

REPUBLIC OF KENYA



MINISTRY OF HEALTH

Incidence and Complications of Unsafe Abortion in Kenya

Key Findings of a National Study

August 2013



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Acknowledgements

The study was led by the African Population and Health Research Center (APHRC) and the Ministry of Health with technical assistance from Ipas and the Guttmacher Institute. Other partners on the study were the Division of Reproductive Health, Kenya Obstetrical and Gynecological Society (KOGS), Kisumu Medical and Education Trust (K-MET), Kenya Medical Association (KMA), Kenyatta National Hospital (KNH) and the Population Studies and Research Institute (PSRI), University of Nairobi.

The study team is also indebted to the researchers who independently reviewed this report, fieldworkers who supported data collection as well as staff from partner institutions who provided critical logistical and other forms of support. The study partners gratefully acknowledge funding from the Consortium for Research on Unsafe Abortion in Africa and its principal donor, the UK Department for International Development, as well as the Government of the Netherlands.

APHRC also acknowledges support from the STEP UP (Strengthening Evidence for Programming on Unintended Pregnancy) Research Programme Consortium, funded by UK aid from the UK Government (Grant SR1109D-6). Core support provided to APHRC by the Rockefeller Foundation, Sida and the William and Flora Hewlett Foundation was also critical in assisting APHRC staff to develop the study and contribute to this report.

Collaborating Institutions

- Ministry of Health, Kenya
- Kenyatta National Hospital
- Kenya Obstetrical and Gynecological Society
- Kenya Medical Association
- Population Studies and Research Institute, University of Nairobi



UNIVERSITY OF NAIROBI



Study Team Members

African Population and Health Research Center

Chimaraoke Izugbara

Elizabeth Kimani

Michael Mutua

Shukri Mohamed

Abdhalah Ziraba

Caroline Egesa

Ipas

Hailemichael Gebreselassie

Brooke A. Levandowski

Guttmacher Institute

Susheela Singh

Akinrinola Bankole

Ann M. Moore

Report Citation:

Incidence and Complications of Unsafe Abortion in Kenya: Key Findings of a National Study (Nairobi, Kenya: African Population and Health Research Center, Ministry of Health, Kenya, Ipas, and Guttmacher Institute 2013).



Foreword

The World Health Organization (WHO) defines unsafe abortion as a procedure for terminating pregnancy, carried out either by persons lacking the necessary skills or in an environment that does not conform to minimal medical standards, or both. *The Incidence and Complications of Unsafe Abortion in Kenya report provides a picture of the diversity of women in Kenya who undergo unsafe abortion as well as some of the consequences of the procedure on the health and wellbeing of women.*

Although unsafe abortion in Kenya has long been recognized as a leading cause of deaths and injuries to women - deaths and injuries that are preventable - there is limited scientific information available on the women who seek unsafe abortion, the magnitude of the problem of unsafe abortion in our society and the severity of complications that arise from unsafe abortion. This illuminating report answers those questions.

The study, conducted by the African Population and Health Research Center in collaboration with the Ministry of Health and other partners, addresses not only the numbers of unsafe abortions occurring annually in Kenya, but also the extent of unsafe abortion, the characteristics of women who seek abortion-related care in Kenyan health facilities, and the quality of care available to such women. The study provides timely information on a major, but preventable cause of death and suffering in our society today.

It is clear from the evidence in this report that improving women's access to affordable and effective family planning and/or contraception is key to preventing unintended pregnancy and unsafe abortion. Effective family planning and/or contraception would also save our country the huge material and other resources that currently go into the treatment of unsafe abortion and its associated complications. The report also drives home the importance of training to adequately equip our health providers with the requisite skills and knowledge to provide quality abortion-related care to women.

Taken together, this report is a wake-up call on the reality of unsafe abortion in Kenya and the need to urgently find a lasting solution to this preventable cause of maternal morbidity and mortality.

Dr Francis Kimani

**Director of Medical Services
MINISTRY OF HEALTH**



List of Acronyms

AICM	Abortion Incidence Complications Methodology
DHS	Demographic and Health Survey
D&C	Dilation and Curettage
EVA	Electrical Vacuum Aspiration
FHOK	Family Health Options of Kenya
HFS	Health Facilities Survey
HPS	Health Professional Survey
KDHS	Kenya Demographic and Health Survey
MVA	Manual Vacuum Aspiration
MSI	Marie Stopes International
MA	Medical Abortion
MDG	Millennium Development Goal
PAC	Post-Abortion Care
PMM	Prospective Morbidity Methodology
PMS	Prospective Morbidity Survey
WHO	World Health Organization



Executive Summary

Unsafe abortion is defined by the World Health Organization (WHO) as a procedure for terminating pregnancy, carried out either by persons lacking the necessary skills or in an environment that does not conform to minimal medical standards, or both. Under the 2010 Kenyan constitution, abortion may be granted to a pregnant woman or girl, when in the opinion of a trained health professional, she needs emergency treatment or her life or health is in danger. Nevertheless, unsafe abortion remains a leading cause of maternal morbidity and mortality in Kenya. The treatment of complications of unsafe abortion also consumes significant health systems resources. In this report, we document findings from a recent nationwide study of the incidence of induced abortion and severity of complications of unsafe abortion in Kenya. The study was conducted in 2012 among a nationally-representative sample of Levels II to VI public and private health facilities. The Abortion Incidence Complications Methodology (AICM) and the Prospective Morbidity Methodology (PMM) were used as well-established and complementary approaches to estimate abortion incidence and the severity of unsafe abortion complications in Kenya.

Our analysis indicates that an estimated 464,690 induced abortions occurred in Kenya in 2012, corresponding to an induced abortion rate of 48 abortions per 1000 women of reproductive age (15-49 years), and an induced abortion ratio of 30 abortions per 100 births in 2012. We also estimate that 157,762 women received care for complications of induced and spontaneous abortions in health facilities in the same year. Of these, 119,912 were experiencing complications of induced abortions. Based on patient-specific data, women who sought abortion-related care were socially, demographically and economically heterogeneous. They included educated and uneducated women, urban and rural women, Christians, Muslims, and women of 'other faiths'; students, unemployed and employed women as well as married, never-married and divorced women. Based on the severity classification, about 23% of the women who presented for post-abortion care (PAC) presented with mild complications, 40% with moderately severe and 37% with severe complications (such as high fever, sepsis, shock, or organ failure). Severe complications of unsafe abortions were most common among women aged 10-19 (45%), divorced women (56%), and women who reported to the provider that they had interfered with the continuation of the pregnancy (58%). More than 70% of women seeking post-abortion care were not using a method of contraception prior to becoming pregnant. Similarly the results of the 2008/09 Kenya Demographic and Health Survey found that 43% of births in the preceding five years were reported by women as unwanted or mistimed. Both of these findings illustrate that there are still significant barriers to access and use of effective contraceptive methods in Kenya.

No clinical procedure was performed in 28% of PAC cases. Among women who had a uterine evacuation procedure performed, manual vacuum aspiration (MVA) and electrical vacuum aspiration (EVA) were used to manage 65% of the cases. Digital evacuation, dilation and curettage (D&C) and medical abortion were other common



procedures used to manage PAC cases. A relatively high case-fatality rate was calculated; it is estimated that 266 Kenyan women die per 100,000 unsafe abortions. Compared to other countries in East Africa where similar data have been gathered, Kenya's rates of induced abortion, proportion of abortion complications categorized as severe, and the abortion complication fatality rate remain disproportionately high. There is also evidence that while the use of MVA/EVA and medical abortion is growing in Kenya, other less safe procedures such as D&C and digital evacuation remain widespread, suggesting critical inequities in Kenya in the availability of basic essentials for high quality PAC and safe induced abortion.

The effective implementation of the constitution in Kenya has the potential to promote women's access to safe abortion services and support reductions in complications of unsafe abortion. An urgent need also exists for the training of providers to offer safe services and for the wider implementation of the abortion care-related Standards and Guidelines of the Ministry of Health. In addition, it will be essential that concerted efforts are made to urgently reach women who have unmet contraceptive needs, support women's access to post-abortion contraceptive counseling and methods, and promote access to quality abortion-related care within the limits of the Kenyan law and the constitution.



Background

Unsafe abortion is defined by the WHO as a procedure for terminating pregnancy, carried out either by persons lacking the necessary skills or in an environment that does not conform to minimal medical standards, or both [1]. Worldwide, unsafe abortion persists as a serious and continuing public health challenge [1, 2] It accounts for 13% of global maternal deaths and remains the principal cause of a range of short-and long-term health complications in women [3]. Currently, about 8.5 million women globally suffer from complications of unsafe abortion annually. Three million of these women go without treatment [4]. The largest proportion and highest rate of unsafe abortion currently occurs in Africa, where most countries have restrictive abortion laws, limited access to reproductive health services and high unmet need for family planning services [5, 6].

In Kenya, unsafe abortion has long been recognized as a leading cause of maternal morbidity and mortality [7]. Unintended pregnancy is a major contributor to unsafe abortions in Kenya and in most of Africa[8, 9]. In Kenya, the prevalence of unintended pregnancy remains high. The 2008–09 Kenya Demographic and Health Survey (KDHS) showed that 43% of births in the preceding five years were reported by women as unwanted or mistimed [10]. Many women in Kenya fear the side effects of contraceptives and cannot afford family planning products and services. Facilities where family planning products and services are subsidized or provided free of charge regularly experience stock outs or a dearth of qualified providers [11]. Stigma, inadequate information on sexuality and cultural pressure also hinder contraceptive use among women and girls[12].

A 2002 study on the magnitude of abortion complications in Kenya found that about 20,000 women annually sought medical care for abortion-related complications in public sector hospitals alone [13]. The treatment of abortion complications uses a large amount of scarce health systems resources[13, 14]. Incomplete abortions also account for a large proportion of gynecological admissions in public health facilities. The need for updated information on the abortion situation in Kenya was an important impetus for the current study.

In addition, improving maternal health by reducing maternal mortality and morbidity is currently the Millennium Development Goal (MDG) with the least progress in Kenya [15]. Tackling unsafe abortion is thus key to the country's attainment of MDG 5 [16]. Improved access to high-quality comprehensive abortion care which includes counseling; safe and accessible abortion care; rapid and accessible treatment of incomplete abortions and other complications, contraceptive and family planning services; and other reproductive health services at all levels of the country's health system, will not only save lives, but also reduce costs to the health system [17]. A new constitution which addresses abortion was promulgated in 2010. Under this constitution, abortion may be granted to a pregnant woman or girl when, in the opinion of a trained health professional, she needs emergency treatment or her life or health is in danger. Generally, the new constitution provides a new legal foundation for women's access to safe abortion and is the basis for the Standards



and Guidelines for Reduction of Morbidity and Mortality from Unsafe Abortion in Kenya recently developed by the Ministry of Health.

In sum, up-to-date evidence on the incidence of induced abortion, the magnitude of complications due to unsafe abortion and the factors associated with them is needed to reduce unsafe abortion in Kenya and strengthen programs, address gaps in the delivery of comprehensive abortion care services, bolster policy engagement, and inform campaigns and advocacy as well as abortion-related discourse in Kenya. This report addresses these needs by presenting the results of a 2012 nationally-representative study on the incidence of abortion and magnitude of complications of unsafe abortion in Kenya.

Study Methodology

Data sources:

Data for this study were collected using a Health Professionals Survey (HPS), Prospective Morbidity Survey (PMS), and Health Facilities Survey (HFS). Both the PMS and HFS are nationally-representative surveys, conducted in the same national, stratified random sample of health facilities.

The HPS involved face-to-face, in-depth interviews with a sample of purposively-selected knowledgeable health professionals or key informants selected from all regions of Kenya. The participants were selected because of their extensive exposure to abortion and women's health issues in general and were drawn from fields such as medicine, law, research, education, nursing, policymaking, advocacy, and family planning program implementation and management. Among other things, the survey sought their perspectives on the situation of access to PAC, women's differential likelihoods of experiencing abortion-related complications and differences in receiving care for abortion complications.

The PMS collected prospective data on all patients presenting for abortion care over a 30-day period from each facility included in the nationally-representative sample of health facilities selected for this study. The data were collected by trained facility-based health providers who offer PAC services at the sampled facilities. The PMS collected information on induced abortion and PAC patients' socio-demographic characteristics, reproductive and clinical histories, diagnosis, treatment and clinical procedures performed to treat the woman at the facility of care, post-abortion contraception provision and clinical management outcomes. The facility caseload data were generated by counting the number of cases in the 30-day data collection period and extrapolating that figure to create an annual caseload estimate.

The HFS involved face-to-face structured interviews with senior healthcare providers knowledgeable about PAC services in each sampled facility. In large facilities, such as hospitals, the HFS was completed by the Head of the Obstetrics and Gynecology Unit or an obstetrician/gynecologist who oversees PAC services. In lower-level facilities, the HFS was completed by a nurse, midwife, facility in-charge, or health worker in a position to provide information about abortion care in that facility. The



HFS collected information on the numbers of women who presented for abortion-related care in the facilities, PAC services at the facilities, and the availability of trained staff at the facilities for the management of complications of abortion. Facility caseload data were generated from HFS questions asking providers to estimate the in-patient and outpatient PAC caseload for the past month and for a typical month. Two reference periods are used in order to take into account seasonality in facilities' caseloads.

Sampling of facilities:

Participating health facilities were recruited using a stratified random sampling strategy. Stratification was by health facility level (Level II-VI), ownership type (government or private/non-governmental), and five larger geographical regions (Nairobi and Central; Eastern; Coast and North-Eastern, Nyanza and Western; and Rift Valley). The sampling frame included all levels II to VI health facilities in Kenya that had capacity to offer PAC services as of January 31, 2012. There were 2,838 such facilities in Kenya. Levels V and VI on the list as well as all clinics belonging to Marie Stopes International (MSI) and Family Health Options of Kenya (FHOK) were included in the study¹. Average sampling fractions for the rest of the facilities were: Level IV (0.18-0.36); Level III (0.08-0.15); and Level II (0.05-0.19).

In total, 350 facilities were sampled for the study. Three hundred and twenty-eight (328) of these facilities completed the HFS (93.7%) and 326 facilities (93.1%) completed the PMS. Non-participating facilities had been closed prior to data collection, not permitted by their operators or management to participate, or located in areas experiencing insecurity or violence during the fieldwork period. The distribution of the universe and surveyed health facilities for the HFS by facility level, ownership and region is shown in Table 1.

¹In Kenya, these facilities receive, manage and treat higher numbers of abortion-related complications.

Table 1 → Universe of health facilities capable of providing PAC, sampled facilities and response rate by ownership, facility level and region, Kenya, 2012

Ownership and Level of facility	Number of health facilities that have the potential to offer PAC					Number of health facilities that were sampled					Facility response rate (%)								
	N&C	C&NE	E	N&W	RV	Total	N&C	C&NE	E	N&W	RV	Total	N&C	C&NE	E	N&W	RV	Total	
Ownership																			
Public	189	396	262	532	538	1,917	34	43	49	49	39	214	100	98	100	100	100	97	99
Private for profit	124	99	44	113	100	480	28	11	4	6	11	60	100	82	100	100	100	73	92
Private not for profit	80	54	45	127	135	441	16	12	12	15	21	76	69	67	92	93	81	80	80
Level of facility																			
Level II	108	334	156	387	426	1,411	20	19	20	20	20	99	100	79	100	100	100	95	95
Level III	209	150	136	271	258	1,024	32	25	22	26	28	133	91	92	100	96	89	93	93
Level IV	70	63	56	110	86	385	20	20	20	20	20	100	95	95	95	100	85	94	94
Level V	5	2	3	4	2	16	5	2	3	4	2	16	80	100	100	100	50	88	88
Level VI	1	0	0	0	1	2	1	0	0	0	1	2	100	-	-	-	100	100	100
Total	393	549	351	772	773	2,838	78	66	65	70	71	350	94	89	99	99	88	94	94

N&C= Nairobi and Central; C&NE= Coast and North-Eastern; E= Eastern; N&W=Nyanza and Western; RV= Rift Valley.



Ethical Approval

The study protocol was reviewed and approved by the Ethical Review Boards of the Kenya Medical Research Institute, the University of Nairobi/ Kenyatta National Hospital, Moi University Teaching and Referral Hospital, Kenya, and Aga Khan University, Kenya. The Ministries of Public Health and Sanitation and Medical Services in Kenya and the Institutional Review Board of the Guttmacher Institute also reviewed and approved the study.

Analysis and Findings

Study findings are presented below. We focus first on the incidence of induced abortion in 2012, and present results on the number of induced abortions in 2012 among women of reproductive age. We express incidence as a rate of the number of abortions per 1000 women of reproductive age (15-49 years). We also highlight the abortion ratio for Kenya (the number of abortions for every 100 births). Subsequently, we present information on the magnitude of unsafe abortion complications treated in facilities in Kenya, and on the severity and clinical management of the complications of unsafe abortion.

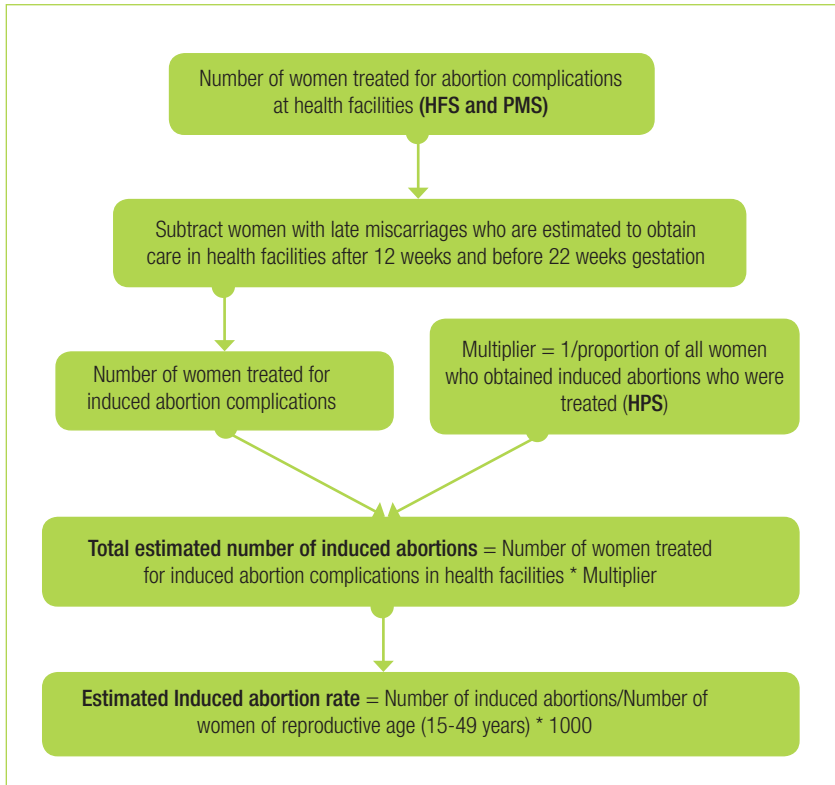
Incidence of induced abortion in Kenya

The incidence of induced abortion is a composite of three groups of women- women who received an induced abortion and do not require additional care, women who received an induced abortion and are treated for additional complications and women who needed additional care and did not receive it. In Kenya, as previously done in Ethiopia and Malawi, the AICM, currently the leading approach for estimating national induced abortion incidence in countries where data on induced abortion are incomplete, was used in this study along with the total caseload of women treated for abortion complications in the sampled health facilities from the prospective morbidity survey component (PMS).

The AICM has been used in about twenty countries around the world in the past two decades [18-21], and relies on two key sets of data, namely (i) the estimated number of women treated for complications of induced abortion, obtained from a nationally-representative sample survey of health facilities (HFS and PMS), and (ii) the estimated proportion of women obtaining abortions who either did not have complications or who were in need of PAC but did not obtain it; based on a survey of health professionals (HPS). Figure 1 below illustrates the steps followed to estimate the national incidence of induced abortion in Kenya.



Figure 1 → Steps in estimating the incidence of induced abortion



The annual number of women who received care for abortion complications in health facilities in 2012 was estimated using data from the HFS and PMS. Annual estimates were calculated for each sampled facility by multiplying the two HFS monthly estimates (past and average month) by 12, and also multiplying the 30-day estimate of PAC cases from the PMS by 12.2. The three data points were averaged to obtain the best estimate of the number of women treated for complications annually in each facility. Annual caseloads are shown by facility ownership, level of facility and region (Table 2).



Table 2: → Estimated number of women treated annually for PAC by ownership, level of facility and region, Kenya, 2012

Facility characteristics	Average annual PAC caseload	Estimate of caseload for a typical year (from HFS)	Estimate of caseload for the past year (from HFS)	Caseload data (from PMS)
Total	157,762	187,924	138,580	146,783
Ownership				
Public	100,783	117,209	89,432	95,706
Private for profit	29,564	37,412	21,719	29,561
Private not for profit	27,416	33,303	27,429	21,516
Level of facility				
Level 2	48,519	57,942	42,762	44,852
Level 3	46,710	53,765	38,863	47,502
Level 4	49,146	59,050	43,999	44,390
Level 5	10,686	14,166	9,966	7,926
Level 6	2,701	3,002	2,990	2,112
Regions				
Central & Nairobi	31,681	37,628	21,959	35,455
Coast & N. Eastern	21,974	25,409	19,133	21,379
Eastern	12,169	14,743	10,310	11,455
Nyanza & Western	45,027	51,039	39,370	44,671
Rift Valley	46,912	59,105	47,808	33,822

Source: Health Facility Survey & Prospective Data Survey, Kenya, 2012

From our estimation, 157,762 women received care for complications of induced and spontaneous abortions in health facilities.

Table 3 presents the steps in the calculation of the number of women treated for complications of induced abortions. The annual number of women who received treatment in public and private health facilities for complications of induced abortion was estimated by subtracting the estimated number of women treated for complications of late miscarriages in health facilities from the number of all women treated in health facilities for abortion complications in 2012. We defined late miscarriages as any spontaneous abortion occurring after 12 weeks and before 22 weeks of pregnancy. Based on the literature [22], of all recognized pregnancies, if no interference takes place, 85% end in live births, 15% end in miscarriages and 2.9% are late miscarriages, which is 3.41% of all live births $(2.9\%/85\%)^2$. We calculated the number of late miscarriages by multiplying the number of live births

²Live births were computed by applying the general fertility rate from the 2008 KDHS to the projected (adjusted) number of women of reproductive age.

(n=1,545,546) by 3.41% (n=52,703). But only 70% of them would get health care for those complications³. Based on these calculations, we estimated that the total number of women treated for induced abortion complications at health facilities was 119,912 (see Table 3).

Table 3 → **Estimated number of women treated for complications of induced abortions in a health facility by region, Kenya, 2012**

Region	Number of women treated for abortion complications	Number of live births among women aged 15-49 years	Number of women with late miscarriages	Number of women with late miscarriages treated in a health facility *	Number of women treated for induced abortion complications
Total	157,762	1,545,546	52,703	37,850	119,912
Central & Nairobi	31,681	351,943	12,001	11,005	20,676
Coast & N. Eastern	21,974	209,017	7,127	5,324	16,649
Eastern	12,169	222,435	7,585	5,112	7,057
Nyanza & Western	45,027	375,033	12,789	8,185	36,842
Rift Valley	46,912	387,118	13,201	8,224	38,687

*Late miscarriages are defined as any spontaneous abortion occurring after 12 weeks and before 22 weeks of pregnancy. Live births were computed by applying the general fertility rate from the 2009 KDHS to the projected (adjusted) number of women of reproductive age. Late miscarriages account for 3.41% of all live births, so these were obtained from multiplying the number of live births by 3.41%. The number of women with late miscarriages treated at a health facility was obtained by multiplying the number of women with late miscarriages as above by the regional probability of access to a health facility for post-abortion care, averaging approx. 70% nationally for the year 2012.

³The ACIM assumes that women with first trimester spontaneous abortions will not seek health care when they miscarry while all women with late spontaneous abortions (between weeks 13-21) would need health care but not all will seek and obtain care. The number of women with late miscarriages treated at a health facility was obtained by multiplying the number of women with late miscarriages as above by the regional probability of access to a health facility for post-abortion care, averaging approx. 70% nationally for the year 2012. The access rate for abortion care was estimated based on the proportion of women who delivered at a health facility for their last birth according to the 2008/09 KDHS report i.e. approx. 47%. We assumed that a higher proportion of women with late miscarriage would seek health care including, for example, those who do not think hospital delivery is necessary or those whose spouses do not allow hospital-based delivery, as a late miscarriage is life-threatening.



To arrive at the total number of induced abortions, a multiplier, derived from the HPS, was applied to the estimated number of women treated annually in health facilities for induced abortion complications. The multiplier accounts for the proportion of women with induced abortions who did not seek or obtain facility-based care, meaning they did not need treatment, or needed treatment and did not receive it, or died. The multiplier, which was calculated for the nation as a whole as well as for Nairobi and Central and for the other regions combined, is the inverse of the proportion who received treatment for complications among all women who had induced abortions. The national multiplier is 3.88: 3.41 for Nairobi and Central, and 3.98 for the rest of the country. A low and high estimate of induced abortions was calculated by subtracting one and adding one to each multiplier, respectively. Based on the above annual number of complications from induced abortions treated in health facilities and the multiplier, we estimated that about 464,690 induced abortions occurred in Kenya in 2012 (see Table 4).

Table 4 → **Estimated number of cases of induced abortion complications and overall induced abortions by region, Kenya, 2012**

		Number of all induced abortions		
Region	No. of cases of induced abortions treated at health facilities	Low estimate	Medium estimate	High estimate
Total	119,912	344,778	464,690	584,601
Central & Nairobi	20,676	49,828	70,504	91,180
Coast & N. Eastern	16,649	49,616	66,265	82,914
Eastern	7,057	21,030	28,087	35,144
Nyanza & Western	36,842	109,789	146,631	183,473
Rift Valley	38,687	115,289	153,976	192,664

Induced Abortion Rates and Ratios

The estimated rate of induced abortion is 48 induced abortions per 1000 women of reproductive age (15-49 years)⁴ (see Table 5). The induced abortion ratio (i.e. the number of induced abortions per 100 live births) was 30⁵. Substantial regional variations in abortion incidence exist in Kenya. The abortion rate was highest in the Rift Valley and Nyanza/Western region (64 and 63 per 1000, respectively), and lowest in the Eastern region (20 per 1000). Similarly, the abortion ratio was highest in the same two regions at 40 and 39 per 100 live births for Rift Valley and Nyanza/Western regions, respectively.

⁴The abortion rate is derived by dividing the estimated annual number of induced abortions by the number of women of reproductive age (15-49 years) in 2012, and multiplying by 1000.

⁵The induced abortion ratio is estimated by dividing the estimated number of induced abortions by the number of live births for 2012 and multiplying by 100.



Table 5: → National and regional induced abortion rates and ratios, Kenya, 2012

	Number of women (in 000's) of reproductive age (15-49)	Induced Abortion Rate per 1,000 women of reproductive age	Induced Abortion Ratio per 100 live births
Total	9600	48	30
Central & Nairobi	2186	32	20
Coast & N. Eastern	1298	51	32
Eastern	1382	20	13
Nyanza & Western	2329	63	39
Rift Valley	2404	64	40

A total of 9,599,666 women aged 15-49 years were projected for 2012 from the overall population in the 2009 Census and applying the 1999-2009 population growth rate. The estimated number of live births (1,546,000) was derived from the age specific fertility rates of the 2008/09 KDHS [10], and projected to 2012.

Abortion Complications and Morbidity Due to Unsafe Abortion

During the 30-day data collection period using the PMS, 3,161 women presented for abortion-related care in the sampled facilities. Of these, 2,631 women (86%) presented for PAC, likely following an unsafe abortion⁶. About half of all PAC clients were less than 25 years of age (48%) with 17% aged 10-19 years old. As shown in Table 6 below, the majority of women seeking PAC were from rural areas (59%), married (64%), and had some education (90%).

⁶Note that the remainder of this report focuses on the women presenting for PAC. Those presenting in facilities and recorded as having safe induced abortions were a convenience sample and not a sufficiently large number to warrant further analysis.



Table 6: → Socio-demographic characteristics of women seeking PAC in health facilities over a 30-day period, Kenya 2012 (n=2,631)

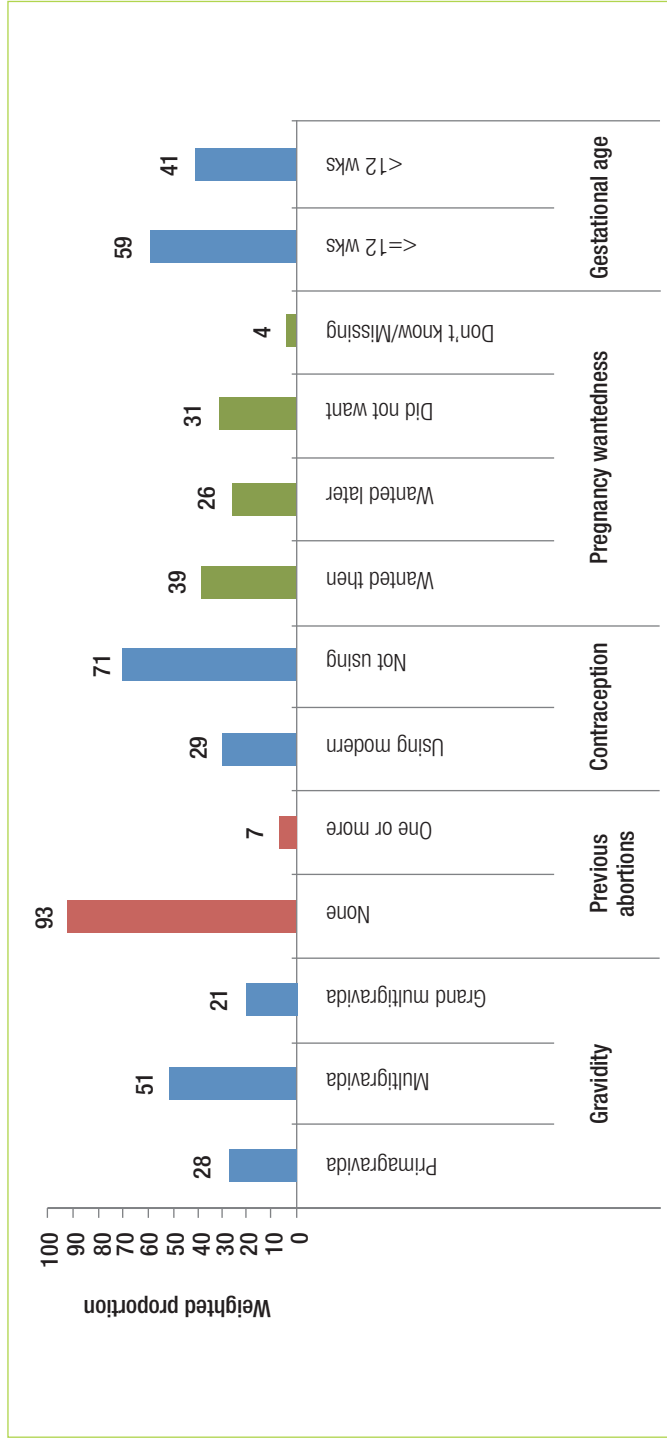
Characteristics	%	N
Age category		
10-19 Years	16.5	335
20-24 Years	31.7	810
25+ Years	51.3	1478
Residence		
Urban	40.9	1386
Rural	58.7	1238
Marital status		
Never married	27.8	761
Married/Living together	64.4	1700
Divorced	7.5	162
Education		
No education	9.3	158
Primary	40.1	963
Secondary	35.5	952
Post-secondary	14.8	543
Occupation		
Farmer/unskilled	24.9	589
Skilled/clerical	20.2	684
Student	13.0	384
Unemployed/housewife	41.7	965
Religion		
Catholic	24.3	606
Other Christians	64.4	1767
Muslims	8.5	216
Others	2.3	30
Total	100	2631

Table shows weighted proportions and un-weighted counts. All variables missing <1% of data.

Seven out of ten women already had at least one child (72%) and reported that they were not using modern contraception at the time of the pregnancy (71%). One third of women indicated to the provider that they had interfered with the pregnancy before arriving at the health facility. As an indicator of pregnancy knowledge and access to health care, over 40% of women sought PAC in their second trimester, that is, after the first 12 weeks of their pregnancy (Figure 2).



Figure 2 → Comparison of percentages of reproductive health characteristics of clients seeking PAC in a 30-day period, Kenya 2012 (n=2,631)



Primigravida is the first pregnancy, multigravida is two to four pregnancies and grand multigravida is five or more pregnancies. Contraceptive use was defined as the proportion of women who reported using any method of contraception before the time of conception of the current pregnancy and then named a modern form of contraception, with modern contraception defined as pills, injections, implants, male/female sterilization, IUD, male/female condom, diaphragm, foam/jelly, emergency contraception or patch. Gestational age was based on client recall of last menstrual period and clinician's estimation from examination. Figure 2 gives weighted proportions.



Severity and Management of Unsafe Abortion Complications

Following earlier studies [13, 23], we categorized the severity of abortion complications into three levels based on clinical signs and symptoms (Table 7).

Table 7 → Classification of severity categories of abortion complications

Classification	Signs and symptoms
Severe morbidity	body temperature of >37.9° C organ or system failure generalized peritonitis pulse >119 beats/minute evidence of foreign body or mechanical injury sepsis shock tetanus death
Moderate morbidity	body temperature between 37.3-37.9°C adnexal or abdominal tenderness localized peritonitis offensive products of conception
Low morbidity	All other cases

Cases were categorized into the most extreme category of abortion complications, and required only one sign or symptom to be counted in that category.

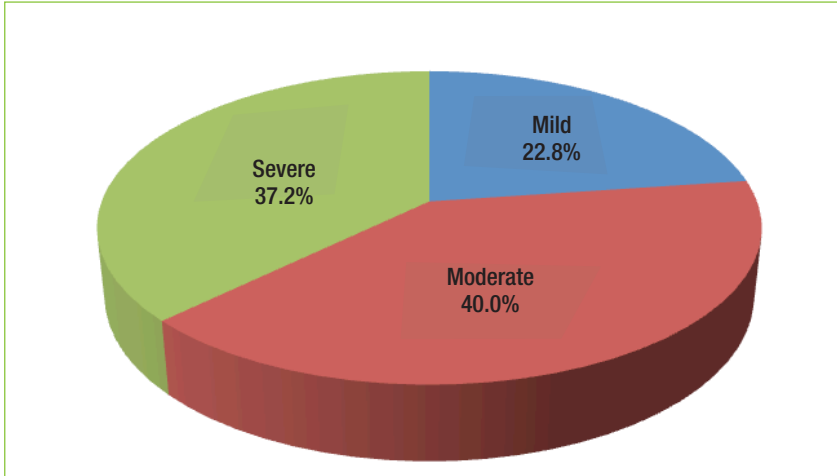
Based on the categorization in Table 7, about 23% of the women presented with low complications, 40% with moderately-severe and 37% with severe complications (Figure 3).

Among the different sub-groups of women who presented for PAC, 45% of women aged 19 or younger, 47% of students, 56% of divorced women, and 43% of women with a gestational age above 12 weeks experienced severe complications. As expected, within the sub-groups of women presenting for PAC, women who reported to their provider that they had interfered with their pregnancy had the highest percentage of severe complications (58%).

Importantly, delays in seeking health care were highly associated with the severity of complications; more than half (54%) of women who delayed seeking care for longer than a week after they realized that they needed medical care had severe complications. The proportion of women with low complications was higher among women 20 years or older (24%), those who had post-secondary education (31%), and those who presented in the first twelve weeks (26%).



Figure 3 → Severity of abortion complications among women presenting for treatment in health facilities in a 30-day period, Kenya, 2012 (n=2631).



The uterine evacuation method used to treat women for post-abortion complications can be used to indicate the quality of care given to women. The WHO recommends that MA, MVA or EVA is appropriate up to 12-14 weeks gestation. For pregnancies greater than 12-14 weeks gestation, dilatation and evacuation or MA are appropriate [24]. Overall, among all women who had a uterine evacuation procedure performed, 65% were managed by MVA/EVA, 12% were managed by digital evacuation and 8% were managed each by MA and D&C (Table 8).



Table 8 → Technology used for uterine evacuation among PAC clients by facility level, clinician, ownership and region, Kenya, 2012 (n= 2188)

	MVA/EVA (%)	Medical abortion (%)	D&C (%)	Digital evacuation (%)	Other [§] (%)
Level of facility					
Level II	43.1	14.4	4.0	19.4	19.0
Level III	71.2	6.2	4.4	14.6	3.7
Level IV	69.9	5.5	14.6	6.6	3.5
Level V	81.6	3.7	5.3	7.9	1.5
Level VI	94.0	1.2	3.6	1.2	0.0
Health facility ownership					
Public	64.4	4.1	5.9	15.5	10.1
Private-for-profit	80.1	6.8	7.3	3.9	1.8
Private-not-for-profit	49.7	21.1	15.9	11.4	2.0
Cadre of health worker					
OB/Gyn	61.0	4.9	31.4	1.6	1.3
Medical officer	53.7	7.3	32.6	4.8	1.6
Clinical officer	82.1	6.5	3.0	5.8	2.5
Nurse	54.6	5.2	2.2	22.4	15.6
Trained midwife	36.2	38.1	0.0	23.9	1.8
Region					
Central & Nairobi	82.6	6.4	3.4	5.7	2.0
Coast & North Eastern	64.3	6.7	2.8	13.2	13.0
Eastern	48.3	1.5	18.7	25.5	6.1
Nyanza & Western	61.7	11.3	3.1	17.3	6.5
Rift Valley	55.9	5.7	21.2	7.3	9.9
TOTAL	65.4	7.6	7.9	12.2	6.9

Table indicates weighted proportions.

§ Includes forceps, oxytocin and any other procedure that was done

MVA/EVA was performed for almost all procedures in Level VI facilities and in 8 of 10 cases in Level V facilities. About 70% of women in Levels III and IV were treated with MVA/EVA. In Level II facilities, less than half (43%) of procedures were completed by MVA/EVA. Level II facilities had the highest prevalence of digital evacuation and medical abortion at 14% and 19% respectively. MA was performed mainly in private not-for-profit facilities (21%) and administered mainly by a trained midwife (38%). D&C, a method no longer recommended by the WHO [24], was more common in Level IV facilities (15%), performed by obstetricians/gynecologists (31%) and medical officers (33%) and performed in the Rift Valley (21%) and Eastern regions (19%). Overall, 84% of women were given pain relief during their uterine evacuation procedure, ranging from 81% of women in Level III and IV facilities up to 100% in Level VI facilities (Table not shown).

Among those who sought care (who accessed services at the sampled health facilities) for abortion-related complications, an estimated 85 women died in 2012.



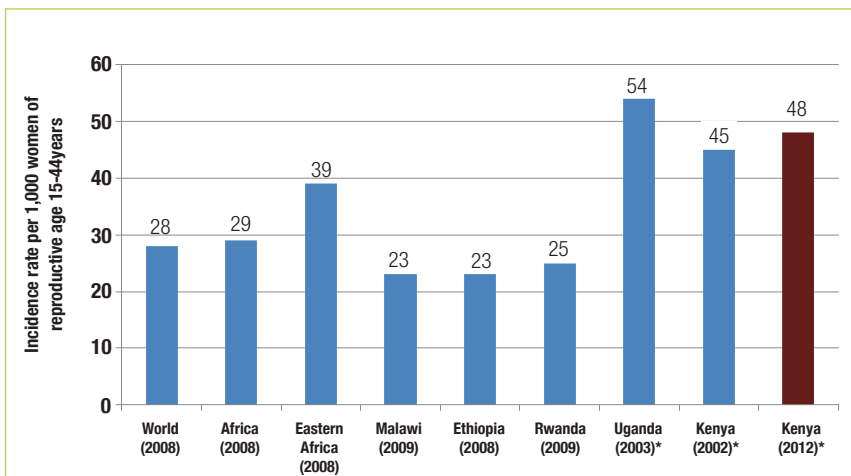
This figure does not capture all deaths that might have occurred as a result of abortion-related complications in Kenya but rather only deaths that occurred in the sampled health facilities. Therefore, a case fatality rate was calculated by dividing the number of deaths by the number of women treated for complications due to spontaneous miscarriage or induced abortion care, multiplied by 100,000 to generate the case fatality rate, or number of deaths, per 100,000 unsafe abortions. This yields a case fatality rate of 266 deaths per 100,000 unsafe abortions.

Discussion

The current study, which is based on data from a nationally-representative sample of both public and private sector hospitals and health facilities, found that nearly 465,000 induced abortions occurred in Kenya in 2012. The data on the high proportion of moderate and severe post-abortion complications coupled with limited comprehensive abortion care training throughout Kenya indicate that the majority of the induced abortions that occur are unsafe.

Based on data collected from women presenting in public hospitals for abortion-related complications over a three-month period in 2002 [13], an estimated 300,000 abortions occurred annually (45 per 1,000 women of reproductive age). However, as the methodology used in this study included additional steps, such as adjusting for the number of spontaneous miscarriages; we feel that this study is a more accurate representation of the true incidence of induced abortions in Kenya.

The current study estimated an induced abortion rate of 48/1000 which is higher than the 2002 rate (45/1000), the 2008 average rate for East Africa (39/1000), and the 2008 rate for Africa (29/1000) [25]. The 2012 rate is, however, similar to the 2003 rate for its neighbor, Uganda (54/1000) [18](Figure 4).



*Data for Uganda in 2003, and Kenya in 2002 and 2012 are based on women aged 15-49.



Induced abortions are not occurring at the same rate throughout the country. High rates of abortion were seen in Nyanza-Western region and in the Rift Valley region, compared to other regions in the country. These higher rates could be attributed to poor women's health, higher poverty levels, gender-based violence, and poorer access to family planning services in these regions[26]. The high incidence of abortion is related to high levels of unintended pregnancy.

Abortions, when conducted by a trained provider and under sanitary conditions, typically have extremely low rates of complications[24]. The high proportion of women presenting for PAC with moderate to severe complications indicates that unsafe abortion continues to pose a major public health challenge in Kenya. While one in four women who were treated for PAC presented with severe complications, relatively recent studies in Malawi (2009) and Ethiopia (2008) found one in five women presenting for PAC with severe complications, indicating that abortion is comparatively less safe in Kenya [27, 28].

Kenya also continues to witness a high abortion complication fatality rate compared to other countries in the region. According to WHO estimates, the unsafe abortion case fatality rate in developed regions is around 30 deaths per 100,000 unsafe abortions and 530 deaths per 100,000 in Eastern Africa [1]. A recent study in Malawi estimated a case fatality rate of 387 deaths per 100,000 unsafe abortions [28]. Kenya's estimate of 266 deaths per 100,000 unsafe abortions indicates high maternal mortality due to unsafe abortion, all of which are preventable deaths.

There is evidence from the study that MVA/EVA is the most common procedure for the treatment of post-abortion complications, and that MA has begun to be used in small numbers. However, other less safe procedures such as D&C and digital evacuation continue to be widely used in the country, suggesting critical inequities in the availability of basic essentials for PAC and safe induced abortion across facilities and regions. For instance, the majority of digital evacuations occurred in Levels II and III facilities, where a very high proportion of women obtain PAC. These findings highlight the need to continue to implement the Standards and Guidelines on abortion care and extend abortion care training to mid-level providers. In addition, the extension of the use of MA throughout the country would provide benefits to women.

The high rate of induced abortion is associated with the high levels of un-met need for family planning and high unintended pregnancy among women in the country. High unintended pregnancy levels lead to a high incidence of induced abortion [25, 29]. In the current study, the majority of women presenting for PAC reported their pregnancies as unintended. The proportion of women in Kenya reporting unwanted childbearing has remained among the highest in the region. In 2003, the Kenya Demographic and Health Survey (KDHS) showed that 47% of births to unmarried women aged 15–19 and 45% of births to married women in the preceding five years were reported as mistimed or unwanted [30]. In 2008-09, about 43% percent of births to women aged 15- 49 were reported as unplanned [10]. These findings highlight the need for a reduction in the incidence of unwanted pregnancy through increasing availability and accessibility of a wide range of contraceptives to all sexually active women and their partners.



The findings of this study suggest that more research needs to be conducted on the issue of abortion in Kenya. New research should give particular attention to the study of women presenting for safe induced abortions, as the numbers in the 2012 study were relatively small. These numbers are likely to increase as women seek safe, legal procedures in facilities rather than their former reliance on clandestine and unsafe providers.

It would also be desirable to investigate further a number of questions such as:

- under what conditions do Kenyan women opt to have abortions;
- if any interventions such as sexual education in schools are helping to reduce unintended pregnancies;
- if women know where to go for contraceptives and appropriate abortion care;
- community perspectives on unintended pregnancies and unsafe abortion;
- the contribution of sexual violence to unintended pregnancies and
- how the empowerment of women could help to alleviate unintended pregnancies, perhaps through more consistent contraceptive use.



Conclusion and Policy Recommendations

Taken together, these findings call attention to the urgent need for concerted efforts to combat unsafe abortion. Key recommendations for achieving significant reductions in the incidence of unsafe abortion and its consequences include:

- 1** Enabling institutions with a mandate to protect women's health, such as the Ministry of Health, Human Rights Commission and Gender Commission, to implement the new constitution. This will allow for both healthcare providers and women to know all the grounds, wherein abortion is legal to the full extent of the law. In addition, it is critical to ensure that all 47 counties implement the Ministry of Health's abortion care-related Standards and Guidelines and ensure quality abortion care is made available throughout Kenya, in accordance with what is allowed under the constitution.
- 2** Increasing access, for both women and men, to effective family planning methods including long-acting reversible contraceptives and educating women about their rights to contraception, safe abortion and post-abortion care in accordance with the constitution.
- 3** Promoting women's access to post-abortion care, including post-abortion family planning counseling and method provision throughout Kenya. This also includes expanding pre-service and in-service training of healthcare providers, particularly midlevel providers, and ensuring access to high-quality care such as appropriate uterine evacuation technologies, including mifepristone and misoprostol as well as vacuum aspiration in accordance with what is allowed under the constitution.
- 4** Recognizing the special needs of young women who seek abortion-related care and developing programs to address those needs. This is critical as nearly half of all women seeking PAC were less than 25 years of age.
- 5** Engaging and educating communities about the risk of unsafe abortion, what is allowed under the constitution and the detrimental effects of abortion stigma and misinformation about family planning and contraception.

While the above recommendations derive directly from the evidence in this report, it is critical for all key stakeholders in the field of women's health and rights in Kenya to continue to work together to develop and implement policies and programs to address the root causes of unintended pregnancy and unsafe abortion and to deliver quality health and family planning services to women throughout Kenya.



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African Population and Health Research Center, Inc.

APHRC Campus - Off Kirawa Road, Kitisuru

P.O. Box 10787-00100 - Nairobi, Kenya

Pilot Line: +254 20 400 1000 | Mobile: + 254 722 205 933

Email: info@aphrc.org | Website: www.aphrc.org | Twitter: [@aphrc](https://twitter.com/aphrc)