Organization, 2007). The WHO estimates that 47,000 women, mostly

in developing countries, die each year from untreated or inadequately treated abortion complications, representing 13% of all pregnancy-related deaths (World Health Organization, 2007). Research has further shown that unsafe abortion leads to loss of productive life, resulting from both illness and death (A. Singh, Darroch, Vlasso, & Nadeau, 2003). Some of the long-term complications of abortions include chronic pelvic pain, pelvic inflammatory disease, tubal occlusion, fistula, and secondary infertility (S. Singh, 2006). Most mortalities and morbidities resulting from such complications are preventable through access to contraception, safe pregnancy termination services, and proper treatment of abortion-related complications (Kapp, Whyte, Tang, Jackson, & Brahmi, 2013).

2.3 Barriers to safe abortion

A study done in 2010 in 197 countries demonstrated that legal restrictions on abortions do not lower the incidence of abortion, but rather, increase the risk of unsafe abortion (World Health Organization, 2010). In most developing countries there are laws that prohibit or forbid induced abortion. Induced abortion in Kenya was illegal until 2010, when the new constitution was promulgated (Laws of Kenya, 2010). In this new constitution a law on abortion was enacted which states that "Abortion is not permitted unless, in the opinion of a trained health professional, there is need for emergency treatment, or the life or health of the mother is in danger." This enactment, though still restrictive, provides a legal foundation for women's access to safe abortion services (Ministry of Health, 2013).

Despite this new law, there are still numerous cases of unsafe abortions presenting to hospitals. It is also culturally unacceptable and socially stigmatizing to induce an abortion/terminate a pregnancy in most parts of the world, hence most young women with unintended pregnancies resort to unsafe abortions to terminate their unwanted pregnancies.

Clandestine induction of abortion is attempted by insertion of foreign objects into the vagina and cervix, drug overdose, herbal remedies, ingestion of harmful substances among others and contributes to a high number of unsafe abortions in Kenya.

In most developing countries, despite the availability of emergency obstetric care, poor infrastructure and lack of access to emergency health care makes it difficult to access these services. This is compounded by the limited resources and limited access to skilled medical care, especially among the rural, poor, uneducated and young women. This vulnerable population is thus at greatest risk of suffering from the complications of unsafe abortion. The lack of adequate training on PAC, inadequate staff, and inadequate supplies and equipment also hampers implementation of essential PAC. Stigmatization of women with abortion complications by healthcare providers, communities and governments contributes to the high number of unsafe abortions and causes a delay in seeking or being offered appropriate and adequate post-abortal care services.

The cost of a termination of pregnancy (TOP), even when medically indicated and legally permissible, is expensive and restrictive. Estimates show that a TOP costs about Ksh. 150-12,000 per person (Guttmacher Insitute, 2012a). This is in a setting where more than half of the population lives on less than Ksh 90 per day.

2.4 Essential elements of Post-Abortal Care (PAC)

Post-abortal care refers to a specific set of services offered to women experiencing complications from incomplete or unsafe abortions. It is an approach for reducing maternal morbidity and mortality, and for improving women's sexual and reproductive health and lives. The PAC consortium's five essential elements of PAC are shown in the Table 2 below.

Table 2: IPAS' essential elements of post-abortal care. Adapted from IPAS (IPAS, 2015)

Essential elements of post-abortal care	
Counseling	To identify and respond to women's emotional and physical health needs and other concerns.
Treatment	Treatment of incomplete and unsafe abortion and their potentially life-threatening complications.
Contraceptive and family planning services	To help women prevent an unwanted pregnancy and practice birth spacing.
Reproductive and other health services	These are preferably provided on-site or via referrals to other accessible facilities in providers' networks.
Community and service provider partnerships	To mobilize resources to prevent unwanted pregnancies and unsafe abortions and ensure timely care for abortion complications, as well as ensure health services meet community expectations and needs.

It is recommended that effective counseling for women who are experiencing incomplete abortion and possible complications should permeate every component of the service, from first contact between the woman and provider to the last contact and cover more than family planning and contraception (IPAS, 2015). The aim of counseling as an essential element is to support women emotionally, ensure women receive information about their medical condition, test results, treatment plan, treatment options and follow-up care.

Emergency treatment is an essential and critical element of post-abortal care. In many cases an incomplete abortion will have to be treated by uterine evacuation. Treatment also involves standard infection precautions, informed consent, appropriate pain management, sensitive physical and verbal patient contact and follow-up care (IPAS, 2015).

Contraceptive and family planning services involve providing post-abortal patients with access to a wide range of contraceptive methods to prevent unintended pregnancy and practice birth spacing (IPAS, 2015). Use of an appropriate contraceptive is an effective strategy for preventing future unwanted pregnancies and unsafe abortion, and helps women achieve their reproductive goals. Depending on the woman's choice, the appropriate options are given and referral is warranted in cases where the options are not available at the facility. Reproductive and

other health services' counseling is also provided to ensure all the needs of the clients are met at the facility, and referrals given for services not available at the time.

2.5 Surgical and medical management of abortion

Abortion was practiced in ancient civilisations and it has been described that dilators, curettes and even a rudimentary suction apparatus existed. The modern curette, which originated from the French verb, curer, 'to cleanse' was developed in France in 1723. It is reported that during the last quarter of the 19th century, the German physician Alfred Hegar developed the dilators that now bear his name and dilatation and curettage (D&C) became widely practised as a method for evacuation of the uterus (Hamoda & Templeton, 2010).

The vacuum-suction aspiration machine was introduced in the mid-20th century by James Young Simpson. Vacuum aspiration was then refined and used in China, Japan and Eastern Europe before eventually being introduced into clinical practice in Britain and the US in the late 1960s (Hamoda & Templeton, 2010). Karman introduced the principle of Manual Vacuum Aspiration (MVA) with the use of the Karman cannula. Since then, the procedure has mainly been used in areas with limited resources where it offers an option to provide safe, relatively cheap, effective abortion, and allows the procedure to be performed in outpatient settings (Hamoda & Templeton, 2010).

There is evidence that surgical termination of pregnancy is a very safe procedure, especially when performed in the first trimester of pregnancy (Blakrishnan, 2010). Vacuum aspiration had the lowest complication rate for all surgical methods, whereas sharp curettage had a major complication rate that was two times higher than vacuum aspiration (Say, Kulier, Gülmezoglu, & Campana, 2002).

In order to reduce barriers to treatment for women with abortion complications, vacuum aspiration has been recommended as the appropriate surgical technique for uterine evacuation for gestations up to 15 weeks (Royal College of Obstetricians and Gynaecologists, 2004). Vacuum aspiration has a typical effectiveness rate of more than 98% and when compared to sharp curettage, is associated with lower rates of the four most common complications of uterine evacuation (Corbett & Turner, 2003).

Medical abortion is an effective alternative to surgery in the first trimester and with high reported acceptability. Furthermore, a report highlighted the value women place on having a choice in the method of abortion (Hamoda & Templeton, 2010).

Post-abortal and procedural pain can be managed in various ways such as: para-cervical block (PCV), non-steroidal anti-inflammatory drugs (NSAIDS), opiod analgesics and intravenous or inhaled anesthesia (Kapp et al., 2013). A para-cervical block is the standard technique used to administer local anaesthesia to the cervix (Hamoda & Templeton, 2010). It involves injection of local anesthetic at four sites around the cervix, to numb nearby nerves (Tangsiriwatthana T, 2013). A para-cervical block is the IPAS recommended analgesia for MVA.

2.6 Demographic and obstetric characteristics of women seeking post-abortal care

In Myanmar, a study on PAC showed that the majority of women were aged 20-34 years (75%), were married, and 84% had at least one prior pregnancy. They were also of low socioeconomic status and the contraceptive prevalence rate was 34% (Ba-Thike, 1997). In Singapore, women who underwent abortion were mostly employed (55%), had secondary level education (94%), and had a first trimester termination (82%) (Lim, Wong, Yong, & Singh, 2012). A study in Vietnam showed that 75% of the women used contraceptives, 64% had

secondary level education and 92% of women said they were treated respectfully by hospital staff (Nguyen, Gammeltoft, & Rasch, 2007).

In a study based in Mozambique, most women were married, had a least one prior pregnancy (86%) and were of low socio-economic status (86%). In a study done in Nigeria, women who sought abortion were below 20 years (16%), nulliparous (20%), with university level of education (20%) and reported to have used contraceptives (22%) (Bankole et al., 2008; G Sedgh et al., 2006).

A study done in Kenya reported that 70% of women seeking PAC were not using any method of contraception and that 43% of births were unwanted or mistimed. MVA and EVA were the most common methods (65%) used to manage to these cases (Ministry of Health, 2013). In the same study majority of women seeking PAC were aged 20-24 years, were married (64%), unemployed (42%), with secondary education (36%), protestant (64%), had at least one child (71%), and over 40% of them sought PAC after the first 12 weeks of pregnancy (Ministry of Health, 2013).

2.7 The role of providers in PAC services

Health care providers' knowledge, attitude and training on PAC are important in ensuring safe undertaking of procedures and offering appropriate medication. Providers' knowledge on uterine evacuation procedures and contraception is essential in order to offer correct counseling to patients seeking PAC. A study in the United States found that lack of accurate knowledge by providers on contraception, affected their ability to provide this information to their patients and hence impact their ability to prevent unintended pregnancies (Dehlendorf, Levy, Ruskin, & Steinauer, 2010).

Inappropriate attitudes of healthcare providers, communities and governments towards women with abortion complications, cause a delay in seeking or being offered appropriate and comprehensive post-abortal care. In a Mozambique study, most women seeking abortion services were of low socioeconomic status (86%) and reported long waiting times (mean of 3.7 hours from admission to treatment). From the same study few women reported being given pain medication and less than half of the women received any follow-up information. Providers in-service training was less than comprehensive for majority of respondents (Gallo et al., 2004).

2.8 Theoretical framework for assessment of post-abortal services

The theoretical framework that was adopted for this study was modified from a model that was used on interpersonal communication (Negri, Brown, Hernández, Rosenbaum, & Roter, 1997). In the framework shown in the Figure 2 below, post-abortal care utilization is determined by the environment in which the care is given. Socio-demographic factors such as age, sex, occupation, religion and mother's reproductive status affect the utilization of post-abortal services and ultimate outcomes. Some of the characteristics may be beyond the provider's control.

However, process and proficiency factors that may be influenced by providers, such as patient comfort, cleanliness, degree of privacy, providers' knowledge, training, experience, adherence to protocols and attitude, can enhance or limit the use of PAC services. If the above provider and patient factors are improved, the intermediate outcomes are: effective diagnosis and treatment of post-abortal patients, greater symptom relief, better utilization of services and enhanced awareness and confidence for both the provider and patient. In the long-term there is improved quality of life, reduction in morbidity and mortality, and an overall decreased loss to productivity.

Socio-demographic Factors	**Reproductive Factors**
Age	Parity
Sex	Gestation
Education	Previous abortion
Occupation	Timing of pregnancy
Religion	Family planning

Process Behaviours	**Immediate outcomes**	**Intermediate outcomes**	**Long-term outcomes**
Communication behaviours Information giving Counselling Facilitating patient input	*Patients* Satisfaction Comprehension/recall Agreement on problems and recommendation and treatment procedures	Compliance Utilization Competence Confidence	Symptom resolution Physiological status Functional status Quality of life Societal costs Morbidity Mortality
Proficiency behaviours Meeting clinical criteria Providing appropriate diagnosis and treatment Adhering to recommended protocols (IPAS/MTRH) Provider training, knowledge, experience and attitude	*Providers* Successful procedure Satisfaction		

Theoretical framework for evaluating post abortal care at MTRH. Adapted from Negri et al

Figure 2: Theoretical framework for evaluating post-abortal at care at MTRH. Adapted from (Negri et al., 1997).

CHAPTER 3: STUDY JUSTIFICATION, RESEARCH QUESTION AND OBJECTIVES

This chapter will outline the justification of the study, research question and study objectives.

3.1 Justification of the study

In order to significantly reduce maternal mortality, exemplified in Millennium Development Goal (MDG) number five, women should have access to quality services, especially in the management of post-abortal complications. Adherence to clinical protocols, emergency management and establishing services in outpatient areas to decrease waiting time, are some of the interventions that have significantly reduced the number of complications related to abortion. Linking women to counseling and family planning services to prevent unintended pregnancies can also significantly reduce further morbidity and mortality.

There is also very little literature on PAC service provision in health facilities in Kenya, yet complications of induced and unsafe abortion are major contributors to maternal mortality. It is thus necessary to assess whether women who suffer from post-abortal complications are being treated and counseled appropriately. In a Ugandan study, it was reported that only 46% of health units were able to handle complications of abortion and some of the problems cited were: inadequate infrastructure, inadequate skills and insufficient equipment and supplies in most health facilities (Mbonye, 2000).

In 2010, MTRH developed a protocol for the management of patients with abortion and abortion-related complications (MTRH RH Protocol No: 27, Appendix 11). This was done after a review of both the Kenya National Post-Abortion Care Curriculum (A MOH manual developed in collaboration with IPAS and the WHO in 2003) and the WHO "Safe Abortion: Technical and Policy Guidance for Health Systems" publication. The protocol was developed taking into consideration availability of local resources (i.e. equipment and technical expertise). It is with

this background that the study seeks to assess whether post-abortal patients at MTRH, are receiving care in line with IPAS' essential elements.

Assessing post-abortal care will help generate vital information on the quality of care that patients with abortion complications receive, and will better inform the practice of post-abortal care (PAC) through evidence based medicine. Finally, this assessment will also form a basis for further research in this area of interest.

3.2 Research question

3.2.1 Main research question

To what extent do the services patients receive after an abortion in MTRH adhere to IPAS' four essential elements of post-abortal care: counseling, emergency treatment, contraception/FP services and linkage to other reproductive health services?

3.3 Objectives

3.3.1 Broad objective

To assess whether post-abortal patients in Moi Teaching and Referral Hospital (MTRH) are receiving post abortal care (PAC) in line with IPAS' four essential elements: counseling, emergency treatment, contraception/FP services and linkage to other reproductive health services.

3.3.2 Specific objectives

1. To determine the incidence of abortion at MTRH.
2. To determine the socio- demographic and reproductive characteristics of women seeking PAC services at MTRH.

3. To assess the post abortal care services received by patients after an abortion at MTRH in line with the four essential elements of PAC: counseling, treatment, contraception/family planning services and linkage to other reproductive health services.

4. To assess provider and patient attitudes towards the quality of post-abortal care services at MTRH.

CHAPTER 4: METHODOLOGY

This chapter describes how the study was carried out. It gives a description of the study design adopted, the study site, sampling procedure, data collection and statistical analysis performed. The chapter also elaborates on some of study limitation and ethical consideration.

4.1 Study design

The study design adopted was a cross-sectional descriptive study. This study design was used so as to enable a comparison of many different variables at a single point in time.

A hospital-based abortion incidence ratio was independently and separately calculated using information from MTRH records department.

4.2 Study site

The study was carried out in the gynecology inpatient ward of MTRH in Eldoret, Kenya. MTRH is the second national referral hospital in Kenya and is located in the rural setting of Western Kenya. The hospital is located in Eldoret Municipality of Uasin Gishu County, which is about 320 km Northwest of Nairobi (Kenya's capital city). It serves the entire population of Western Kenya by virtue of it being a referral hospital and has a catchment population of over seven million people (Kenya National Bureau of Statistics (KNBS) and ICF Macro, 2010).

During the study period, the Reproductive Health department at MTRH had 17 obstetrician-gynecologists, 14 registrars, two registered clinical officers and 100 nurses. The department had one gynecological ward (Faraja) and a separate Riley Mother and Baby Hospital with a capacity of 150 beds.

Faraja Ward had three patient bays, each of which contained 8 to 10 patient beds, with occasional sharing of beds. At any one particular time, there were at least 30-40 patients admitted per day, with bed occupancy of 90-110%. Up to 75 patients were admitted each month

with a diagnosis of abortion and on average 50 MVA were conducted per month (MTRH Records, 2014).

4.3 Study population

The study population was all women who were admitted to gynecological ward (Faraja) of MTRH with a diagnosis of abortion. The target population was patients who were treated for complications of abortion and discharged. The study population also included health care providers who attended to these patients.

4.4 Inclusion and exclusion criteria

Inclusion criteria were:

i) Post-abortal patients aged 15 - 49 years.

NB: Assent was sought from patients less than 18 years and these patients were only included if the guardian was also present to give consent.

ii) Health care providers directly involved in the management of the patients.

An exclusion criterion was:

i) Patients managed for PAC in other facilities and referred to MTRH for specialized care.

4.5 Sample size determination

To get a representative sample size for patients in order to assess PAC services, Fishers *et al*, 1998 formula for calculation of a single proportion was used as shown below:

n = z²pq/d²

Where:

n = the desired sample size

z = the level of significance that corresponds to 95% confidence interval = (1.96)

p = 0.29 the abortion ratio in Kenya in 2002 (Guttmacher Insitute, 2012a)

$q = (1 - p) = 0.71$

d = the margin of error/ precision or Alpha = significance level (5% = 0.05)

$n = \dfrac{1.96^2 \text{x } 0.29 \text{x} 0.71}{(0.05)^2} = 316$

According to the hospital records, there were 40 health care providers who were directly attending to post-abortal patients at Faraja Ward during the study period. This constituted registrars doctors, medical officer interns, clinical officers and nurses.

In order to get a representative sample and ensure internal validity twenty (20) healthcare providers were purposively selected and interviewed, this represented 50% of the total number of providers.

4.6 Sampling

Consecutive sampling was used to select the patients while purposive sampling was used to select the providers. Records that contained all the admitted patients, their diagnosis and discharge status were obtained from the ward nurse in-charge. The patients were then identified and eligible participants approached by the principal investigator or one of the three research assistants. The purpose and nature of the study was then explained to the participants before informed written consent was sought. The patient selection process was carried out consecutively until the desired sample size was reached.

Providers were purposely selected to ensure that only those who directly attended to the patients during the study period were interviewed. During the shift or immediately after, providers who had attended (performed the MVA/D&C, gave medication or provided counselling) to the sampled patients were approached. Eligible providers were explained the

nature of study before informed written consent was sought. The selection was carried out until the provider sample size was achieved.

4.7 Data collection

Data was collected between January 2014 and April 2014. Three research assistants with a diploma in clinical medicine (clinical officer's) were employed, trained and certified on data collection. Together with the principal investigator they undertook data collection.

Data was collected using a standardized pre-tested interviewer administered questionnaire (See Appendix 7). Subsequent review of patient records was done to corroborate data collected from the questionnaire (e.g. medications provided and any other information that may not have been obtained from the patient). The study also involved administration of a pre-tested self administered questionnaire to the healthcare providers (See Appendix 8).

4.8 Study variables

Data collected from the patients included: socio-demographic and reproductive characteristics. Information was then subsequently collected based on the four elements of IPAS. For emergency treatment data collected included: main complaint at admission, duration before receiving definitive treatment, type of uterine evacuation done, prophylactic antibiotic/s and procedural analgesia given.

For counseling, study variables included: information given to patients about their medical condition, treatment options and follow-up care. For contraceptive /family planning use, study variables included: contraception offered and we related this to the desired inter-pregnancy interval to see whether directed family planning was being offered.

Linkage to other reproductive health services included giving information about STI/HIV, cervical cancer screening and gender based violence. Patients finally had a client satisfaction survey to gauge their satisfaction with post-abortal services.

Data collected from the providers included: demographic data, professional level of training, PAC training and work experience. The application and implementation of the four essential post abortal care elements was also assessed in order to validate patient's responses. Providers were finally asked about their knowledge and opinions on PAC.

4.9 Data management and statistical analysis

The abortion incidence ratio was estimated separately using data from the records department at MTRH, whereby the numerator was obtained from the number of patients who were admitted with a diagnosis of abortion within the study period and the denominator was the total number of live births within the same period.

Data quality was maintained by ensuring data checks on entry and by having independent data entries into a database, which were compared for inconsistencies. Exploratory data analysis involved checking the data for outliers, errors and implausible relationships using graphics and box plots.

Statistical analysis was performed using STATA Version 12. We performed descriptive analysis for 316 patients and 20 provider samples and obtained frequency distributions. The chi-squared test was used to carry out bivariate analysis between patients' socio-demographic and reproductive characteristics. Multivariate logistic regression was used to examine socio-demographic and reproductive determinants of two separate outcomes namely "having a previous abortion" and "adoption of a family planning method". P-values were reported at 95% significance level.

4.10 Study limitations

Information bias may have occurred since respondents were still in hospital while being interviewed and may not have wanted to paint their providers in bad light. However, the participants were assured that the research will in no way affect their further treatment, discharge and/or follow-up.

Recall bias may also have occurred as patients were being asked to recall their management while in the hospital. This however, may have been to a small extent as patients were being interviewed soon after discharge.

4.11 Ethical considerations

Approval to conduct this study was provided by Institutional Research and Ethics Committee (IREC) of Moi University and Moi Teaching and Referral Hospital (Appendix 1). A letter of permission was also obtained from MTRH's hospital administration (Appendix 3). All participants provided informed written consent before being enrolled into the study. Confidentiality of information was maintained by conducting interviews in private counseling rooms, storing filled data collection forms in a lockable cabinet and pass-wording the database. The researcher declared no conflict of interest for this study.

CHAPTER 5: RESULTS

This chapter outlines findings of both patient and provider samples during the recruitment period of January to April 2014. It is divided into four sections as per study objectives. These are: hospital based abortion ratio, patients' socio-demographics and reproductive characteristics, and PAC services that patients received. It also further illustrates the results of chi squared tests and logistic regression that was performed on patients' socio-demographic and reproductive characteristics. The chapter finally details providers' characteristics and their perceptions on post-abortal care.

5.1 Hospital-based abortion incidence ratio

A total of 358 women were admitted to Faraja Ward with a diagnosis of abortion during the four months study period. The number of live births at the Riley Mother Baby Hospital of MTRH during the same study period was 3,757.Table 3 below shows the number of abortions versus the number of live births during the study period.

Table 3: Number of abortions versus live births at MTRH from January – April 2014

MONTH	NUMBER OF ABORTIONS	NUMBER OF LIVE BIRTHS
January	79	915
February	102	861
March	99	999
April	78	982
TOTAL	**358**	**3,757**

The live birth data was obtained from the records department at MTRH. The hospital-based abortion incidence ratio was subsequently calculated as shown below.

Abortion incidence ratio = <u>Total number of abortions within the study period X 100</u>
Total number of live births within the study period

= <u>358 X 100</u>
3,757

= **9.5 per 100 live births**

5.2 Socio-demographic characteristics of patients

A total of 316 patients were interviewed to assess PAC. The mean age was 27 years (SD 6.4). The majority of the respondents were aged 20-35 years (82%) and were married (62%), with teenagers representing a small proportion of 8.5%. Most of the respondents had achieved secondary level of education (45%), followed by those who had tertiary level education (33%). The most common occupation was trader (28%). As for religion, most respondents were Christians, with Protestants accounting for 60% and Catholics 33%. The majority of the respondents paid for post-abortal services out of pocket (79%), with a minority of clients utilizing health insurance (20%). The socio-demographic characteristics are summarized in Table 4 below.

Table 4: Socio-demographic characteristics of women admitted for post-abortal care at MTRH

Variable	Total (n= 316)	Percent (%)
Age		
14-19 years	27	8.5%
20-35 years	259	82%
36-49 years	30	9.5%
Marital status		
Single	82	26%
Married	196	62%
Separated/divorced/widowed	38	12%
Patient's education level		
None	8	2.5%
Primary	62	20%
Secondary	142	45%
Tertiary	104	33%

Variable	Total (n= 316)	Percent (%)
Spouse's education level		
None	9	2.9%
Primary	35	11%
Secondary	111	35%
Tertiary	79	25%
n/a (didn't have a spouse)	82	26%
Patient's occupation		
Unemployed	63	20%
Trader	88	28%
Public servant	30	9.5%
Farmer	57	18%
Other e.g. student, casual laborer	78	25%
Spouse's occupation		
Unemployed	6	1.9%
Trader	88	28%
Public service	42	13%
Farmer	63	20%
Other e.g. student, casual laborer	35	11%
n/a (didn't have a spouse)	82	26%
Religion		
Catholic	104	33%
Protestant	205	64.8%
Traditional	3	0.9%
Muslim	4	1.3%
Source of funding for treatment		
Self	250	79%
Insurance	63	20%
Other (Relatives, Waiver)	3	0.9%
Was the money immediately available		
Yes	212	67%
No	104	33%

5.3 Reproductive characteristics of patients

Most respondents sought post-abortal care at or before 12 weeks of gestation (53%), but this was difficult to determine, as a significant proportion (30%) of the respondents were unsure of their dates. It was also noted that 25% of women who had sought post-abortal care had at least one prior abortion (18% having had one and 5.7% having had two or more prior abortions). Most of the pregnancies were planned (63%), however, for those pregnancies that were unintended, a significant proportion were unwanted pregnancies (29%) as opposed to mistimed pregnancies

(8.5%). Most women had between two and five prior pregnancies (53%). Table 5 shows the reproductive characteristics of women in our study.

Table 5: Reproductive characteristics of women admitted for post-abortal care at MTRH

Variable	Total (n= 316)	Percent (%)
Gestational age (by LMNP)		
< 12 weeks	167	53%
>=12 weeks	54	17%
Unsure of dates	95	30%
Previous abortion		
Yes	79	25%
No	237	75%
Number of previous abortions		
0	240	76%
1	58	18%
2-4	18	5.7%
Type of pregnancy		
Planned	198	63%
Mistimed	27	8.5%
Unwanted	91	29%
Number of previous pregnancies		
0	127	40%
2-5	167	53%
>6	22	7.0%

5.4 Post- abortal care services

5.4.1 Emergency treatment

Most of the respondents came to hospital because of per vaginal bleeding (76%), lower abdominal pain (19%) and dizziness (4%) as shown in Figure 3 below. The study also determined that the average duration patients had symptoms prior to seeking treatment was two days (SD=1.2, range 1-10 days). The average waiting time reported by patients from admission to casualty and receiving definitive treatment (uterine evacuation) was 2.6 hours (SD=1.28, range 20 minutes-10 hours). The average time taken, as reported by patients from admission to Faraja ward to receiving definitive treatment (uterine evacuation) was 1.6 hrs (SD= 1.63, range 0 min – 14 hours).

Complaints reported by patients seeking post abortal care at MTRH
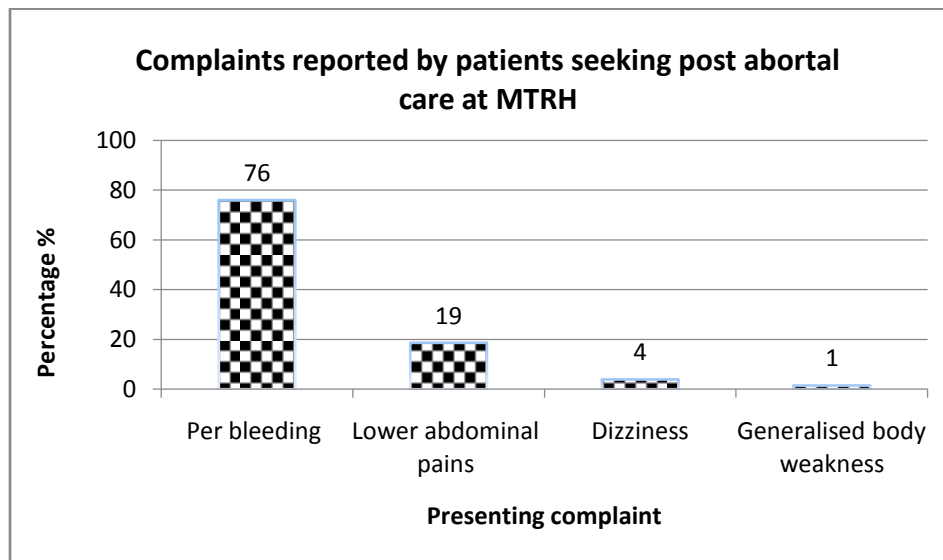
Figure 3: Post-abortal complaints at MTRH

Ninety four percent of patients who were admitted had surgical uterine evacuation, whereas six percent (n = 18) did not require evacuation either because of a threatened abortion or complete abortion. Of those that received surgical evacuation, 89% had an MVA and 11% had D&C. None of the patients had medical evacuation shown in Figure 4.

Mode of uterine evacuation received by post abortal patients at MTRH
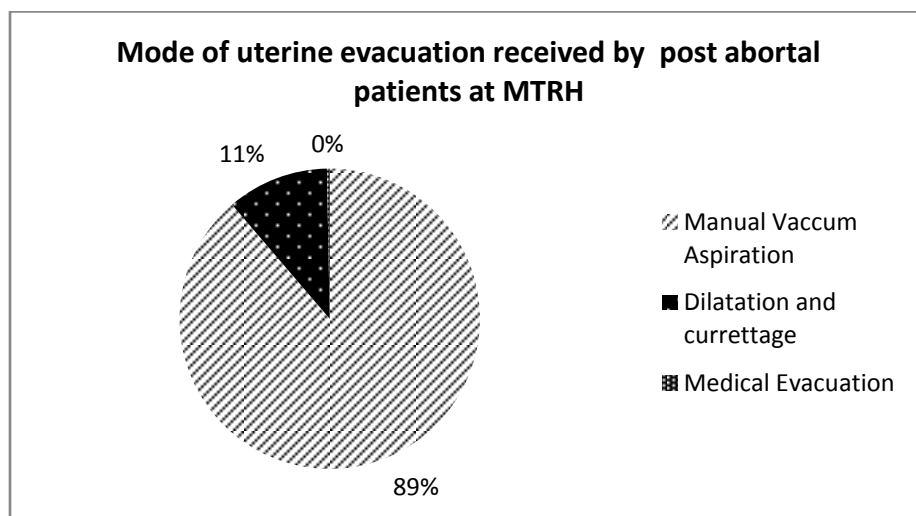
Figure 4: Mode of uterine evacuation received by post abortal patients at MTRH

The most common prophylactic antibiotics given to post-abortal patients were metronidazole (50.3%) and ceftriaxone (43.3%). For some of the respondents, more than one antibiotic was given. The proportion of patients on either ceftriaxone or metronidazole was 94%. Other antibiotics given included: doxycycline, clindamycin and azithromycin. Figure 5 shows antibiotics given to the patients.

Figure 5: Antibiotics given to post-abortal patients at MTRH

For procedural pain management during surgical evacuation - MVA, most patients received diclofenac (69%), while 21% of patients received pethidine. A small proportion was given brufen (6%) as shown in Figure 6 below. None of these medications were given in combination.

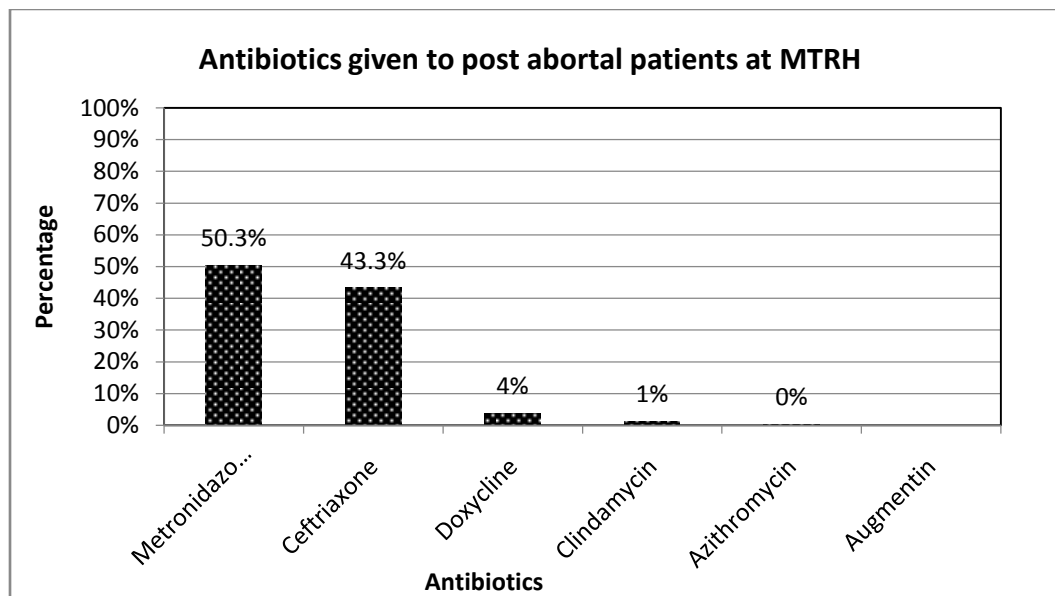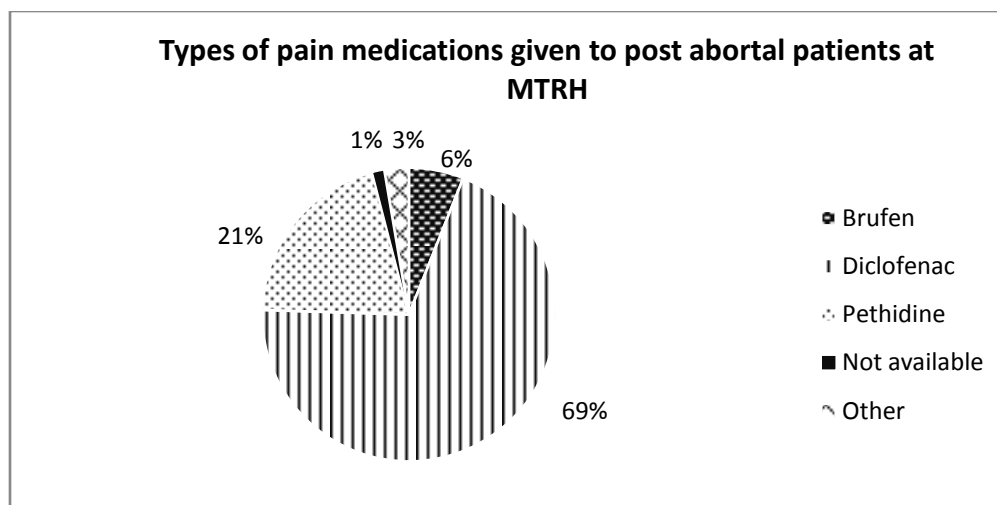**Figure 6: Pain medications given to post-abortal patients at MTRH**

Majority (74%) of the patients reported that the MVA procedure was either "extremely painful" (15%) or "very painful" (59%). This was closely followed by those who reported it as being "moderately painful" (19%) This is shown in Table 6 below.

Table 6: Patients' perception of pain during MVA

Patients' perception of pain during MVA	Total n= 316	Percent (%)
Somewhat painful	6	1.9%
Moderately painful	16	5.1%
Painful	60	19%
Very painful	187	59%
Extremely painful	47	15%

5.4.2 Patient's counseling on fertility and contraceptives offered

Patients' counseling on fertility and desired inter- pregnancy intervals are shown in Table 7. Thirty four percent of the women who sought post-abortal care at MTRH intended to have their next pregnancy in the next 2-5 years. Despite most patients still desiring another pregnancy

(92%), most respondents did not know when they will ovulate (72%) or when they will resume

fertility (77%).

Table 7: Patients counseling on fertility and desired inter-pregnancy interval

Variable	Total (n= 316)	Percent (%)
When do you intend to have next pregnancy		
Within 6 months	15	4.7%
6 months-1 year	63	20%
1-2 years	54	17%
2-5 years	110	34%
>5 years	47	15%
Does not want any more children	27	8.5%
Knowledge of next ovulation		
Yes	88	28%
No	228	72%
Knowledge of when you resume fertility		
Yes	73	23%
No	243	77%
Have you adopted any family planning methods?		
Yes	295	93%
No	21	6.6%
Have you ever gotten pregnant while on FP		
Yes	24	7.6%
No	292	92%
Which method of FP did you get pregnant while using (n=24)		
Oral contraceptive	11	46%
Depo	11	46%
IUCD/coil	1	4.2%
Condom	1	4.2%

The contraceptives that were offered to post-abortal patients at MTRH are shown in

Figure 7 below. The most common contraceptive option offered was pills (56%), followed by

barrier methods/condoms (50%) and IUCD/coil (34%). The majority of respondents (93%) who

were offered contraception ended up adopting a method. Some of the reasons mentioned for not

adopting any contraceptive method were spouse refusal and cultural restrictions.
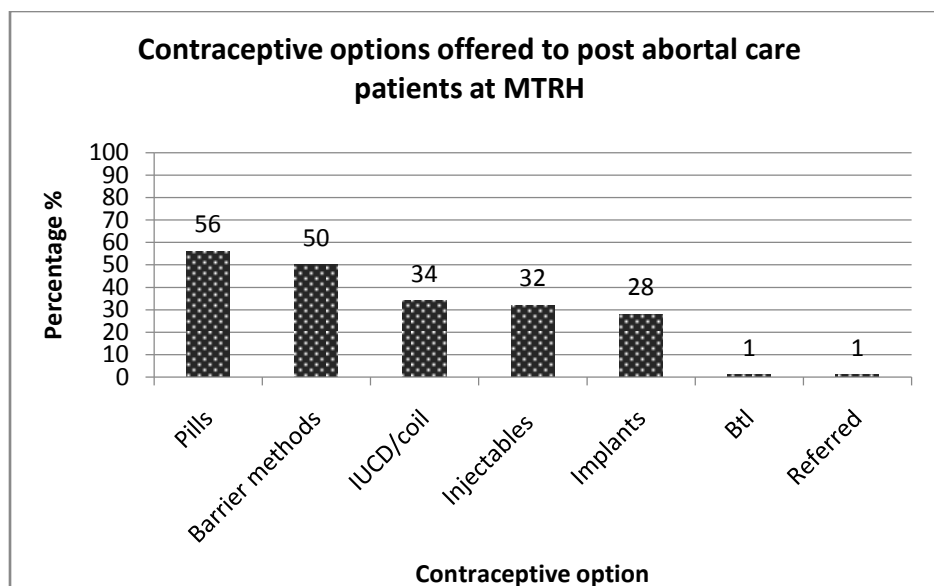
Figure 7: Contraceptive options offered to post-abortal women at MTRH

5.4.3 Counseling on post-abortal care

A large proportion of patients were given information about diagnosis (98%), and 97% of the respondents reported that they understood the information given. A similar proportion also knew where to seek care should complications arise and where to get follow-up care. This is shown in Table 8 below.

Table 8: Counseling on post-abortal care

Variable	Total n=316	Percent (%)
Patient informed of medical condition		
Yes	309	98%
No	7	2.2%
Patient understood information given		
Yes	307	97%
No	9	2.9%
Patient given follow up information		
Yes	310	98%
No	6	1.9%
Patient knows where to seek care should complications arise		
Yes	309	98%
No	7	2.2%

5.4.4 Linkage to other reproductive health services

Sixty seven percent (n = 212) of respondents were informed about other reproductive services of STI/HIV, cancer of the cervix, and gender based violence. A majority (76%) of the women who were admitted reported to have been counseled and tested for HIV. Of those that were tested, 5% reported to be sero-reactive, whereas 54% were not at liberty to discuss their status.

5.5 Patients' opinion and satisfaction with post abortal care

Most patients were satisfied with PAC services and a majority rating the hospital's post-abortal services as either good (42%) or very good (32%). A large proportion (99%) also thought that privacy and confidentiality was maintained. Table 9 shows client satisfaction with various aspects of PAC service provision.

Table 9: Patient opinions and satisfaction with PAC care at MTRH

Patient thought privacy and confidentiality was maintained		
Yes	313	99%
No	3	1%
Patient satisfied with PAC services		
Yes	314	99%
No	2	0.6%
How would you rate PAC services at MTRH		
Very Poor	0	0%
Poor	11	3.5%
Average	72	23%
Good	132	42%
Very good	101	32%

Further bivariate analysis was performed using the chi-squared test to examine the relationship between socio-demographic and reproductive characteristics of patients admitted for post-abortal care. The variables that had a significant relationship were: "marital status" and

"previous abortion" (p<0.001, x^2=16.9 (2df)), "patients education" and "patients occupation" (p<0.0001, x^2=140.9 (8df)), "patients religion" and whether they "adopted a contraceptive method" (p<0.001), "patients occupation" and whether they "adopted contraceptive method" (p=0.011, x^2=13.1(4df). These results are shown in Table 10 below.

Table 10: Bivariate analysis showing selected socio-demographic and reproductive associations

Bivariate analysis of Religion verses Adoption of Family Planning				
	Adoption of Family Planning			
Religion	**Yes**	**No**	**Total**	**P value**
Catholic	107 (36)	1 (5)	108 (34)	P < 0.001
Protestant	174 (58)	13 (65)	187 (59)	
Traditional	3 (1)	1 (5)	4 (1.3)	
Muslim	4 (1)	0 (0)	4 (1.3)	
Other	8 (3.0)	5 (25)	13 (4.2)	
Bivariate analysis of Marital status verses Previous abortion				
	Previous Abortion			
Marital status	**No**	**Yes**	**Total**	**P value**
Single	80 (34)	11 (12)	91 (29)	P < 0.001
Married	141 (60)	58 (72)	199 (63)	
Separated	14 (6.0)	12 (16)	26 (8.6)	
Bivariate analysis of Adoption of Family Planning verses Occupation				
	Occupation			
Adoption of Family Planning	**Yes**	**No**	**Total**	**P value**
Unemployed	53(18)	11 (50)	64(20)	P = 0.011
Trader	81(28)	4(20)	85 (27)	
Public servant	29 (10)	0(0)	29 (9)	
Farmer	56 (19)	2 (10)	58 (18)	
Other	76 (26)	4 (20)	80 (25)	

Factors that were significant on bivariate association were then put in a multivariate logistic regression to further establish the relationship. Logistic regression on determinants of having a previous abortion is as shown in Table 11. Patients who reported to have had an unplanned pregnancy (OR=0.4, 95% CI: 0.2-0.8, P= 0.07) had lesser odds of having a previous abortion when compared to those who had a planned pregnancy. Other variables were not significant in this model.

Table 11: Determinants of having a previous abortion among women seeking PAC services at MTRH from Jan-April 2014

Logistic regression model				
Predictor	**n**	**%**	**Odds Ratio (95% CI)**	**P value**
Patients age				
15-19 years	27	8.5	1.3(0.4-4.4)	0.707
20-34 years	259	82	1	
35-49 years	30	9.5	1.7(0.7-4.0)	0.231
Marital status				
Married	193	61	1	
Single	123	39	0.9(0.4-2.0)	0.841
Education				
Pre-secondary	212	67	1	
Post-secondary	104	33	0.9(0.4-1.8)	0.682
Employment				
Employed	174	55	1	
Unemployed	142	45	1.2(0.6-2.3)	0.657
Religion				
Protestant	190	60	1	
Catholic	104	33	1.0(0.5-1.9)	0.926
Other (Muslim, Adventists, traditional)	22	7.0	2.6(0.9-7.7)	0.084
Type of pregnancy				
Planned	198	63	1	
Unplanned	118	37	0.4(0.2-0.8)	**0.007***
Adopted a family planning method				
Yes	295	93	1	
No	21	6.7	1.8(0.6-5.7)	0.325
Reference category for logistic regression represented by 1 *Statistically significant with p value< 0.05				

Table 12 shows factors associated with adopting a family planning method. There was higher odds of adopting a family planning method for other religions (OR= 6.2, 95% CI: 1.5-26.1, p value=0.013) when compared to protestants. Patients who were unemployed had higher odds of adopting a family planning method relative to those who were employed (OR=4.2, 95% CI: 1.1-15.6, p value =0.030). Other variables were not significant in this model.

Table 12: Determinants of adopting a family planning method among women seeking PAC services at MTRH from Jan-April 2014

Logistic regression model				
Predictor	n	%	Odds Ratio(95% CI)	P value
Patients age				
15-19 years	27	8.5	1.4(0.1-16.6)	0.784
20-34 years	259	82	1	
35-49 years	30	9.5	1.4(0.1-14.2)	0.773
Marital status				
Married	193	61	1	
Single	123	39	0.7(0.1-5.0)	0.733
Education				
Pre-secondary	212	67	1	
Post-secondary	104	33	0.1(0.1-1.0)	0.054
Employment				
Employed	174	55	1	
Unemployed	142	45	4.2(1.1-15.6)	**0.030***
Religion				
Protestant	190	60	1	
Catholic	104	33	0.2(0.0-1.7)	0.142
Other (Muslim, Adventists, traditional)	22	7.0	6.2(1.5-26.1)	**0.013***
Type of pregnancy				
Planned	198	63	1	
Unplanned	118	37	1.3(0.3-6.1)	0.710
Mothers next intended pregnancy				
Less than 2 years	132	42	1	
2-5 years	110	34	0.6(0.1-3.0)	0.520
Above 5 years	74	24	0.4(0.1-3.1)	0.377
Reference category for logistic regression represented by 1 *Statistically significant with p value< 0.05				

5.6 Providers' knowledge attitude and training on PAC

A total of 20 providers were interviewed. The mean age of providers was 30 years (range 22-47, SD=6.2). There were equal proportions of male and female providers (each 50%). Most providers were nurses (35%), with the average number of years of post-abortal service being 31 months (range 1 month-84months, SD=24.8 months).

The majority of providers (80%) reported that the equipment used for PAC was disinfected by high level disinfectant (HDL). Sixty five percent of providers reported that PAC equipments were always available.

The majority of providers (80%) reported rarely providing counseling and family planning information to patients, with pills (62%) being the most common contraceptive offered. Counseling on danger signs (60%) after surgical evacuation was the most offered advice to patients. Providers also reported that they rarely (35%) gave advice on resumption of ovulation/ fertility to patients.

Providers reported that the mean waiting time (from admission to Faraja ward to receiving definitive treatment (uterine evacuation) to be 1.6 hours (range 20 minutes – 8 hours, SD 2.3). Providers also reported hemorrhage (80%) and sepsis (70%) were the most common complications for PAC patients.

Providers reported having being trained on the MVA procedure (60%), infection prevention (16%) and counseling (11%). They were also familiar with uterine evacuation methods of MVA (100%) and D&C (45%), with only a small proportion being familiar with medical evacuation (20%). According to providers, diclofenac (80%) was the most common pain medication given, whereas tetanus, hepatitis B and anti-D injections were rarely given to PAC patients.

Forty percent of the providers were satisfied with PAC services at MTRH. The proportion of providers who reported to have knowledge on Kenyan abortion laws were 60% while 70% reported to know about IPAS. Ninety five percent were familiar with MTRH protocols on abortion. These results are shown in Table 13 below.

Table 13: Providers characteristics and perceptions on PAC

Variable	Total (n= 20)	Percent (%)
Providers' Marital status		
Single	7	35%
Married	13	65%
Providers' Gender		
Male	10	50%

Variable	Total (n= 20)	Percent (%)
Female	10	50%
Providers' Level of training		
Registrar	4	20%
Medical Officer Intern	4	20%
Nurse/Midwife	7	35%
Clinical Officer	5	25%
Providers' religion		
Protestant	12	60%
Catholic	6	30%
Muslim	2	10%
How often did you provide counseling and family planning advice to PAC patients?		
Frequently	3	15%
Rarely	16	80%
Never	1	5%
What family planning options did you give them?		
Pills	11	62%
Injectables	4	22%
Implants	2	11%
Barrier methods	1	6%
Which pain medications are routinely used for post-abortal analgesia?		
Brufen	2	10%
Diclofenac	16	80%
Pethidine	2	10%
On a scale of 0-5 how satisfied are you with post-abortal services at MTRH?		
0	0	0%
1	1	5%
2	1	5%
3	7	35%
4	3	15%
5	8	40%
Are you familiar with current abortion laws in Kenya?		
Yes	12	60%
No	8	40%
Are you familiar with IPAS guidelines for PAC?		
Yes	14	70%
No	6	30%
Are you familiar with MTRH protocols on PAC management		
Yes	19	95%
No	1	5%

CHAPTER 6: DISCUSSION

This chapter will discussion key aspects highlighted in the chapter for results and compare our study with other studies and/or available literature as per objectives. It is divided into 5 sections namely: hospital based abortion ratio, patient socio-demographic and reproductive characteristics, post-abortal care using IPAS criteria and perception and attitudes of patients and providers on post abortal care.

6.1 Hospital-based incidence ratio

From the 358 patients who were admitted with a diagnosis of abortion during the four-month study period, an abortion ratio of 9.5 per 100 live births was calculated and was found to be lower than regional and global estimates. Worldwide in 2008, 32 abortions occurred for every 100 live births. The abortion ratio was noted to be highest in Eastern Europe (93 per 100 live births) and lowest in Africa, where sub-regional ratios ranged from 16 in Western Africa to 21 in Eastern Africa (Guttmacher Insitute, 2012a). It was also noted that the abortion ratio in developing countries was much lower than that in developed countries (31 vs. 44), due to higher fertility and birth rates in the developing countries (Guttmacher Insitute, 2012b).

The larger, more modern and well equipped Riley Mother and Baby Hospital (RMBH) of MTRH, is one of its kind in sub-Saharan Africa and therefore, has significantly larger numbers of deliveries by virtue of it being a regional referral center and having more specialized care. This contributed to a disproportionately higher denominator compared to the smaller gynecological (Faraja) Ward, which is not as modern and offers almost similar services to those offered by other near-by and community health institutions. Another possible explanation for the low incidence would be the fact that this was a single hospital-based study and may not represent

the entire Kenyan population with a current abortion ratio of 30 per 100 live births from population based studies (Grimes et al., 2006; Guttmacher Insitute, 2012a).

6.2 Socio-demographic characteristics

From our study, most of the respondents were aged 20-35 years with the mean age being 27 years, which compares well to other studies that have shown similar results. Studies done in Myanmar and locally in Kenya showed that abortion occurred mainly among women aged 20-30 years (Ba-Thike, 1997; Ministry of Health, 2013). This age group represents women at highest risk of suffering from an abortion, as they are at their most fertile, usually married or in relationships with sexual activity that would predispose them to getting pregnant and suffering from an abortion.

In this study, teenagers represented a small though significant proportion (n = 26, 8.5%) of the women who suffered from abortion complications, which is contrary to community-based studies that were done in Nigeria, which found teenagers contributing to a majority of abortions cases (Bankole et al., 2008; G Sedgh et al., 2007).The KDHS reports that adolescents are sexually active by age 13-19 years, and that among adolescent girls aged 15-19 years, 44% have had sex. The KDHS also notes that half of all new HIV infections occur among young people aged 15-24 years (Kenya National Bureau of Statistics (KNBS) and ICF Macro, 2010). This information highlights the fact that adolescences are at an increased risk of suffering from abortion and other pregnancy related complications, as well as sexually transmitted diseases. The small proportion of teenagers could be explained by the prevailing early sexual debut and an unmet need of contraception in the age group (Guttmacher Insitute & International Planned Parenthood Federation, 2010).

Most of the respondents in our study had achieved secondary level of education (45%). It was also notable that most of the patients either worked as traders or were unemployed despite the high level of education achieved, that could also be explained by the high prevailing levels of youth unemployment (lack of formal employment) in the country (United Nations Development Program, 2013). This finding concurs with our studies. Studies done by the Ministry of Health in Kenya, (Ministry of Health, 2013) and other middle and lower income countries like Singapore (Lim et al., 2012), and Vietnam (Nguyen et al., 2007) showed that majority of the respondents had achieved secondary level education.

Since most of the respondents were unemployed or lacked formal employment, most didn't have medical/health insurance, leading to most of them having to make hospital payments out of pocket. Analysis using the Chi-squared test revealed a significant relationship between adoption of family planning and patients' employment (p=0.011). Findings from the logistic regression indicated that patients who were unemployed had four time higher odds of adopting a family planning method relative to those who were employed (p=0.03). This may indicate that educated women who are unemployed would, easily take up family planning as they do not have sufficient funds to cater for addition pregnancies and children.

From our findings, most respondents were Christians, which is similar to another study done in Kenya and could be attributed to the fact that the proportion of Christians in this region is higher than other regions (Kenya Human Rights Commission and Reproductive Health Rights Alliance, 2010; Ministry of Health, 2013). A study in Africa showed that acceptability of contraceptive use is related to ones' faith, and that the differences were mostly between Christians and other religions (Yeatman & Trinitapoli, 2008). Our results showed other religions (Muslims, and traditional) had six times higher odds of adopting a family planning method when

compared to protestants. Catholics had lesser odds of adopting a family planning method even though this was not statistically significant (p=0.054).

6.3 Reproductive characteristics

Our study noted that, most of the respondents (53%) sought post-abortal care at or before 12 weeks gestation. This concurs with other studies in Singapore and the USA (Guttmacher Insitute, 2014; Lim et al., 2012; Ministry of Health, 2013). The William's Textbook of Gynecology states that more than 80% of spontaneous abortions occur in the first 12 weeks of pregnancy and that most of these abortions are because of genetic and chromosomal anomalies (Hoffman et al., 2008). A study done by the Ministry of Health in 2013 on incidence and complications of unsafe abortion, found that 59% of women who had abortion complications presented to hospital at or before 12 weeks of gestation (Ministry of Health, 2013). A concerning finding in our study, however, was that almost a third of the women who came for post-abortal care were uncertain of their dates and hence gestational age, which could partly be explained by delayed recognition of pregnancy, barriers to access and limited financial resources (Purcell et al., 2014).

From the study we carried out, 25% of women who sought post-abortal care had a prior abortion (18% had one prior abortion and 5.7% had two or more prior abortions). These women with repeat abortions represent a large proportion of women who are at increased and repeated risk of morbidity and mortality. A multi-centre study by Ankomah and his colleagues on unsafe abortions in Nairobi, Lima and Manilla found that 26% of the respondents had a previous abortion (Ankomah, Aloo-Obunga, Chu, & Manlagnit, 1997).

Our study also showed that, a third of all post-abortal pregnancies were unintended (i.e. unwanted or mistimed). Patients who reported to have had an unplanned pregnancy had 60%

lesser odds of having a previous abortion when compared to those who had a planned pregnancy (p = 0.07), which might imply that once a woman has an abortion they are likely to plan or desire their next pregnancy. These patients with a previous abortion and a hence repeat "current" abortions are women at highest risk of suffering severe morbidity and even mortality due to repeat exposure to abortion complications Many women with unplanned or unwanted pregnancies resort to clandestine unsafe abortion as a means for terminating the pregnancy, which puts them at risk of severe morbidity and even mortality. It is for this reason that IPAS' framework for providing quality post- abortal care included contraceptive and family planning services as an essential element (IPAS, 1991).

Provision of appropriate contraceptives that match the woman's desired inter-pregnancy interval would go a long way in reducing the number of unintended pregnancies and hence unsafe abortions. Additionally, this will ultimately lead to reduced hospital expenditure and improve the quality of life of women and their families. Reports have further shown that 45% of married women and 37% of unmarried women are not using contraceptives in Africa, which represents a high unmet need for contraception (Benson, Nicholson, Gaffucin, & Kinoti, 1996; Moreau, Trussell, Desfreres, & Bajos, 2010; Tripney et al., 2011). Post-abortal care services provide an opportunity to improve contraceptive uptake among this population.

6.4 Post-abortal care using IPAS criteria

Our study showed that the average number of days women waited at home prior to seeking care was two days, with some women staying at home for up to 10 days prior to seeking care. This compares favorably to a study in South Africa where 52% of women reported waiting for up to seven days before seeking care (Dickson-Tetteh & Billings, 2002). Timing is an important aspect when it comes to post-abortal care. According to the three delays model, the

time taken from when a patient notices a problem to when they receive definitive treatment is important in averting morbidities and mortality associated with abortion (Thaddeus & Maine, 1994).

The average waiting time from admission to casualty and receiving definitive treatment (uterine evacuation) in the gynecological ward was 2.6 hours according to the patients. After admission to Faraja Ward, patients waited an average of 1.6 hrs before receiving definitive treatment, which is similar to the duration reported by the providers. Studies done in Mozambique (Gallo et al., 2004) and South Africa (Dickson-Tetteh & Billings, 2002) found the average waiting time from arrival to treatment to be five hours, which was longer than the time at MTRH. The shorter waiting time is commendable for MTRH, but efforts should be made to further shorten patient waiting time as this has been shown to reduce the risk of complications worsening, ameliorate pain and also reduces costs (Benson et al., 1996).

All the patients that were admitted to the gynecological ward of MTRH and required uterine evacuation received a surgical mode of evacuation (i.e. MVA (89%), D&C (11%)). A systematic review of evidence reported that surgical evacuation is the most common method used for abortions before 12 weeks gestation (Kapp et al., 2013). In a study in South Africa, 85% of the patients received MVA, 11% EVA and none received D&C (Dickson-Tetteh & Billings, 2002). It was also noted that none of the patients in our study received medical uterine evacuation. Research has suggested that medical abortion/evacuation offers an alternative to those who wish to avoid surgery or anaesthesia and should be routinely available to women (Hamoda & Templeton, 2010).

The exclusive adoption of a surgical method of uterine evacuation by providers is probably because most patients come to hospital having had excessive bleeding, hence not good

candidates for medical abortion. Another possible explanation would be that both providers and patients are unaware of the appropriate use of medical uterine evacuation as has been reported in our findings. The potential risk for complications (e.g. incomplete evacuation, infection, excessive bleeding and frequent follow up) may also be limiting the use of medical abortion.

From our findings, all the patients received prophylactic antibiotics, with most patients receiving ceftriaxone and/or metronidazole (94%), while doxycycline was only given to 3.7% of the patients. Prophylactic antibiotics and pain medication should be given to post-abortal patients to reduce chances of post-abortal infection and suppress pain (Kapp et al., 2013). The prophylactic antibiotic recommended for use at the time of the procedure according to IPAS guidelines is doxycycline. IPAS and MTRH also recommend the use of a combination of ceftriaxone and doxycycline only for septic abortions (IPAS, 2015). The administration of these antibiotics was thus found to be inappropriate and wasteful.

For procedural pain management during surgical evacuation (MVA), most patients received diclofenac (69%) or pethidine (21%). Both of these drugs were given as individual medications and not in combination. According IPAS, patients should receive both pethidine and diclofenac. The combination of an opiod (pethidine) and NSAID (diclofenac) has been shown to be more effective pain control for post-abortal patients (Kruse, Poppema, Creinin, & Paul, 2000). An option of having a para-cervical block, the recommended analgesia for MVA surgical evacuation, was also not given to any of the patients in our study. Pain was evaluated using a validated numerical pain rating scale, that has been shown to be the most accurate/responsive (Ferreira-Valente, Pais-Ribeiro, & Jensen, 2011). This numerical pain rating scale was further adapted to fit into a "Likert symptom severity scale" (Clinuvel Blog, 2010; Trochim, 2010). Pain management for post-abortal patients resulted in most patients describing the MVA procedure as

being either "extremely painful" or "very painful" and was found to be inadequate and against IPAS and international recommendations.

Contrary to IPAS recommendations, providers reported that they rarely gave tetanus, hepatitis B and anti-D vaccines and injections. Most of these are necessary for infection control especially for patients who attempted to procure an abortion using instruments or in unhygienic conditions. In a report by Guttmacher Institute, a significant number of post-abortal patients in Kenya reported to have used instrumentation due to lack of funds and stigma related to unintended pregnancy (Guttmacher Insitute, 2012a). It is understandable however, that it may be difficult to identify or even provide proof of patients who have had instrumentation because of stigmatization, and thus the use of these prophylactic vaccines and drugs should always be kept in mind.

From our study, the majority of respondents were offered pills (56%), barrier methods (50%) and IUCD/Coils (34%). These contraceptives offered were inappropriate as they were the least effective for the desired inter-pregnancy interval of 2-5 yrs (35%). Most of these contraceptives that were, offered were for short-term fertility control whilst most women intended to have a more long-term control of fertility. Advice on resumption of ovulation/ fertility needed to enable planning of subsequent pregnancies and to decide on a mode of contraception was rarely given. Provision of appropriate contraceptives, that match the woman's desired inter-pregnancy interval, would go a long way in reducing the number of unintended pregnancies. Family planning is one of the key elements in the provision of quality post-abortal care service. IPAS recommends that effective family planning and contraceptive counseling should permeate every component of this service (IPAS, 1991).

It was also noteworthy and encouraging that most mothers who were offered a contraceptive method ended up adopting one. Had they been offered an appropriate and more effective method such as, Jadelle, a long term reversible contraceptive, this would have probably gone a long way in reducing the incidence of unintended pregnancies and repeat abortions (Grimes et al., 2006).

From our study it was noted that most patients received information about their medical condition, treatment plan and follow–up care. The participants were also counseled on family planning and with this knowledge they were better able to prevent future unintended pregnancies and even unsafe abortions. The aim of counseling as an essential element is to support the woman emotionally, and ensure women receive information about their medical condition, treatment plan and follow-up care (IPAS, 1991). According to a study done in Nigeria on the impact of post-abortal counseling, the use of counseling was advocated for as a tool for increasing contraceptive usage among women and influencing behavioral changes positively (OB Fasuba & Ojo, 2004).

A significant proportion of patients reported to have received information on other reproductive health services including: STI/HIV counseling, cervical cancer screening and gender based violence. The International Conference on Population and Development 1994 plan of action gave women the right of access to appropriate health-care services that will enable women to go safely through pregnancy and childbirth, and provide couples with the best chances of having a healthy infant. Providing access to education and counseling on other reproductive health services is thus essential in ensuring the women are empowered to more comprehensively benefit from these services.

6.5 Perceptions and attitudes of patients' and providers' on post-abortion care

This study sought to specifically assess the providers and patients attitude towards post abortal care services. The study found out that most respondents identified that privacy and confidentiality were maintained during the MVA procedure. Despite this being in agreement with other studies, it does not exclude information bias. In a study performed in Mozambique by Gallo and his colleagues, it was found that a large proportion of women were satisfied with PAC services with very few complaints (Gallo et al., 2004). It was shown that privacy and confidentiality were maintained while changing their clothes (81%), giving their medical history (81%), being examined (90%), and undergoing treatment (89%) (Evens et al., 2014; Gallo et al., 2004).

Satisfaction with post abortal services was assessed using a combination two modalities, i.e. a "yes, no" answer and the use of Likert scales which is more reliable. A huge proportion of women also reported that they were satisfied with post-abortal care services at MTRH and that they understood information given to them about their condition. However, providers were mostly unsatisfied (40%) with PAC services at MTRH, likely because they are more aware of what is needed to provide comprehensive post-abortal services

Patients' and providers' perceptions and opinions regarding post-abortal care are important in determining the utilization of these services especially in health facilities. These perceptions are not only reflected in the services patients receive, but also in their understanding of the information being provided to them upon receiving treatment. Provision of post-abortal services is known to be influenced by several factors including: the environment in which it is given, infrastructure and availability of equipment, the providers' proficiency and attitude, and patients' knowledge and perceptions.

Most providers reported to have been trained on the MVA procedure, infection prevention and counseling of PAC patients. Additionally, providers reported to have knowledge on abortion laws, were familiar with MTRH protocols on abortion and IPAS recommendations. Providers' knowledge on post –abortal care was noted to be comparable to a study done on awareness and practice of post abortion care services among health care professionals in south-eastern Nigeria. Providers' training on PAC was found to be necessary in aiding the provision of quality care for women seeking PAC services (Adinma, Ikeako, Adinma, Ezeama, & Ugboaja, 2010).

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1 Conclusions

The incidence ratio of abortion in MTRH is low compared to other regions. Abortion in MTRH occurred mostly among young women who had achieved secondary level of education.

Per-vaginal bleeding and lower abdominal pain were the most common complaints for PAC clients. Most abortions occurred in the first trimester (before 12 weeks gestation); with a number of those who had sought post-abortal care having had prior abortions and unintended pregnancies.

Most patients did not receive comprehensive IPAS recommended PAC, with patients receiving some but not all of the IPAS elements. There was appropriate use of MVA as the main mode of uterine evacuation. Prophylactic antibiotics given to post-abortal patients were found to be inappropriate and wasteful, and the use of procedural analgesia was inadequate, leading to painful evacuation. None of the patients received medical evacuation and advice on resumption of fertility was rarely given. Most of the contraceptives offered were found to be the least effective methods for the desired inter-pregnancy interval.

Some of the providers were not trained on provision of PAC but overall patient and provider satisfaction with post-abortal services at MTRH was good. The provision of timely, adequate and comprehensive PAC services according to IPAS recommendations should be adhered to as it will encourage utilization of services by patients and eventually reduce maternal morbidity and mortality.

7.2 Recommendations

- Health care providers involved in PAC should ensure the use of appropriate prophylactic antibiotics and adequate procedural analgesia as recommended by both IPAS.

- Advice on resumption of fertility and/or ovulation should be offered routinely by health care providers to patients.

- Appropriate and comprehensive post-abortal contraceptive counseling should be offered to all patients, and should prioritize the most effective methods to achieve the desired inter-pregnancy interval.

- Providers should be sensitized to ensure that every patient receives adequate PAC in line with IPAS elements.

- Quality checks should be performed to ensure adherence to IPAS recommendations for post-abortal care.

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APPENDICES

Appendix 1: IREC approval

INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)

MOI TEACHING AND REFERRAL HOSPITAL
P.O. BOX 3
ELDORET
Tel: 33471//2/3

MOI UNIVERSITY
SCHOOL OF MEDICINE
P.O. BOX 4606
ELDORET
Tel: 33471/2/3

22nd March, 2013

Reference: IREC/2013/05
Approval Number: 000965

Dr. Wycliffe Kosgei,
Moi University,
School of Medicine,
P.O. Box 4606-30100,
ELDORET-KENYA.

Dear Dr. Kosgei,

RE: FORMAL APPROVAL

The Institutional Research and Ethics Committee have reviewed your research proposal titled:-

"Evaluation of Post-Abortal Care Service Delivery at Moi Teaching and Referral Hospital, Eldoret, Kenya."

Your proposal has been granted a Formal Approval Number: **FAN: IREC 000965** on 22nd March, 2013. You are therefore permitted to begin your investigations.

Note that this approval is for 1 year; it will thus expire on 21st March, 2014. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date.

You are required to submit progress report(s) regularly as dictated by your proposal. Furthermore, you must notify the Committee of any proposal change (s) or amendment (s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. The Committee expects to receive a final report at the end of the study.
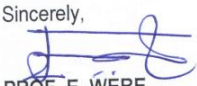
Sincerely,

26/03/2013

DR. W. ARUASA
VICE-CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

cc: Director   -   MTRH
       Principal   -   CHS
       Dean   -   SOM
       Dean   -   SPH
       Dean   -   SOD
       Dean   -   SON

Appendix 2: IREC amendment

INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)

MOI TEACHING AND REFERRAL HOSPITAL
P.O. BOX 3
ELDORET
Tel: 33471//2/3

MOI UNIVERSITY
SCHOOL OF MEDICINE
P.O. BOX 4606
ELDORET
Tel: 33471/2/3 Reference
19th August, 2014

IREC/2013/05
Approval Number: 000965

Dr. Wycliffe Kosgei,
Moi University,
School of Medicine,
P.O. Box 4606-30100,
ELDORET-KENYA.

INSTITUTIONAL RESEARCH &
ETHICS COMMITTEE

1 9 AUG 2014

APPROVED
P. O. Box 4606-30100 ELDORET

Dear Dr. Kosgei,

RE: APPROVAL OF AMENDMENT

The Institutional Research and Ethics Committee has reviewed the amendment made to your proposal titled:-

"Assessment of Post-Abortal Care using IPAS' Four Essential Elements at Moi Teaching and Referral Hospital, Eldoret, Kenya".

We note that you are seeking to make amendments as follows:-

1. To change the title as above from: *"Evaluation of Post-Abortal Care Service Delivery at Moi Teaching and Referral Hospital, Eldoret, Kenya".*
2. Broad Objective: To evaluate the management of post-abortal cases in Moi Teaching and Referral Hospital using the four IPAS' essential elements i.e. counseling, emergency treatment, contraceptive/FP services on linkage to other reproductive health services.
3. Specific objectives: To determine the incidence ratio of abortion at MTRH.
4. To determine the socio-demographic and reproductive characteristics of women seeking PAC services at MTRH.
5. To assess the level of adherence of MTRH to IPAS' four essential elements of PAC i.e. counseling, treatment, family planning and linkage to other reproductive health services.
6. To assess providers and patient attitudes towards quality of post abortal care services at MTRH.

The amendments have been approved on 19th August, 2014 according to SOP's of IREC. You are therefore permitted to continue with your research.

You are required to submit progress(s) regularly as dictated by your proposal. Furthermore, you must notify the Committee of any proposal change(s) or amendment(s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. The Committee expects to receive a final report at the end of the study.

Sincerely,

PROF. E. WERE
CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

cc: Director   -   MTRH   Dean   -   SPH   Dean   -   SOM
       Principal-   CHS   Dean   -   SOD   Dean   -   SON

Appendix 3: Approval letter from MTRH to conduct the study

MOI TEACHING AND REFERRAL HOSPITAL

Telephone: 2033471/2/3/4
Fax: 61749
Email: director@mtrh.or.ke
Ref: ELD/MTRH/R.6/VOL.II/2008

P. O. Box 3
ELDORET

22nd March, 2013

Dr. Wycliffe Kosgei.,
Moi University,
School of Medicine,
P.O. Box 4606-30100,
ELDORET-KENYA.

RE: APPROVAL TO CONDUCT RESEARCH AT MTRH

Upon obtaining approval from the Institutional Research and Ethics Committee (IREC) to conduct your research proposal titled:-

"Evaluation of Post-Abortal Care Services Delivery at Moi Teaching and Referral Hospital, Eldoret, Kenya."

You are hereby permitted to commence your investigation at Moi Teaching and Referral Hospital.

DR. J. KIBOSIA
DIRECTOR
MOI TEACHING AND REFERRAL HOSPITAL

CC   -   Deputy Director (CS)

-    Chief Nurse

-    HOD, HRISM

Appendix 4: Patients' consent form – English

Assessment of post-abortal care at Moi Teaching and Referral Hospital, Eldoret, Kenya.

You must read this greeting to the respondent and proceed with the interview only after she gives informed written consent.

Good morning/afternoon, Madam. My name is ………………………. (Research assistant's name) I am here today from Moi University, Eldoret to collect information and data for a study to assess post-abortal care at MTRH. The Institutional Research and Ethics Committee (IREC) of Moi University and the Hospital Management have approved this research.

I will be asking you questions on socio-demographic information, reproductive characteristics, and your management while in the hospital and your opinion on various aspects of post abortal care. I will also check your medical files to get further information about your care while in the hospital. I plan to interview 316 women over a period of four months. All information you provide will remain confidential.

Benefits
This is a research project and the hospital and government's policy makers will use these findings to design appropriate policies and plans to improve post-abortal care. Your participation will help us to gain a better understanding of the issues related to post-abortal care services.

Risks
I am aware of the fact that some of the questions regarding abortion care services may be sensitive and time consuming. Everything you will tell me will be kept confidential. Under no circumstance will we link your name to the data during analysis and/or dissemination of the study findings. **If you choose not to participate, it will not affect your treatment schedule nor alter medical services due to you. It will also not affect your relationship with your health care provider. If you feel uncomfortable in the course of the research, you can withdraw at any time.** If you agree to participate, it will take 15 minutes to complete the interview. If you have any further questions during the period and in the future, please do not hesitate to contact the research team using the telephone numbers below.

May we proceed? Verbal consent: Yes……………No…………………..
                                                    Signature…………………………………..
Date………………………….

Thank you for participating.
Contacts for the research team led by Wycliffe Kosgei of Moi University as shown by contacts below;
MOI UNIVERSITY, ELDORET P.O BOX 4606 -0100 Eldoret, Kenya
Phone; 0723 758638**, E- Mail address**; wycliffe.kosgei@gmail.com

Appendix 5: Patients' consent form - Kiswahili

KIAMBATISHO VI: FOMU YA IDHINI KWA KUSHIRIKI UTAFITI
Utafiti ya huduma za matibabu ya kuoshwa kwa nyumba ya uzazi baada ya mimba kutoka katika hospitali ya rifaa ya Moi ,MTRH, Eldoret Kenya.

Fomu hii shartiisomewe kwa mhojiwa kabla ya mahojiano, na mahojiano yataendelea tu ikiwa atatoa idhini yake.

Habari za asubuhi / mchana,
Jambo ? Jina langu ni………………………. (Jina la mtafiti).Mimi niko hapa leo kutoka Chuo Kikuu cha Moi, Eldoret kukusanya habari na takwimu kwa ajili ya utafiti juu ya huduma ya kusoshwa kwa nyumba ya uzazi baada ya mimba kutoka. Utafiti huu umepitishwa na Taasisi ya Utafiti wa Maadili (IREC) cha Chuo Kikuu cha Moi.
Mimi nitakuuliza maswali juu ya jamii, maswala ya uzazi, huduma uliopata kwenye hospitali na maoni yako kuhusu huduma ya kuoshwa mimba. Nitachunguza pia recordi yako ya matibabu hapa hospitalini ili kupata ufafanizi zaidi kuhusu huduma iliopata. Taarifa zote utakazotoa zitawekwa siri.

Faida za kushiriki
Mradi huu wa utafiti unaweza tumiwa na watunga sera wa hospitali na hata serikali ili kubuni sera na mipango ya kutoa huduma ya afya bora kwa siku zijazo. Kushiriki kwako itatusaidia kupata ujuzi bora kuhusu masuala yanayoathiri matumizi ya huduma hii ya kusafiswa na afya ya wakina mama kwa ujumla.

Athari za kushiriki
Ninafahamu kwamba baadhi ya maswala haya ya utafiti yanaweza kuwa ya kisiri na huchukua muda kujibu. Hata hivyo, hakuna uwezekano wowote kwamba tutauhusisha jina lako na takwimu zozote wakati wa uchambuzi na usambazaji wa matokeo ya utafiti. **Ikiwa utachagua kutoshiriki kwenye utafiti huu, hautaathirika kwa njia yoyote ile. Pia unaweza kujiondoa kwa wakati wowote ikiwa utajisikia kutoshiriki.** Kama utakubali kushiriki, itakuchukua muda wa dakika 15 kukamilisha mahojiano. Kama una maswali yoyote zaidi wakati wa kipindi na katika siku zijazo, tafadhali usisite kuwasiliana na timu ya utafiti kwa kutumia namba ya simu hapa chini.
Je, tunaweza kuendelea?:   Ndiyo .... Hapana ....
Tarehe ....Sahihi..

Asante kwa ajili ya kushiriki.

Ukiwa na swali lolote waenza kuwasilian nasi kwa awani zilizoandinkwa hapa chini

MOI UNIVERSITY, ELDORET. S.L.P 4606 -0100 Eldoret, Kenya.
Mawasiliano ya timu ya utafiti, Simu: 0723758638 Barua pepe: wycliffe.kosgei@gmail.com

Appendix 6: Providers' consent form

Assessment of post-abortal care at Moi Teaching and Referral Hospital, Eldoret, Kenya.

You must read this greeting to the respondent and proceed with the interview only after he/she gives informed written consent.
Good morning/afternoon, Madam. My name is ………………………. (Research assistant's name) I am here today from Moi University, Eldoret to collect information and data for a study to assess post-abortal care at MTRH. The Institutional Research and Ethics Committee (IREC) of Moi University and the Hospital Management have approved this research.

I will be asking you questions on socio-demographic data, abortion training, PAC work experience, and their knowledge and opinions on PAC. All information you provide will remain confidential.

Benefits
This is a research project and the hospital and government's policy makers will use these findings to design appropriate policies and plans to improve post-abortal care. Your participation will help us to gain a better understanding of the issues related to post-abortal care services.

Risks
I am aware of the fact that some of the questions regarding abortion care services may be sensitive and time consuming. Everything you will tell me will be kept confidential. Under no circumstance will we link your name to the data during analysis and/or dissemination of the study findings. You are free to choose whether or not to participate. If you agree to participate, it will take 15 minutes to complete the interview. If you have any further questions during the period and in the future, please do not hesitate to contact the research team using the telephone numbers below.

May we proceed? Verbal consent: Yes……………No…………………..

Signature…………………………………..

Date **…**………………………………..

Thank you for participating.

Contacts for the research team led by Wycliffe Kosgei of Moi University as shown by contacts below;

MOI UNIVERSITY, ELDORET P.O BOX 4606 -0100 Eldoret, Kenya

Phone; 0723 758638**, E- Mail address**; wycliffe.kosgei@gmail.com

Appendix 7: Data collection form- patients' questionnaire
<u>QUESTIONNAIRE NO:_____</u>

SECTION A : SOCIO – DEMOGRAPHIC DATA	SECTION B: REPRODUCTIVE DATA
IP Number: _____ Date of Birth: ____/____/_____	LMNP _____/_____/_____ ☐ Unsure of dates
Marital status ☐ Never married ☐ Divorced ☐ Married ☐ Widowed ☐ Separated	Gestational age(GBD) _____ weeks
	Have you had a previous pregnancy loss before 28 weeks (Abortion)? ☐ Yes ☐ No
County _____	If yes how many loses have you had? ☐1 ☐2 ☐3 ☐4 ☐5 ☐ More than 5
Residence ☐ Rural ☐ Urban	Parity : _____ ₊ _____
Level of Education (Mother) ☐ None ☐ Tertiary/ College ☐ Primary ☐ University ☐ Secondary	Was this a planned pregnancy? ☐Yes ☐No
Level of Education (Spouse) ☐ None ☐ Tertiary/ College ☐ Primary ☐ University ☐ Secondary	If No, Was it Mistimed or Unwanted ☐Mistimed ☐Unwanted
	ACCESSING TREATMENT
	What was your main complaint at admission? _____
Occupation (Mother) ☐ Unemployed ☐ Public servant ☐ Trader ☐ Farmer ☐ Other_____	How long did you have these complaints before coming to hospital? _____
Occupation (Spouse) ☐ Unemployed ☐ Public servant ☐ Trader ☐ Farmer ☐ Other_____	What time did you get to the hospital – Casualty (estimate)? _____
Religion ☐ Christian – Catholic ☐ Traditional ☐ Christian – Protestant ☐ Muslim ☐ Other_____	What time did you get to the gynecological ward (estimate)? _____
Source of funding for treatment ☐Self ☐ Insurance ☐ Other_____	What time did you receive treatment to empty your uterus (estimate) _____
If Yes, Was this money immediately available to you? ☐Yes ☐No	Were you asked to pay for any emergency service prior to receiving it? ☐Yes ☐No

COUSELLING	EMERGENCY TREATMENT
Did you receive information about your diagnosis /medical condition ☐Yes ☐No	Date of Admission: _____ Time of Admission: _____am/pm (tick correct time) Date of Discharge: _____
Where you given the different management/treatment options available to you (Surgical and medical)? ☐Yes ☐No	Did you have any U/sound or pregnancy test done before the pregnancy loss ☐Yes ☐No
If Yes, which options were given to you? ☐ D & C (Dilatation and Curettage) ☐ MVA (Manual Vacuum Aspiration) ☐ ME (Medical evacuation)	Did you require surgical uterine evacuation (MVA/ D&C)? ☐Yes ☐No
Did you understand the information you received about your condition& management plan, State your diagnosis? ☐Yes ☐No	If yes, were you offered any pain medication for the procedure? ☐Yes ☐No
Where you given any information about follow up care/after care? ☐Yes ☐No	What were you offered? ☐ Oral medication ☐Don't know ☐ IM injection ☐ An injection to the cervix
Do you know where to seek care if you get any complications? ☐Yes ☐No	Confirm from patients file which analgesic was given? ☐Brufen ☐Para-cervical block ☐Diclofenac ☐Not Available ☐Pethidine
Where you counseled and tested for HIV? ☐Yes ☐No	On a scale of Zero to Five (5) how painful was the procedure? (0 = Not Painful, 5= Excruciating pain) ☐ 0☐ 1☐ 2☐ 3 ☐4☐ 5
What were the results? ☐ Reactive ☐Non reactive ☐ Not at liberty to discuss	Were you given any antibiotics before or after the surgical procedure? ☐Yes ☐No
If Yes, which one ☐ STI/ HIV ☐ Infertility ☐ Ca cervix & screening ☐ Gender violence ☐ Adolescent Reproductive Health	Confirm from patients file which antibiotic was given? _____

FAMILY PLANNING	CLIENT SATISFACTION SURVEY
When you want your to have your next baby/pregnancy ☐ Within the next 6 months ☐ Between 6 months and 1 year ☐ Between 1 year and 2 years ☐ Between 2 years and 5 years ☐ More than 5 years ☐ I don't want any more children	Please indicate below which of the following activities your partner/spouse was involved in (Spousal/male involvement)? ☐ Admission ☐ Counseling ☐ Emergency treatment(Surgical/medical evacuation) ☐ Family Planning ☐ Discharge
Do you know when you'll likely ovulate or resume your menses? ☐ Yes ☐ No	During your treatment/management due you think privacy and confidentiality were maintained? ☐ Yes ☐ No
Do you know when you'll resume your fertility? ☐ Yes ☐ No	If No, at what point do you think privacy and confidentiality was not maintained? _____
What family planning options were you offered? ☐ Pills (OCP,POP) ☐ Injectable contraceptive (Depo) ☐ Implants (impalnon /Jadelle) ☐ IUCD/Coil ☐ Barrier methods/ Condoms ☐ Referred to another facility ☐ BTL	Were you satisfied with the post-abortal services you were offered ☐ Yes ☐ No
	On a scale of Zero to Five (5) how rate Post-abortal services at the hospital (0 = Poor, 5= Very Good) ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Did you adopt any of them? ☐ Yes ☐ No	
If No, Why Not _____ _____	

Appendix 8: Data collection form – providers' questionnaire

Study ID	
1. Age _____years / DOB ☐☐ DD ☐☐ MM ☐☐☐☐ YR	12. Does your facility have a systematic process for reviewing abortion related complications? ☐ Yes ☐ No
2. Marital status ☐ Single ☐ Married ☐ Separated ☐ Divorced	13. If Yes, how often is this process used? ☐ Rarely ☐ Frequently
3. Gender ☐ Male ☐ Female	14. In your opinion were post abortion instruments (e.g. Cannulae, Speculae, Tenaculum, and Forceps) sterilized after use? ☐ Yes ☐ No
4. Level of training ☐ Consultant doctor ☐ Registrar ☐ Medical Officer ☐ Nurse/Midwife ☐ Clinical Officer ☐ Student/intern ☐ Other_____	15. How are these post abortion equipment in MTRH sterilized? ☐ High level disinfection ☐ Autoclave ☐ Don't know 16. Are these equipments always available? ☐ Yes ☐ No
5. Number of months/years of experience in abortion service_____	17. How often did you provide counseling and family planning advice to post abortion clients? ☐ Frequently ☐ Rarely ☐ Never
6. What is your religion? ☐ Protestant ☐ Catholic ☐ Muslim ☐ Traditional ☐ SDA ☐ Other_____	18. Which family planning options did you give them? ☐ Pills (OCP,POP) ☐ Injectable contraceptive (Depo) ☐ Implants (impalnon /Jadelle) ☐ IUCD/Coil ☐ Barrier methods/ Condoms ☐ Referred to another facility
7. Have you ever performed an abortion procedure? ☐ Yes ☐ No If No please explain why? _____	19. What did you counsel them about ☐ Danger signs ☐ Resumption of fertility/ ovulation ☐ Other RH services (HIV, Pap smear) ☐ Other (Please state) _____

8. On average how long do you think patients wait in the ward before getting an MVA/ medical attention? _____	20. How often do you give the following: Tetanus Toxiod ☐ Frequently ☐ Rarely ☐ Never 21. How often do you give the following: Hepatitis B vaccine ☐ Frequently ☐ Rarely ☐ Never 22. How often do you give the following: Anti D ☐ Frequently ☐ Rarely ☐ Never
9. What pain medication are routinely used for Post-abortal analgesia ☐ Brufen ☐ Diclofenac ☐ Pethidine ☐ Para-cervical block ☐ Don't know	23. Have you received any in service training at your facility on post abortion care on the following topics? (tick all that apply) ☐ MVA procedures ☐ Aspiration equipment cleaning and maintenance ☐ Infection prevention ☐ Communication to post-abortal patients ☐ PAC contraceptive counseling and referral ☐ Other_____
10. What are the major complications due to abortion at MTRH? ☐ Hemorrhage ☐ Sepsis ☐ Renal failure ☐ Tetanus ☐ Hepatitis ☐ Other_____	24. On a scale of 0-5 how satisfied are you with post-abortal services at MTRH? (0=dissatisfied, 5=very satisfied) ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
11. Which procedures are you familiar with for performing uterine evacuation in post-abortal patients? (tick all that apply) ☐ MVA ☐ Dilation & Curettage ☐ Evacuation & Curettage ☐ Medical Evacuation ☐ Other_____ ☐ None	25. Are you familiar with current abortion laws in Kenya? ☐ Yes ☐ No 26. What does the abortion law state _____
	27. Are you familiar with IPAS guidelines for post-abortal care? ☐ Yes ☐ No
	28. Are you familiar with the MTRH protocol for management of post-abortal care? ☐ Yes ☐ No

Appendix 9: Work plan/ Time frame

Activity	September 2013	October 2013	November 2013	December 2013	January 2014	February 2014	March 2014	April 2014	May 2014	June 2014	July 2014	August 2014	September 2014	October 2014	November 2014	December 2014	January 2015	February 2015
Submit proposal to IREC	■																	
IREC review		■																
Piloting of Questionnaire			■															
Design of data base				■														
Data collection					■	■	■	■										
Data entry and analysis						■	■	■	■	■	■	■						
Report writing							■	■	■	■	■	■	■	■	■	■		
Thesis submission																	■	
Thesis defense																		■

Appendix 10: Budget

No	ITEMS	QUANTITY	COST @ KSH	TOTAL
STATIONERY/EQUIPMENT				
1	Printing papers	5 reams	400	2,000
2	Full scapes	2 reams	250	500
3	Ball pens	1 pkt	500	500
4	Pencils	10	20	200
5	Erasers	5	8	40
6	Note books	6	50	300
7	Pocket files	10	40	400
8	Staplers	2	1,000	2,000
9	Staples	2 pkts	250	500
10	Flash Disks	2	1,500	3,000
RESEARCH PROPOSAL				
11	Photocopying of questionnaires	1500 pages	Ksh 3 per page	4,500
12	Printing of draft proposal	8 copies	450/copy	3,600
13	Printing final proposal	5 copies	450/copy	2,250
14	Spiral Binding Research proposal	5 copies	150/copy	750
	THESIS DEVELOPMENT			
15	Printing of draft thesis	10 copies	1,000/copy	10,000
16	Binding thesis (hard cover)	10 copies	500/ copy	5,000
FIELDWORK				
17	Training of 3 Research assistants	5 days	1,000/day	15,000
18	Wages for 3 Research assistants	100 days	500/day	150,000
COMMUNICATION				
19	Fax, phone, Internet and postage	-	-	20,000
20	Consultancy (statistician)	-	-	25,000
21	Dissemination costs	-	-	20,000
22	Contingency (10%)-meals, overtime/extra hour allowances	-	-	26,550
GRAND TOTAL				**292,090**

Appendix 11: MTRH protocol on post-abortion care

MRTH Department of Reproductive Health
Protocol on PAC

1. **POST-ABORTION CARE**
   Worldwide

- Each year 36-53 million induced abortions are performed, half being unsafe abortions[1]
- Each year more than 350,000 maternal deaths occur, 99% are in developing countries[2]
- Unsafe abortions contribute to 13% of all maternal deaths worldwide[1]
- For every one woman who dies from unsafe abortion, ten women suffer morbidity[1]

   In Kenya

- The maternal mortality rate stands at 488 per 100,000 live births[3]
- Approximately 21,000 women present each year with abortion complications (80% had incomplete abortion and 34% were in the second trimester of pregnancy)[4]
- Complications from unsafe abortions account for 30% of maternal mortalities in Kenya
- Manual vacuum aspiration (MVA) is the most common method used to manage abortion complications and ideally can be done as an outpatient procedure for uncomplicated cases

I. INDICATIONS FOR MVA
- Incomplete abortion up to 16 weeks gestation[5]
- Inevitable abortion up to 12 weeks gestation[6]
- Medically indicated termination of pregnancy up to 12 weeks gestation.
- Delayed postpartum hemorrhage due to retained placenta fragments

II. HISTORY, PHYSICAL EXAMINATION AND INVESTIGATIONS
1. History
- Dating by LMP, symphysis fundal height or ultrasound
- Pregnancy history: Parity, prior losses
- Symptoms: Lower abdominal pain/cramping, PV bleeding and quantity, prior uterine instrumentation
- Family planning history

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[1]Kenya National Post Abortion Care Curriculum. Kenya: Ministry of Health. 2003, pp xii and I-14
[2]MC Hogan et al. 2010. *Lancet.* 375: 1609 – 1623.

[3]Kenya Demographic Health Survey. Nairobi: Kenya National Bureau of Statistics. 2010, p 272.
[4]H Gebreselassie*et al.* 2005.*BJOG.* 112:1229-1236.
[5]Kenya National Post Abortion Care Curriculum. Kenya: Ministry of Health. 2003.
[6]McInerney*et al.*2001.A guide to providing abortion care. Technical Resources for

Abortion Care.Chapel Hill, NC, Ipas.

- Wanted or unwanted pregnancy: Explore circumstances leading to the abortion, including possible unsafe interventions

2. Physical examination

- Vital signs: Temp/HR/BP, comment whether stable or unstable, concern for sepsis
- Abdominal exam: Assess fundal height to estimate gestational age[7]
- Speculum exam: Assess bleeding, presence of foreign objects, products of conception in the vagina, genital tract injuries, and purulent discharge
- Vaginal digital exam: Assess if cervix open or closed, perform bimanual exam to confirm uterine size

3. Investigations as indicated

- Urine pregnancy test (consider serum hCG measurement if molar pregnancy suspected)
- Check Hb (Full haemogram if concerned for sepsis or unsafe abortion)
- Blood group (Full haemogram if concerned for hemorrhage or Rhesus negative)
- Serologies (HIV if not done in casualty)
- Urea electrolytes (UECs) if concerned for renal failure, severe hemorrhage or sepsis

4. Indications for ultrasound

Ultrasound may be required to diagnosis the following conditions in a woman with a positive pregnancy test who presents with PV bleeding and or lower abdominal pains and:

- Uterine size greater than 16 weeks
- Closed cervical os on examination
- Suspected molar pregnancy or ectopic pregnancy
- Consult as appropriate if any of these conditions are present

III. PRE-PROCEDURE PREPARATION

1. Pre-procedure counseling

- Describe procedure including pain management
- Document verbal signed consent in the patient's file[8]
- Introduce the importance of family planning post-procedure. If the patient requests a coil/IUCD, this should be placed immediately post-procedure for uncomplicated MVAs

2. Pre-procedure preparation

- Ensure the MVA room is clean with a new sheet for each patient
- Ensure sterile equipment and gloves are available
- Place a Branula and start IV fluids
- Place two IV lines if concerned for hemorrhage

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[7] Uterus at umbilicus = 20 wks, Uterus half way between umbilicus and pubic symphysis = 16 wks
Uterus at pubic symphysis = 12 wks

[8] Kenya National Post Abortion Care Curriculum. Kenya: Ministry of Health. 2003, p xx.

3. **Antibiotic prophylaxis and treatment**
    - Prophylactic antibiotics: At time of procedure give Doxycycline 200mg PO x1 dose[9]
    - Septic Abortion: One hour prior to procedure give Ceftriaxone 1g IV and doxycycline 100mg PO[9] (See Sepsis Section VIII/2 for ongoing treatment protocol and alternative antibiotics if first line antibiotics are not available.)

4. **Pain management**
    - Reassurance and kindness are vital to ensuring women feel safe and at ease
    - Pethidine 100mg IM 30 minutes prior to procedure (Do not use in renal failure) AND Diclofenac 75mg IM 30 minutes prior to procedure (Do not use in renal failure)[10]
    - Para-cervical block 10 minutes prior to procedure. Instill a total of 10 ml of 2% lignocaine. 2 ml at 12 o'clock prior to tenaculum and then 4 ml at 4 o'clock and 8 o'clock (maximum dose 4.5 mg/kg body weight, 5cc of 2% lignocaine contains 100mg of lignocaine– Do not use in renal failure)[10]
    - Renal failure: Morphine 10mg IM or 10mg PO AND Paracetamol 1000mg PO or 300mg IM or 30 minutes prior to procedure

VI.   MANUAL VACUUM ASPIRATION

1. **MVA Procedure**
   Full steps for this procedure are available in the Kenya National Post Abortion Care Curriculum[11] or the ALARM Manual.[12]

   - Trained health professionals in the performance of MVA including nurses and clinical officers are authorized to complete the procedure
   - Maintain a "No touch technique"[13] and inspect the products of conception

2. **Complications at time of MVA**
   - Cervical laceration
   - Uterine perforation / tears
   - Bladder injury
   - Bowel injury
   - Retained products of conception leading to delayed post-partum hemorrhage or endometritis

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[9]Centers for Disease Control and Prevention. Sexually Transmitted Diseases Treatment Guidelines, 2010.MMWR 2010; 59(No. RR-12):64-67.
[10]JC López*et al.* 2007.*Intl J Gynecol Obstet.* 99:91–94.
[11]Kenya National Post Abortion Care Curriculum. Kenya: Ministry of Health. 2003.
[12]ALARM Manual 4th edition. Ottawa: Society of Obstetricians and Gynecologists of Canada. 2007.

[13] The tip of the MVA cannula should not touch anything outside of the cervix and uterus.

VII.   POST-PROCEDURE REQUIREMENTS

1. MVA room tidying instructions
- Empty products of conception into hazardous waste bin
- Discard sharps into sharps bin
- Place all waste soiled with blood into hazardous waste bin (e.g. gloves, cotton, gauze)
- Place remaining waste into regular bin (e.g. glove wrappers, Branula wrappers)
- Placed used equipment into sterilization bins as per protocol
- Notify nurse and housekeeping staff when procedure is completed

2. Documentation of procedure
- Record procedure in MVA register after every procedure
- Document a procedure note in the patient file after every procedure
- Document the condition of the instruments in the comment section of the MVA register and bring to the attention of the nurse-in-charge.

3. Anti-D for Rhesus negative women
- Anti-D 300mg IM x1 STAT prior to discharge
- Counsel women about future pregnancies and importance of delivery in hospital

VIII.   COMPLICATIONS OF SPONTANEOUS AND UNSAFE ABORTION

In the event of complications after unsafe abortion, the medical officer, registrar or consultant should be informed of the patient's history and condition immediately.

1. Hemorrhage
- Two large bore IVs
- IV fluid resuscitation preferably with normal saline, lactated ringers, Hartmann's or Hemacel
- Blood group and obtain two units of blood, full haemogram and UECs
- Place Foley catheter in the bladder and monitor input and output
- Evaluate patient for causes of hemorrhage including retained products of conception, cervical laceration and uterine perforation

2. Sepsis
Broad spectrum antibiotics are required to cover vaginal flora (gram positives, gram negatives and atypicals).IV antibiotics should be started one hour prior to MVA and then should be continued for 48 hours or until the patient is afebrile for 24 hours

- First line: Ceftriaxone 1g IV daily AND doxycyline 100mg PO twice daily(Centers for Disease Control and Prevention, 2010)
- Second line: Ampicillin / sulbactam (augmentin) 3g IV four times daily and doxycyline 100mg PO twice daily(Centers for Disease Control and Prevention, 2010)
- Third line: Fluoroquinolone (cipro/levo/norflo) and Flagyl 500mg IV twice daily

- Once the course of IV antibiotics has been completed, continue the patient on oral antibiotics
– Doxycylcline 100mg twice daily for a total of 14 days
- IV fluid hydration: Four (4) litres of IV fluids in 24-hours, alternate normal saline or lactated ringers or Hartmann's with 5% Dextrose
- Place Foley catheter and monitor ins and outs

3. Renal failure
- Urea, electrolytes and creatinine (UECs)
- Foley catheter and monitor ins and outs
- Renal consult if oliguric, anuric or requiring dialysis

4. Tetanus and Hepatitis B and C
- Metal instruments are often placed in the uterus during an unsafe abortion putting the woman at risk of tetanus and Hepatitis B and C
- Immunize against tetanus if the woman has not been vaccinated in the past ten years
- Check Hepatitis B and C status and advise on immunization for Hepatitis B

VIII. DISCHARGE PLANNING

If stable, uncomplicated MVAs can be discharged home the same day, 2-4 hours after MVA. Discharge planning for MVAs complicated by hemorrhage, sepsis or renal failure should be appropriate for the complication. (Society of Obstetricians and Gynaecologists of Canada, 2007).

1. Family planning counseling
- Directed family planning e.g. when would you like to have your next child?
– Within a year: Combined oral contraceptive pill or Depo-Provera
– One to two years: Depo-Provera or Implant (eg. Jadelle, Implanon)
– Five years or more: Coil or IUCD
– No desire for future pregnancies: Bilateral tubal ligation or vasectomy
- Condoms to prevent sexually transmitted infections including HIV and pregnancy
- At time of procedure IUCD/Depo/Implant can be placed.

2. Discharge plan
- Prescriptions for pain control
– Diclofenac 50mg PO thrice daily (Do not use in renal failure) OR
– Brufen 400mg PO four times daily (Do not use in renal failure) OR
– Paracetamol 1000mg PO four times daily
- Counseling regarding danger signs (e.g. fever, foul smelling vaginal discharge, heavy vaginal bleeding)
- Complete the discharge summary immediately after the MVA for uncomplicated cases
  If uncomplicated, post-abortion check-up is advised at nearest health facility in 1 week