referral networks

access

Expanding our Reach:

An Evaluation of the Availability and Quality of Postabortion Care Services in Three Regions in Ethiopia between 2000 and 2004

Solomon Tesfaye, MD, MPH
Tamara Fetters, MPH
Kathryn Andersen Clark, PhD
Heathe Luz McNaughton, MPH

Ipas
Chapel Hill, NC

impact

quality of care

scale-up

training

postabortion contraception and counseling

sustainability

Ipas works globally to increase women's ability to exercise their sexual and reproductive rights and to reduce abortion-related deaths and injuries. We seek to expand the availability, quality and sustainability of abortion and related reproductive-health services, as well as to improve the enabling environment. Ipas believes that no woman should have to risk her life or health because she lacks safe reproductive-health choices.

Ipas Ethiopia
PO Box 63001
Addis Ababa, Ethiopia
E-mail: ipaseth@telecom.net.et

Ipas
PO Box 5027
Chapel Hill, NC 27514
E-mail: ipas@ipas.org
Web site: www.ipas.org

Authors:
Solomon Tesfaye, MD, MPH
Tamara Fetters, MPH
Kathryn Andersen Clark, PhD
Heathe Luz McNaughton, MPH

Graphic design and production: Claudia Fulshaw
Printing: Glover Printing, Inc.
Produced in the United States of America

ISBN: 1-933095-05-9

Suggested citation: Tesfaye, Solomon, Tamara Fetters, Kathryn Andersen Clark, and Heathe Luz McNaughton. Expanding our Reach: An Evaluation of the Availability and Quality of Postabortion Care Services in Three Regions in Ethiopia between 2000 and 2004. Chapel Hill, NC. Ipas.

Printed on recycled paper.

ACKNOWLEDGMENTS

The authors and Ipas Ethiopia gratefully acknowledge the support of Dr. Eyob Kamil, head of the Addis Ababa Regional Health Bureau; Dr. Tibebu Alemayehu, head of the Oromia Regional Health Bureau; and Dr. Endale Engeda, deputy head of the Amhara Regional Health Bureau. We would also like to acknowledge the invaluable contributions of the Regional Health Bureaus' family health coordinators who applied their expertise to the revision of the questionnaire and during the data collection. The cooperation and support of the Zonal Health Office heads and the interviewees in each facility is greatly appreciated.

We are grateful to the David and Lucile Packard Foundation and the Department for International Development of the United Kingdom for their financial support for the assessment process and the preparation of this report. Drs. Hailemichael Gebreselassie and Hailu Yeneneh were instrumental in the development of the questionnaire and the implementation of both the baseline and endline data collection activities. Finally, we wish to extend a special word of thanks to Edward Cherry for his contributions to the GIS portions and especially to Saba Kidanemariam, Takele Geressu, Ellen Mitchell, Janie Benson, Maribel Manibo and Lisa Bohmer for their expertise and assistance in our Ipas programs and drafting, preparing and reviewing this paper.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Unsafe abortion is a neglected problem in Ethiopia as it is in many African nations. Ethiopian women faced with an unintended pregnancy and seeking an abortion have no choice but to resort to unskilled abortion providers, unsafe methods or unsanitary facilities. The World Health Organization (WHO) estimates that complications of unsafe abortion account for 13% of pregnancy-related deaths worldwide, but smaller hospital- and community-based studies conducted in Ethiopia indicate unsafe abortion could account for a quarter or more of maternal deaths (Kwast et al.,1986,1989; Yoseph et al.,1993). Additionally, the Ethiopian Society of Obstetricians and Gynecologists (ESOG) contends that services for complications of abortion cost Ethiopians US$7.4 million annually (ESOG, 2002).

This monograph is the product of four years of collaboration between Ipas Ethiopia and three Regional Health Bureaus (RHBs) to address the problem of maternal deaths and morbidity from the complications of unsafe abortion. These efforts have included work at the community, facility and national levels: conducting advocacy; building the capacity of local partners to provide postabortion care (PAC) services; improving access to manual vacuum aspiration (MVA) instruments for treatment of incomplete abortion; and training health-care providers. This report presents the results of a pre-post-intervention comparative assessment of PAC services in 119 non-randomly selected facilities in the Addis Ababa, Amhara and Oromia regions. In these regions, an intensive package of postabortion care intervention activities was introduced in 42 of 119 facilities to improve quality and availability of PAC services. The evaluation elaborates on the successes and challenges of scaling up PAC services in three regions where PAC is provided to more than 6,500 Ethiopian women each year. Analyses based on data collected in 2000 (pre-intervention) and 2004 (post-intervention) were performed to answer the following research questions:

1. **How did services at all 119 facilities compare between 2000 and 2004?**
2. **How did the intervention affect availability and quality of PAC services between 2000 and 2004 between the 42 intervention facilities and the 77 comparison facilities?**
3. **How did the quality and availability of postabortion care change between 2000 and 2004 among the 42 intervention facilities?**

A two-part semi-structured questionnaire was administered by data collectors from the Regional Health Bureaus. Face-to-face interviews were conducted in 2000 and 2004 with the heads of gynecological or maternal health services in each facility. The main study findings and recommendations are summarized in the following sections.

The Overall Availability and Quality of PAC Services in all 119 Facilities

In 2000, 64 of the 119 facilities (54%) provided uterine evacuation services to women with abortion complications by performing either sharp curettage or MVA. By 2004, 74 facilities (62%) were providing UE services to women with abortion complications. While there was no statistically significant difference in facilities providing at least one contraceptive method (oral contraceptives, injectables, IUDs, and male condoms) as part of PAC services between 2000 and 2004, the availability of specific contraceptive methods as part of PAC services remained relatively constant between 2000 and 2004, except in the case of oral contraceptives and IUDs, which declined. The availability of supplies for decontamination and disinfection of medical and MVA instruments increased from 2000 to 2004 while the availability of

antibiotics decreased. In 2000, 20 of the 119 facilities (17%) reported having the minimum number of trained providers essential for providing consistent UE care. By 2004, the number of facilities reporting the minimum number of trained providers had significantly increased to 59 (50%), including nine hospitals (32%) and 50 health centers (55%).

Comparison of Services Between 42 Intervention and 77 Comparison Facilities
Between 2000 and 2004, the capacity for offering uterine evacuation services increased from 24 (57%) to 33 intervention facilities (79%), while remaining relatively constant among the comparison facilities. Participation in the intervention was significantly associated with positive change between 2000 and 2004 in the availability and use of MVA, as well as availability of minimum skilled providers of MVA. The intervention was also associated with increased contraceptive services as part of postabortion care. While comparison facilities providing contraception as part of postabortion care improved from 9 (23%) in 2000 to 13 (32%) in 2004, intervention facilities providing contraception as part of PAC rose from 6 (25%) in 2000 to 24 (73%) in 2004. The proportion of UE procedures using MVA rose from 6% to 18% among comparison facilities; it rose even more among intervention facilities, from 14% to 50% of procedures. Specific improvements associated with the intervention included increased community awareness (12 intervention facilities or 29% as compared with six comparison facilities or 8%); more attention paid to PAC (10 intervention facilities or 24% versus seven comparison facilities or 9%); and more motivation and enthusiasm from the Ministry of Health or MoH (six intervention facilities or 14% versus two comparison facilities or 3%).

Changes in Quality and Availability of Services Among the 42 Intervention Facilities
In 2000, 24 (57%) of the 42 PAC intervention facilities reported some capacity to provide uterine evacuation services; by 2004, this number had risen to 33 facilities (79%). In particular, the availability of MVA instruments rose from 11 (26%) to 33 facilities (79%); use of MVA instruments rose from seven (17%) to 28 facilities (67%); availability of minimum skilled providers rose from eight (19%) to 37 facilities (88%); offering postabortion contraception increased from six (25%) to 24 facilities (73%); and the percentage of UE procedures performed with MVA rose from 14% to 50%.One outcome measure, providing no pain medication for uterine evacuation procedures, improved but did not differ significantly among intervention facilities between 2000 and 2004.

Implications and Recommendations of the Study
Overall, it appears that the intervention was effective in improving PAC outcomes. In 2004, more intervention facilities provided PAC services, performed MVA, regularly provided postabortion contraception, and had the minimum number of skilled providers trained in MVA clinical skills. Improvements in the comparison group are also heartening; more than one-third of comparison facilities report overall improvements in quality and provision of PAC services. The following bullets address some specific recommendations.

- The availability of uterine evacuation services remained relatively stable during the four-year period of interest. The observed increase (not statistically significant) occurred solely in health centers, with no change reported in the hospital facilities that were already providing some PAC services at baseline. Yet the initiation of PAC services in nine intervention and one comparison facility (an increase from 64 to 74 facilities) has a potentially dramatic impact on the hundreds of Ethiopian women who require PAC services there each year. Given that health centers are often most accessible, particularly for the vast majority of Ethiopian women residing in rural areas, more emphasis should be placed on decentralizing PAC services to the health center level.
- Contraceptive availability in the PAC procedure areas in the 119 facilities appeared to decline between 2000 and 2004. This decline probably mirrors shortages in funding for

contraceptives that were most acute in Ethiopia between 2002-2004; as donors began to withdraw support for these commodities, shortages were common throughout the country. Additionally, the intervention encourages and supports a reorganization of services in the health facility to enable women to access contraception in the PAC service area. Systemic changes to the organization of service delivery may demand more intensive negotiation and on-site interaction to persuade managers of the utility of these changes. In every case, a lack of attention to postabortion contraceptive services is a missed opportunity to prevent unintended pregnancy in Ethiopia. While the assessment documented good progress in the intervention areas (the proportion of facilities that regularly provide postabortion contraceptives rose from 25% to 73%), it is an area that needs more encouragement overall.

- Availability of MVA equipment increased in intervention facilities, but other shortages remained a problem. A consistent supply of equipment, drugs and commodities is necessary to sustain successful PAC services. Shortages of contraceptives and essential supplies necessary to manage obstetric emergencies are common across facilities, and shortages of antibiotics may have become more severe during the four-year period. It is also worrying that the availability of certain contraceptives has declined or stayed the same, potentially resulting in more unintended pregnancies.

- In 2000, the primary providers of evacuation procedures were gynecologists or general practitioners most commonly found at the hospital level. In 2004, most uterine evacuations using MVA were performed by general practitioners and midwives. A training emphasis on midlevel providers offered an important opportunity to reach women seeking care at the health-center level where physicians remain in short supply.

- The majority of women still do not receive any medication to relieve them of their discomfort. Training efforts should further emphasize the use of tools to assess and improve quality of care and performance improvement and better anticipate systemic barriers, such as stock-outs of pain medication.

- Findings for emergency transport suggest that a limited number of facilities had the option to provide emergency transportation. The vast majority of health centers (68%) still cannot provide emergency transport, and the resulting delays likely play a role in high rates of maternal morbidity and mortality in Ethiopia, particularly in rural areas.

Although progress has been made in these regions, many Ethiopian women still do not have access to comprehensive PAC services. In 2004, the Ethiopian Parliament took bold steps to address the sexual and reproductive rights of women by revising the Ethiopian Criminal Code. The revised code establishes punishments for the trafficking of women and children, rape, sexual abuse by family members and female circumcision. The revisions also expand the range of indications for which legal abortions are permitted from previously restrictive language, "allowing safe legal abortion only to preserve a woman's physical health," to making abortion legal in cases of rape, incest, fetal abnormality, if the pregnancy or birth of the child would pose a danger to the life or health of the woman or if the woman is physically or mentally unprepared to raise a child. This revision directly addresses the social and health consequences of unsafe abortion, yet impact will only be achieved if women know their rights; have access to health facilities equipped to perform abortion and postabortion care; are informed of safe termination of pregnancy services; and if providers are willing and able to implement the new changes to the abortion code to the fullest extent of the law. It is imperative that policymakers, donors, NGOs and individuals continue to struggle to make the intent of this law – sexual and reproductive rights, access to high quality reproductive-health care and safe legal abortion services – a reality for all Ethiopian women.

INTRODUCTION

This monograph is the product of years of collaboration between Ipas Ethiopia and three Regional Health Bureaus (RHBs). It presents the results of a pre-post comparative assessment of the availability and quality of postabortion care (PAC) in 119 facilities in the Addis Ababa, Amhara and Oromia regions of Ethiopia. The RHBs were instrumental in directing the selection of the facilities and supporting the implementation of project activities. A package of intervention activities (described in detail later) was introduced in 42 of the 119 facilities to improve the availability and quality of postabortion care services offered to Ethiopian women.

Since 1992, Ipas has worked to build a coalition of local and federal government officials, advocates and partners committed to preventing unsafe abortion by scaling up and decentralizing postabortion care services in Ethiopia. Efforts have included advocating for the reform of the penal code, building the capacity of local partners to provide postabortion services, improving access to manual vacuum aspiration (MVA) instruments and training health-care providers in PAC. In 2000, increased commitment by the government to address the high maternal mortality ratio coincided with donor interests and culminated in efforts to scale up safe motherhood and PAC interventions around the country. This monograph presents the evaluation results of the Regional Health Bureaus' and Ipas's efforts in three regions where postabortion care is provided to more than 6,500 Ethiopian women each year.

BACKGROUND

Unsafe abortion has been a neglected problem of Ethiopian health care. Many women resort to unskilled providers, unsafe methods or unsanitary settings where simple surgical procedures such as abortion can place their health and life at risk. According to the World Health Organization (WHO), complications of unsafe abortion account for 13% of pregnancy-related deaths worldwide, but smaller hospital- and community-based studies conducted in Ethiopia indicate that unsafe abortion could account for as much as 25-30% of maternal deaths (Kwast et al.,1986,1989; Yoseph et al.,1993). In these studies, poor clinical postabortion management was among the main avoidable factors contributing to those maternal deaths. Complications due to unsafe and spontaneous abortion are the fourth leading cause of hospital admissions for women (Ethiopian FMoH, 2005a). The Ethiopian Society of Obstetricians and Gynecologists (ESOG) reports that services for complications of abortion are estimated to cost Ethiopians US$7.4 million annually, placing an enormous burden on the public health system (ESOG, 2002).

Unwanted pregnancy and abortion complications occur in part because women in Ethiopia have limited access to contraceptive methods. Nationwide, the contraceptive prevalence rate (percent of married women currently using contraception) has more than doubled between 2000 and 2004 to 14% for modern contraceptive methods. Yet it continues to be lower than most African nations (Ethiopian Central Statistics Authority, 2005). Unwanted pregnancies are also caused by high instances of violence, including sexual violence, reported by 59% of Ethiopian women, and abduction of young brides into marriage (WHO 2005; Fetters et al., unpublished). Consequently, Ethiopian women experience high rates of unwanted pregnancy and one of its resultant outcomes, unsafe abortion.

The mortality and morbidity risks associated with unsafe abortion partly depend on the availability and quality of services available for the treatment of abortion complications (WHO, 2003). A National Safe Motherhood Needs Assessment conducted in Ethiopia in 1996 revealed serious deficiencies in the availability and quality of postabortion care, particularly among health centers. At the time of the assessment, only 46% of health centers surveyed were able to perform an emergency uterine evacuation (UE) to treat the complications of unsafe abortion (Ethiopian MoH, 1996; Jeppsson et al.,1999). Among health centers that provided emergency UE services, sharp curettage was the most common technique used for uterine evacuation. The WHO and the International Federation of Gynecology and Obstetrics (FIGO) have called for properly equipped health facilities to phase out curettage and adopt aspiration methods because aspiration requires lower levels of anesthesia and pain control and it is a simpler, safer, and equally effective procedure (Kiza et al., 1990; Greenslade et al.,1993; Lukman et al.,1996; WHO, 2003). Additionally, the use of manual vacuum aspiration (MVA) by midwives has proven to be an effective means in other African countries for expanding postabortion services to women seeking care at primary- and lower-level health facilities (Brookman-Amissah et al.,1999).

For many Ethiopians, particularly women and children, the health center is the locus of their preventive and curative care. Expanding PAC services to health centers requires the commitment and guidance to enable providers to meet these needs. The adoption of MVA use by midwives and other midlevel providers has been an objective of the Ethiopian Federal Ministry of Health as a way to reach the most marginalized and distant regions of Ethiopia with UE services, the most common surgical procedure in the world. In 1999, the Federal Democratic Republic of Ethiopia recognized the need to expand access to PAC in

the Health Sector Development Program (Ethiopian FMoH, 1999). This call for improved maternal health has continued in the Health Sector Strategic Plan for 2005-2010 with the introduction of a major objective to reduce the maternal mortality ratio from 871 to 600 per 100,000 live births (Ethiopian FMoH, 2005b). Ipas Ethiopia and other stakeholders have collaborated with public health system authorities at the federal and regional levels to build national capacity. Major initiatives to promote women's ability to exercise their sexual and reproductive rights, train providers, expand linkages with the private sector, establish training centers, and advance operations research to improve the acceptability and quality of abortion care have been integral to this collaboration. This paper is an evaluation of these efforts to improve an important component of maternal health services in the country.

METHODS

Overview

A survey was administered to heads of maternity/PAC services in 119 health-care facilities selected for inclusion in the study at baseline during July to September 2000. The results of the baseline survey were used to determine needs and describe the availability and quality of postabortion care in the study facilities (Gebreselassie and Fetters, 2002). The objective of the intervention package (a combination of training, technical assistance, provision of equipment and supplies, advocacy and operations research) was to increase access to and quality of comprehensive PAC services during a four-year period. In total, 42 (35%) of the 119 facilities from the 2000 assessment were selected for intensive intervention.[1] From April to June 2004, a follow-up survey was conducted in all 119 facilities where data had been collected at baseline.

This paper presents analyses based on the data collected in the baseline and follow-up interviews to answer the following research questions:

1. **How did services at all 119 facilities compare between 2000 and 2004 (the four-year study period)?**

2. **How did the intervention affect availability and quality of PAC services between 2000 and 2004? Here comparisons are made between the 42 intervention facilities and the 77 comparison facilities.**

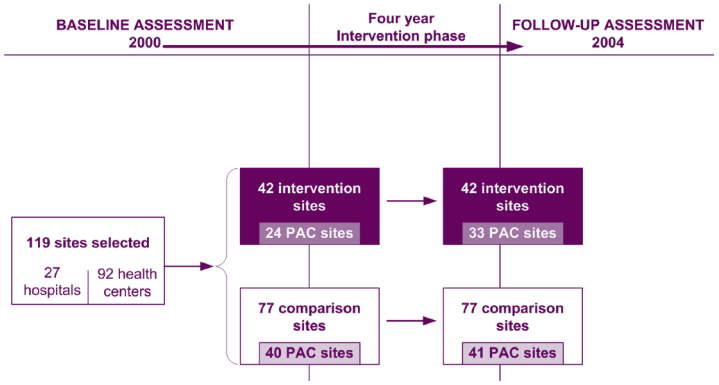
3. **How did the quality and availability of postabortion care change between 2000 and 2004 among the 42 intervention facilities?**

The first and second analyses provide information about the scope and magnitude of the changes in intervention facilities compared with changes in nonintervention facilities during the four-year period. The third analysis provides information about the effectiveness of intervention activities to improve PAC services among the intervention facilities.

Study design

The study employed a pre-post comparison group design with nonrandom selection of comparison and intervention facilities, as shown in **Figure 1**. The comparison group allows for changes in intervention facilities to be compared with changes that occurred in nonintervention facilities and compensates for bias due to "naturally occurring" differences in the region not necessarily attributable to the intervention.

Figure 1. Study design and organization of follow-up study results



[1] Ipas Ethiopia is a multisectoral NGO working at the federal, regional and community levels. The work documented in this assessment reflects a small portion of its activities related to policy, advocacy, training and research around the country.

Sampling strategy

In order to be eligible for inclusion in this study, facilities had to be:

(1) located in the regions of Addis Ababa, Amhara and Oromia (because more than 60% of the country's population resides in these areas);
(2) accessible by car; and
(3) approved by the RHB.

As shown in **Table 1**, all of Addis Ababa's 24 health facilities were to be included; however, one health center in Oromia that was not providing PAC services was later eliminated due to an incomplete questionnaire, resulting in the inclusion of 92% of all service-delivery points in that region. In Amhara, five of 11 administrative zones were randomly chosen and all accessible hospitals were included from within each zone. For Amhara health center selection, the assessment team listed all health centers in the five zones and identified for inclusion a cluster of four to five health centers located within close proximity to each hospital in the study. The clusters represent the functional limits of the hospital referral system, namely facilities that would likely be utilized during an actual obstetrical emergency irrespective of administrative boundaries. In Oromia, the assessment team decided to include as many facilities as was feasible because researchers were able to incorporate this study with ongoing, routine supervisory activities. As a result of the various sampling strategies, the selection process resulted in higher proportions of facilities included in Addis Ababa and Oromia than in Amhara. The same 119 baseline facilities were included at follow up in 2004, although one facility had been upgraded to a hospital.

Table 1. Regional Distribution, Type of Facility and Regional Coverage of Study Service Delivery Points (N=119)

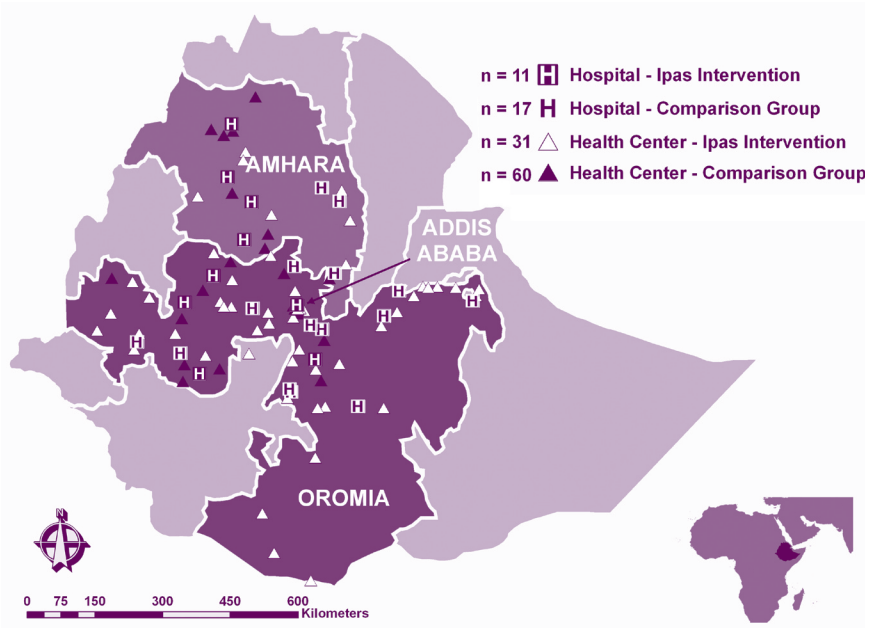
	Hospitals Targeted	Health Centers Targeted	Total Targeted Facilities	Surveyed Facilities	% of all Public Facilities in Region
Oromia	16	55	71	70	53%
Amhara	7	19	26	26	27%
Addis Ababa	5	18	23	23	92%
Total	28	92	120	119	47%

Intentional assignment of selected facilities to the postabortion care intervention was done in consultation with the local governments and considered distance to the nearest referral facility, capacity for implementation, demand for services, and commitment to PAC. These consultations resulted in the implementation of the PAC intervention in 35% (n=42) of the 119 surveyed facilities. The 42 intervention facilities were comprised of 11 hospitals and 31 health centers. At baseline, all of the intervention hospitals and 13 of the 31 intervention health centers were UE service providers. Of the 18 health centers that did not provide UE services at baseline, four were in Oromia, two in Amhara and 12 in Addis Ababa. The regional distribution of all study hospitals and health centers and the facilities where the PAC intervention was conducted is shown in **Figure 2**.

As shown in **Table 2**, bivariate analysis was conducted between the intervention and comparison facilities in order to test for baseline differences using chi-square tests for categorical variables and t-tests for continuous variables. No statistically significant differences ($p<0.05$) were found between the intervention and comparison groups on

any of the variables of interest related to facility characteristics and UE status at baseline, namely serving rural patients; having a gynecologist, general practitioner or midwife on staff; being a hospital; providing UE services; having or using MVA instruments; or mean number of staff.

Figure 2. Geographic Distribution of Study Facilities by Region, Intervention Status and Facility Type (N=119)



Intervention description

Managing complications of abortion requires providers with the skills to perform a uterine evacuation, clean environs and the proper equipment and supplies to perform the procedure (WHO, 2003). Yet in many countries, only physicians receive training to manage abortion complications and often only using sharp curettage. The PAC intervention focused predominantly on midwives, health officers and physicians who had received little information, education or practice in the use of MVA and the provision of PAC services during their medical or midwifery school courses.

Postabortion care training, designed to improve health-care workers' skills, attitudes and ability to offer high-quality PAC services, was offered to almost 400 providers nationally in 2001-2002. A pool of master trainers, primarily made up of gynecologists from the project regions, participated in a short course on teaching techniques and methods. These master trainers subsequently worked with Ipas and the RHBs to conduct a series of sessions for maternity and delivery-care providers drawn from their region's hospitals, health centers and health posts. The course package consisted of an initial donation of MVA instruments, supplies and equipment planning for logistics,

Table 2. Bivariate Analysis of Characteristics of the Intervention (n=42) and Comparison (n=77) Groups at Baseline (2000)

	Intervention (n=42)		Comparison (n=77)		Test Statistics	
	n	(%)	n	(%)	Chi²	p-value
Serves mostly rural patients	20	(48)	50	(65)	3.34	.07
Gynecologist on staff	9	(21)	9	(12)	2.00	.16
General practitioner on staff	27	(64)	46	(60)	0.24	.63
Midwife on staff	31	(74)	49	(64)	1.28	.26
Hospitals	11	(26)	17	(22)	0.26	.61
Provides UE services	24	(57)	40	(52)	0.30	.59
MVA available	11	(26)	12	(16)	1.96	.16
MVA used	7	(17)	6	(8)	2.20	.14
	Mean	**(SD)**	**Mean**	**(SD)**	**T-test**	**p-value**
Number of staff	3.8	(3.53)	2.8	(2.23)	-1.56	.12

and forecasting commodities for infection prevention; implementation of a checklist for standardized supportive supervisory visits; logbooks for monitoring services; guidelines for the development of service-delivery protocols; and follow-up technical visits by Ipas staff and MoH colleagues. During these sessions, the organization of PAC services (where they existed) was explored with trainers and participants from each facility to assess the efficiency of PAC service delivery.

The training model was a residential intensive course in PAC lasting 10-and-a-half days. Teaching techniques included structured lecture presentations, videos, practice on anatomical models, clinical skills practice in a hospital setting, quizzes and pre- and post-test exams to ensure that an acceptable level of learning had been achieved. The actual interventions varied slightly according to the lead trainers and course locations. The topics covered during the course included the management of patients with complications from an abortion; PAC assessment and diagnosis; pain management; use of MVA; instrument processing; infection prevention; counseling; postabortion contraception; postprocedure care; screening for other reproductive-health issues; an introduction to medical abortion; and legal and ethical issues around abortion.

Each training course involved 10-12 participants, and all spent two to four days acquiring the clinical skills to manage patients with abortion complications. The clinical sessions included practice assembling and disassembling the MVA aspirator; supervised use of MVA on models and patients; processing MVA instruments; and managing and counseling hypothetical and actual cases. Clinical practice, patient care, role modeling and observation sessions were held in affiliated training hospitals, but the amount of time each trainee spent providing patient care was variable, dependent on the hospital caseload.

Intervention activities also included community-level work. Junior-level, paraprofessional and lay health workers participated in courses on stabilization and referral for abortion cases or postabortion contraception. Community-based health workers (CBHWs), the junior professionals assigned to rural health posts, completed two-day courses, and community-based reproductive health agents (CBRHAs) participated in a one-day course on provision of care in their community and referral of abortion patients with complications.

On a federal level, Ipas Ethiopia focuses on policymakers, the media, legal and professional organizations and women's groups intent on operationalizing and advocating for revision of the penal code on abortion. Creating an enabling environment for advocacy and policy related to PAC service expansion is also an integral part of the program. Additionally, Ipas makes small monetary grants to community-based organizations working in the reproductive-health field. Finally, efforts are under way to incorporate more PAC and MVA content into the pre-service curricula of all cadres of health professionals to improve the capacity of the program's graduates.

Survey instruments

A two-part semi-structured questionnaire was developed and pre-tested, and in-person interviews were conducted by trained data collectors with the head of gynecological or maternal health services in each facility. The components of the questionnaires are listed in **[Table 3]**. Questionnaires differed for those facilities that provided treatment for abortion complications and those that did not provide UE services but must refer women with complications of abortion to other facilities for PAC services.

Table 3. Questionnaire Content for PAC and Non-PAC Providing Facilities

Content	Treating Facilities	Referring Facilities
General information on facility	•	•
Inventory of clinical services	•	
Equipment, supplies, medications and contraceptives	•	•
Staff training needs and capacity	•	•
PAC-related service statistics	•	
Perception of PAC improvements	•	•
Contraceptive service statistics	•	•

Data obtained included information regarding the type and quality of postabortion clinical services; availability of UE equipment and supplies; and providers' perceptions of service delivery improvements. Other collected data pertained to technical skill and training level of staff involved in postabortion care; availability of contraceptive services and types of contraceptive commodities present in the facility; quality of infection prevention practices; and quality of record-keeping. The content of the 2000 and 2004 questionnaires was identical except for an additional section added to the post-test on perceived improvements to postabortion care and the factors involved in these service improvements.

Data collection and analysis

Pre-intervention data were collected from July to September 2000.[2] Post-intervention data were collected from April to June 2004. Data collectors were general practitioners, health officers and senior nurses working at health bureaus and facilities. Data collectors all had prior experience conducting reproductive-health assessments. The data collectors were trained for two days on the questionnaire content and survey methods. Data were collected using the appropriate survey questionnaires (based on whether the facility provided PAC or referred patients to other facilities for PAC) from all 119 facilities in both 2000 and 2004.

All questionnaires were brought to the central Ipas office in Addis Ababa for data entry, cleaning, editing and descriptive analysis using Epi-Info version 6.0. Further analyses were conducted at Ipas North Carolina using SAS version 9.1. Statistical significance was reported at the alpha < .05 level.

A number of variables were constructed from the data to allow investigation of the study research questions. First, number of staff was defined as the summed number of obstetricians/gynecologists, general practitioners and midwives in the health centers or the delivery/gynecology wards of the hospitals. Pain control medications included analgesics, general anesthetics, and local anesthetics. Conversely, when patients received no pain medication, they received none of the aforementioned pain control products. The surface

[2] For a more detailed description of the baseline methodology and results, see Gebreselassie and Fetters, 2002.

disinfectant Savlon (a detergent and antiseptic cleansing solution) and chlorine bleach comprise the infection prevention materials. In addition, minimum skilled providers available was defined as a hospital having three or more providers trained in use of MVA or a health center having one or more provider trained in the use of MVA. Finally, at least one contraceptive method available was defined as providing oral contraceptives, injectables, IUD, or male condoms.

Categorical data are presented as frequencies and percentages, while continuous data are presented as means and standard deviations. For the first research question, comparisons between the 2000 and 2004 variables among all 119 facilities were calculated using McNemar's test, a nonparametric statistical test used to compare paired proportions (Armitage et al., 2002). For the second research question, the associations between intervention status and changes in response from 2000 to 2004 were computed in the following way. Five logistic regression models, one for each of the five outcomes of interest (capacity for UE services, minimum skilled providers, provision of postabortion contraceptives, MVA available, and use of MVA), were fit to predict 2004 outcomes using intervention status (intervention/comparison) after adjusting for their outcome status in 2000. Adjusted chi-square statistics and their corresponding p-values (adjusted proportions) are reported for the association between intervention status and 2004 response, after adjusting for 2000 response. For the continuous variable percent of UE procedures using MVA, a paired t-test and the corresponding p-value are presented. For the third research question, differences between 2000 and 2004 among the 42 intervention facilities were computed using McNemar's tests for categorical variables and using paired t-tests for continuous variables. Note that for outcomes specific to PAC-providing facilities, the analysis was limited to the 33 facilities providing PAC in either 2000 or 2004.

RESULTS

For consistency and clarity, the presentation of results is organized into three sections corresponding to the study research questions listed in the Methods section.

1. Overall Availability and Quality of PAC Services

As shown in **Table 4**, an overall comparison of the availability and quality of PAC services among the 119 facilities between 2000 and 2004 was undertaken to present a picture of PAC services in Ethiopia, in particular UE services, contraceptive methods, essential supplies, emergency transport, and trained UE providers.

Table 4. Availability and Quality of PAC Services Over Time among All 119 Facilities Surveyed

	2000		2004		McNemar's Test	
	n	(%)	n	(%)	Chi²	p-value†
UE Services Available	64	(54)	74	(62)	3.13	.08
Contraceptive Methods Available						
At least one method	117	(98)	119	(100)	2.00	.16
Oral contraceptives	117	(98)	89	(74)	28.00	**<.01**
Injectables	97	(82)	100	(84)	0.29	.59
IUD	31	(26)	44	(37)	3.93	**<.05**
Male condoms	91	(76)	103	(87)	3.79	.05
Essential Supplies Available						
Pain control medications	50	(42)	61	(51)	2.28	.13
Antibiotics	67	(56)	47	(40)	7.69	**<.01**
Infection prevention materials	78	(66)	94	(79)	5.12	**.02**
Gloves	93	(78)	85	(71)	1.33	.25
Speculae	94	(79)	96	(81)	0.18	.73
Tenaculae	92	(77)	102	(86)	2.78	.10
MVA	18	(15)	58	(49)	36.36	**<.01**
Emergency Transport Available	27	(23)	30	(25)	0.31	.58
Minimum Skilled Providers Available*	20	(17)	59	(50)	31.04	**<.01**

†Findings statistically significant at the alpha < .05 level are indicated by **bold font**.

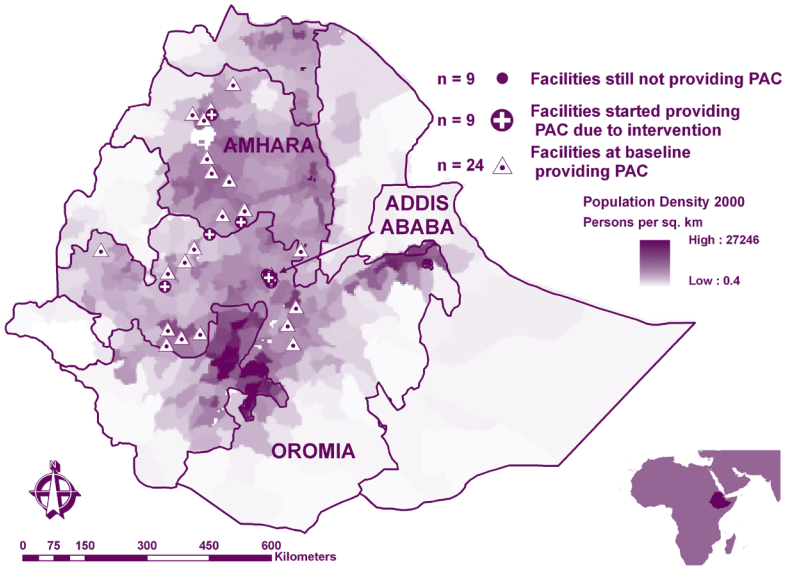
*Minimum skilled providers is defined as follows: Among health centers, one or more providers trained to perform MVA; among hospitals, three or more providers trained to perform MVA.

Uterine Evacuation

In 2000, 64 of the 119 facilities (54%) provided UE services to women with abortion complications by performing either sharp curettage or MVA. These 64 facilities were comprised of almost all of the sampled hospitals (89%), but less than half of the sampled health centers (43%). By 2004, 74 facilities (62%) were providing UE services to women

with abortion complications; however, this was not a statistically significant increase in service provision (p=.08). The three sampled hospitals that did not provide UE services in 2000 had not begun to provide services by 2004, whereas just more than half of the health centers (54%) were providing uterine evacuation in 2004. The distribution of facilities that provided UE services in 2000 and 2004 can be seen in **Figure 3**. The two hospitals that did not provide UE services in 2000 or 2004 were both located in Addis Ababa.

Figure 3. Capacity to Provide Uterine Evacuations in 2000 and 2004, by Region



Contraceptive Methods

While there was no significant difference in facilities providing at least one contraceptive method (oral contraceptives, injectables, IUD, and male condoms) as part of PAC services between 2000 and 2004, the availability of specific contraceptive methods as part of PAC services remained relatively constant between 2000 and 2004, except in the case of oral contraceptives and IUDs. In particular, oral contraceptives were available as part of PAC services at 117 facilities (98%) in 2000 but decreased to 89 facilities (74%) in 2004 (p<.01); IUDs were available as part of PAC services at 31 facilities (26%) in 2000 and increased to 44 facilities (37%) in 2004 (p<.05). There was no statistically significant change between 2000 and 2004 in facilities specifically providing injectables or male condoms as part of PAC services.

Essential Supplies

The findings for availability of essential supplies in the provision of PAC services at the 119 facilities were somewhat mixed. The availability of supplies for decontamination and disinfection of medical and MVA instruments increased from 2000 to 2004 while the availability of antibiotics decreased from 2000 to 2004. Further, there was no change in the availability of pain control medications, gloves, speculae, or tenaculae between 2000 and 2004. In particular, infection prevention materials were available at 78 facilities (66%) in 2000 and increased to 94 facilities (79%) in 2004 (p=.02), and MVA was available at 18 facilities (15%) in 2000 and increased to 58 facilities (49%) in 2004 (p<.01). Alternatively, antibiotics were available at 67 (56%) of facilities in 2000, decreasing to 47 (40%) of facilities in 2004 (p<.01).

Emergency Transport

There was no statistically significant change between 2000 and 2004 in the capability of facilities to provide emergency transportation when a woman's condition was beyond its treatment capacity. Specifically, 27 facilities (23%) reported having emergency transportation in 2000, while 30 facilities (25%) reported the same in 2004 (p=.58).

Trained Uterine Evacuation Providers

In 2000, 20 of the 119 facilities (17%) reported having the minimum number of trained providers essential for providing consistent UE care. This included seven hospitals (28%) with three or more trained providers and 13 health centers (14%) with one or more trained providers. By 2004, the number of facilities reporting the minimum number of trained providers essential for providing consistent UE care had significantly increased to 59 (50%; p<.01); including nine hospitals (32%) and 50 health centers (55%).

2. Comparison of Services Between Intervention and Comparison Facilities

Table 5 presents the statistical findings of the comparison between 2000 and 2004 services by intervention status. In general, receiving the intervention was significantly associated with increases in positive outcomes including capacity for UE services, minimum skilled providers on staff, provision of postabortion contraceptives, MVA available, use of MVA, and the percent of procedures performed using MVA.

Availability of Uterine Evacuation Services

Between 2000 and 2004, the capacity to provide UE services increased from 24 (57%) to 33 intervention facilities (79%), while it remained relatively constant among the comparison facilities (increasing from 40 facilities (52%) in 2000 to 41 facilities (53%) in 2004, p<.01).

Table 5. Effect of Intervention over Time on Availability and Quality of PAC Services by Intervention (n=42) and Comparison (n=77) Groups

	2000 Intervention (n=42)		2000 Comparison (n=77)		2004 Intervention (n=42)		2004 Comparison (n=77)			
	n	**(%)**	**n**	**(%)**	**n**	**(%)**	**n**	**(%)**	**Chi²***	**p-value†**
Capacity to provide UE services	24	(57)	40	(52)	33	(79)	41	(53)	1.35	**<.01**
MVA available	11	(26)	12	(16)	33	(79)	24	(31)	31.09	**<.01**
Use of MVA	7	(17)	6	(8)	28	(67)	21	(27)	1.68	**<.01**
Minimum skilled providers	8	(19)	12	(16)	37	(88)	22	(29)	3.04	**<.01**
Provision of postabortion contraceptives[Δ]	6	(25)	9	(23)	24	(73)	13	(32)	7.88	**<.01**
	Mean	**(SD)**	**Mean**	**(SD)**	**Mean**	**(SD)**	**Mean**	**(SD)**	**Paired t**	**p-value**
Percent of UE procedures using MVA[Δ]	14%	(39)	6%	(19)	50%	(31)	18%	(23)	3.10	**<.01**

*For categorical variables, adjusted statistics were computed using logistic regression models predicting 2004 status with intervention/comparison status, adjusting for 2000 status. See the Methods section for a complete description.

† Findings statistically significant at the alpha < .05 level are indicated by **bold font**.

Δ Among UE–providing facilities.

Availability, Use and Skilled Providers of MVA

Receiving the intervention was statistically significantly associated with positive change between 2000 and 2004 in the availability of MVA, use of MVA, and availability of minimum skilled providers of MVA. In particular, the availability of MVA instruments in comparison facilities rose from 12 (16%) to 24 (31%), while it rose even more, from 11 (26%) to 33 intervention facilities (79%) during the same period (p<.01). The use of MVA instruments rose from six (8%) to 21 comparison facilities (27%) in 2004, while it rose even more from seven (17%) to 28 intervention facilities (67%) during that time (p<.01). The availability of trained providers rose from 12 (16%) to 22 comparison facilities (29%), while it rose even more from eight (19%) to 37 intervention facilities (88%) during the same period (p<.01).

Provision of Postabortion Contraception

The intervention was similarly associated with increased provision of contraception as part of postabortion care. While comparison facilities providing contraception as part of postabortion care increased from 9 (23%) in 2000 to 13 (32%) in 2004, intervention facilities providing contraception as part of postabortion care rose from 6 (25%) in 2000 to 24 (73%) in 2004 (p<.01).

Proportion of UE Procedures using MVA

According to provider estimates, among the facilities with PAC services, the intervention was associated with an increase in the proportion of UE procedures conducted using MVA. The proportion of uterine evacuation procedures using MVA rose from 6% to 18% among comparison facilities; it increased even more among intervention facilities, from 14% to 50% of procedures (p<.01).

Overall Reported Improvements in PAC

As shown in **Table 6**, the intervention was also associated with an overall report of improvements in the provision and quality of postabortion care during the two years preceding the 2004 assessment. For example, 35 intervention facilities (83%) reported overall improvements in PAC services compared with only 30 comparison facilities (p<.01).

Table 6. Self-Reported Improvements in PAC Services during Past 2 Years, 2004

	2004 Intervention (n=42)		2004 Comparison (n=77)			
	n	(%)	n	(%)	Chi²*	p-value†
Overall reported improvements	35	(83)	30	(39)	21.59	**<.01**
Increased community awareness	12	(29)	6	(8)	9.14	**<.01**
More attention is paid to PAC	10	(24)	7	(9)	4.77	**.03**
More motivation and enthusiasm from MoH	6	(14)	2	(3)	_ _	**.02**
Changed organization of services	8	(19)	6	(8)	_ _	.08

*A missing test statistic (denoted by - -) indicates that the Fisher's Exact p-value associated with the relationship of interest is reported due to expected cell counts < 5.

† Findings statistically significant at the alpha < .05 level are indicated by **bold font**.

Specific improvements associated with the intervention included increased community awareness [12 intervention facilities (29%) as compared with 6 comparison facilities (8%, p<.01)]; more attention paid to PAC [10 intervention facilities (24%) versus seven comparison facilities (9%; p=.03)]; and more motivation and enthusiasm from the MoH [6 intervention facilities (14%) versus two comparison facilities (3%, p=.02)]. There was no difference between intervention and comparison facilities for changes in organization of PAC service delivery.

3. Changes in Quality of Services Among the 42 Intervention Facilities

In 2000, 24 (57%) of the 42 PAC intervention facilities reported some capacity to provide UE services; by 2004, this number had risen to 33 facilities (79%) having the ability to provide this service (p<.01). Because all hospitals were already providing some level of postabortion care in 2000, these increases in access to care occurred exclusively in health centers. Recall that Figure 3 shows the geographic distribution of the facilities with UE capacity services.

Among the 33 facilities reporting capacity to provide uterine evacuation services in 2004 **(Table 7)**, improvements were seen in most measures of postabortion quality of care. The availability and use of MVA, being staffed with a minimum number of skilled providers in the use of MVA, as well as the number of patients receiving medication for pain, all improved as a result of the intervention. In particular, the availability of MVA instruments rose from 11 (26%) to 33 facilities (79%, p<.01); use of MVA instruments rose from 7 (17%) to 28 facilities (67%, p<.01); availability of minimum skilled providers rose from 8 (19%) to 37 facilities (88%, p<.01); offering contraception as part of postabortion care was common in only 6 (25%) of facilities in 2000 but expanded to 24 facilities (73%, p<.01) in 2004; and the percentage of UE procedures performed with MVA rose from 14% to 50% (p<.01). One outcome measure, providing no pain medication for uterine evacuation procedures, improved slightly but did not differ significantly among intervention facilities between 2000 and 2004.

Table 7. Effect of Intervention Over Time among 42 Intervention Facilities with Capacity to Provide UE Services in 2004

	2000		2004		McNemar's Test	
	n	(%)	n	(%)	Chi^2	p-value[†]
UE services available	24	(57)	33	(79)	7.36	**<.01**
MVA available	11	(26)	33	(79)	22.00	**<.01**
Use of MVA	7	(17)	28	(67)	21.00	**<.01**
Minimum skilled providers	8	(19)	37	(88)	29.00	**<.01**
Provision of postabortion contraceptives[Δ]	6	(25)	24	(73)	8.33	**<.01**
Patients receiving no pain medicine during UE[Δ]	18	(75)	16	(48)	2.78	.10
	2000		**2000**		**Paired t-test**	
	Mean	**(SD)**	**Mean**	**(SD)**	**t**	**p-value**
Percent of procedures using MVA [Δ]	14%	(39)	50%	(31)	3.10	**<.01**

[†] Findings statistically significant at the alpha < .05 level are indicated by **bold font**.
[Δ] Among UE–providing facilities.

DISCUSSION

In 2004, the 74 facilities that provided PAC and were included in this assessment served more than 6,500 Ethiopian women. This evaluation was conducted in order to document lessons learned in the field of PAC service delivery and to present recommendations for policymakers and program managers within Ethiopia and elsewhere. The results of this assessment have a number of implications for national policymakers and other stakeholders concerned with improving the availability and quality of PAC services in Ethiopia.
Overall, this study attributed significant improvements in the accessibility, availability and quality of postabortion care in the three focal regions of Amhara, Oromia and Addis Ababa to the intervention described in detail in this paper. The results also show PAC quality improvement in the comparison facilities primarily due to training of providers, Ipas and other NGO involvement and increased commitment by local governments, a primary objective of the Ipas-MoH intervention. The Ethiopian political climate regarding maternal health and its related policies and programs suggests that now is an opportune time to intensify efforts to reduce maternal morbidity and mortality via improved postabortion care programming.

Study Limitations

The findings of this study must be viewed in light of a number of limitations in design and scope. Inclusion in the intervention cohort was purposive and largely based on the expertise and opinions of the local governments whose primary interest was to promote PAC services where they were needed and could be sustained. Factors such as distance to the nearest referral facility, availability of staff to cover training absenteeism, and the perceived likelihood of success all influenced discussions on selection and may have influenced outcome measures, although a comparison of characteristics of the intervention and comparison groups showed no statistically significant differences in the composition of the groups. In all three regions, training began with master trainer skill improvement in techniques and expertise related to PAC. Trainers then proceeded to transfer skills to students in 10-day residential training sessions. Although the master trainers were given standardized materials and curricula to follow, some individual variation may have influenced their participants and ultimately the evaluation outcomes. Additionally, the rollout of training proceeded over a four-year period and the varying time elapsed since a participant attended a training course may have influenced the study outcomes. We did not adjust for this variability in timing of provider training.

In this study, "contamination" between the intervention and comparison facilities was viewed positively as a naturally occurring phenomenon. In reality, a primary objective of this intervention was to build interest and capacity in the stakeholders and primarily the RHBs responsible for supervision of the program. Factors such as facility monitoring, coordinated supervision, provider relocation, facility referral patterns and other NGO involvement in maternal health were encouraged to improve maternal health services for all women living in these regions and not merely for women living within the catchment areas of the intervention facilities. However, this study environment means that changes occurred within both the intervention and comparison cohorts and, in some cases, may not have reached levels of significance when compared directly. Finally, the small number of facilities providing PAC at baseline (n=24 intervention and n=33 comparison) and those becoming PAC providers where services did not exist prior to the intervention (n=17) during the study period limits the power of comparative analysis.

IMPLICATIONS

1. Overall Availability and Quality of PAC Services (N=119)

Overall, the availability of UE services remained relatively stable during the four-year period of interest. The observed increase (not statistically significant) was evident solely in health centers, with no change reported in the hospital facilities that were already providing some PAC services at baseline. Yet the initiation of PAC services in nine intervention and one comparison facility (an increase from 64 to 74 facilities) has a potentially dramatic impact on the hundreds of Ethiopian women who require PAC services each year. Decreasing direct, travel and hospitalization costs for PAC services eases the financial burden on households and crowded referral hospitals while ensuring that women may quickly reach a trained health-care provider able to stabilize their conditions and alleviate the risk of morbidity or mortality. Despite improvements, it is disappointing that 21% of intervention and 38% of all facilities still do not provide potentially life-saving UE services at follow up. These results are comparable to the findings of an evaluation to increase legal abortion services in Limpopo province, South Africa (Mitchell et al., 2004). The authors identified numerable administrative and individual barriers, often outside a provider's control, to service expansion. These results also illustrate the difficulties of working in underfinanced health systems, asking providers to give more care when they are already understaffed and underresourced.

Contraceptive commodity availability in the PAC procedure areas of the study facilities appeared to decline between 2000 and 2004. This decline probably mirrors 2002-2004 shortages in funding for contraceptives as donors began to withdraw support for these commodities. Additionally, the Ipas-RHB intervention encourages and supports a reorganization of services to enable women to access contraceptive methods at the point of their postabortion services rather than being referred elsewhere in the facility. In the case of many of the health centers, the PAC procedure area may be the only, or one of the few, contraceptive service-delivery areas in the building. Providing postabortion contraception in hospitals, however, often requires a more dramatic reorganization of services and personnel that can be perceived as more costly or time-consuming for staff. The two facilities without any contraceptive methods available in 2000 were both hospitals; this is of particular concern because much postabortion care occurs in hospitals. Finally, although HIV prevention activities anecdotally increased in these areas and access to barrier methods (male condoms) increased somewhat in these study facilities, it is disturbing that male condoms were not available in all facility locations.

The mixed findings for the proportion of facilities reporting regular availability of essential supplies necessary to provide basic emergency obstetric care suggest that the overall preparedness of facilities changed very little between 2000 and 2004. It is likely that the observed increases in essential equipment necessary for PAC (e.g., tenaculae, speculae, and MVA) were due to program donations, while essential medicines and supplies transported by the federal government (including pain medications and antibiotics) either decreased in availability or showed no change. The availability of infection-prevention materials and gloves, usually provided by the RHBs or purchased from facility user fees, improved slightly. In summary, the supplies and logistic capabilities diminished over time, while the proportion of facilities reporting shortages of antibiotics increased over time. When combined with the decreasing availability of contraceptives in PAC areas, these shortages suggest a national downward trend in capacity.

It is not surprising that there were significant changes in MVA availability and use and minimum skilled providers, as these were both primary outcomes of interest with the intervention. While access to postabortion care has improved between 2000 and 2004, much still needs to be done to ensure that all Ethiopian women can access this life-saving service. Given that health centers are often most accessible, particularly for the vast majority of Ethiopian women residing in rural areas, more emphasis should be placed on decentralizing PAC services to the health center level. Providing care closer to women's homes and in their communities is more cost-effective for the health system and the household. The progress made in this regard within the Amhara region is a good example of limited success. MVA access and use has increased in the region, but is still limited and primarily available in hospitals as opposed to health centers. Underemphasized opportunities also exist to initiate uterine evacuation services within those sites that currently do not provide the service but have trained practitioners.

Findings for emergency transport suggest that a limited number of facilities have the option to provide emergency transportation when a woman's condition was beyond their treatment capacity, even after considering the nonstatistically significant increase from 2000 to 2004. This remains a critical area to be addressed because the vast majority of health centers (68%) still cannot provide emergency transport and the resulting delays likely play a role in high rates of maternal morbidity and mortality in Ethiopia, particularly in rural areas. This situation may be particularly difficult for health centers that do not provide UE services. Facilities that do not provide PAC services reported vast distances to the nearest referral facilities for PAC, ranging from 1 to 120 kilometers.

Community outreach has not received the focus that it deserves given that more informed communities can play multiple roles in addressing barriers to care-seeking, including the lack of knowledge about existing services and the need to seek timely postabortion care. Primary prevention of unintended pregnancies and subsequently, unsafe abortion require a willingness to speak out and articulate the problem in service-delivery points and communities. Future efforts should include more local mobilization and outreach activities in collaboration with existing community-based reproductive health and safe motherhood programs.

2. Comparison of Services between Intervention (n=42) and Comparison (n=77) Facilities

Overall, it appears that the intervention was effective in improving PAC outcomes during the four-year study period. In 2004, more intervention facilities provided PAC services, performed MVA, regularly provided postabortion contraception, and had at least the minimum number of skilled providers trained in MVA clinical skills, suggesting that this intervention is successful. Improvements in the comparison group are also heartening and not to be overlooked. For example, more than one-third of comparison facilities report overall improvements in quality and provision of PAC services. These facilities report a wide variety of stakeholders contributing to improvements, including support from the MoH/RHB, Ipas, and other NGOs.

It is encouraging that while more intervention sites indicate that PAC improvements have been made in all areas, changes are also taking place in comparison sites, particularly in the areas of training, increased use of MVA and postabortion contraception. A primary focus of this intervention was to include the RHBs in all aspects of the design, data collection and monitoring of the intervention. In particular, RHBs participated in routine supervision of the trained providers to enable them to identify facility-based barriers to effective programming

such as stock-outs of supplies or a lack of administrative support. Although competing priorities for health resources can be overwhelming for individual health facilities, efforts during the past 10 years to improve and emphasize PAC services are showing results across the health-care system as training spreads and commitment to improving postabortion care grows. Scaling up all dimensions of postabortion care (training, management, logistics and procurement, etc.) will continue to require strong collaboration with regional and *woreda* (the community level administrative units) health bureaus to ensure that changes are institutionalized and sustained.

Our findings suggest that improvements in postabortion care are probably taking place, although at a slower rate, across the health system in Ethiopia as a whole. Increased government commitment, NGO activity, knowledge about MVA in the medical community, training of providers and greater availability of MVA technology have culminated in more vigorous efforts to improve services. This process can be further catalyzed by increasing attention and awareness to program successes and challenges.

This intervention addressed issues such as stabilization and referral of critical PAC patients and improved the ability of many sites to manage critical cases. No funds were provided to purchase or maintain emergency vehicles. Yet it is of concern that only one in three health centers is able to provide emergency transportation for patients with severe complications. This area should not be ignored and will require close collaboration among the government, donors and other organizations in the future. Creative community-based efforts that have worked elsewhere to address this issue (such as community savings for emergency transport) may also be useful.

Experience indicates that the various elements that go into quality of postabortion care must be addressed to ensure that treatment is effective and appropriate; the rights of patients are respected; the needs of facility and Ministry of Health staff are addressed; and that essential supplies, equipment and medications are consistently available. This is a complex arena that is addressed as part of training as well as follow-up supervision and support. The results of this evaluation were disappointing in some aspects of quality. Results indicate that pain control is an area that needs more emphasis as the majority of women still do not receive any medication to relieve them of their discomfort. Infection prevention is also an area of critical importance both for patients and providers. These elements of care are essential to provide high-quality services, but they are also dependent on the health system to ensure that adequate supplies of medication, commodities and equipment for disinfection and sterilization are available year-round. Training efforts should further emphasize the use of tools to assess and improve quality of care and performance improvement and better anticipate all barriers to high-quality care, including systemic barriers such as stock-outs.

3. Changes in Availability and Quality of Services Among the 42 Intervention Facilities

The overall changes in offering UE services from 2000 to 2004 occurred solely among health centers, in large part because hospitals were already providing these services at baseline. This appears to support the positive impact of the intervention, which was intentionally designed to decentralize PAC services into remote primary-care facilities where PAC services were nonexistent in 2000 and also to urban health centers. The type of practitioner present in facilities continues to be a central factor in determining access to evacuation services in these study areas. In 2000, the primary providers of evacuation procedures were gynecologists or general practitioners most commonly found at the

hospital level. In 2004, most uterine evacuations using MVA were performed by general practitioners and midwives. A training emphasis on midlevel providers offered an important opportunity to reach women seeking care at the health-center level where physicians remain in short supply.

A lack of attention to postabortion contraceptive counseling is a missed opportunity to prevent unintended pregnancy in Ethiopia. This is a critical element in postabortion care and is key to decreasing the likelihood that a woman will experience a future unintended pregnancy or an unsafe abortion. While the assessment documented good progress in this area (the proportion of facilities that regularly provide postabortion contraceptives rose from 25% to 73%), it is an area that must be seen as an essential element of PAC. Efforts to introduce and strengthen postabortion contraception should encourage sites to provide counseling and a wider range of contraceptive commodities in the gynecology ward where treatment of incomplete abortion takes place, as this mode of delivery has been proven more effective than referring women elsewhere (Solo et al., 1999). While increases in capacity from 2000 were noted in nearly all areas among the 33 facilities offering UE services in 2004, there remains room for improvement, particularly for providing postabortion contraceptive methods and increasing use of pain management during UE procedures. Twice as many patients received some type of medication for pain in 2004 as did in 2000 (from 25% to 52%). Although there was an increase, this was the only component of the intervention that did not reach statistical significance. In 2004, almost half of postabortion patients still did not receive anything to relieve them of their pain and discomfort.

Training providers to use equipment and equipping facilities with proper supplies and instruments is central to the capability of providing high-quality care. MVA equipment, specula and tenaculae all increased in intervention facilities, but other shortages remained a persistent problem. A consistent supply of equipment, drugs and commodities is necessary to initiate and sustain successful PAC services and is a critical aspect of all successful programs. The assessment revealed that shortages of essential supplies necessary to manage obstetric emergencies are common across facilities and that shortages of antibiotics may have become more severe during the four-year period. It is also worrying that the availability of certain contraceptives had declined or stayed the same, perhaps resulting in more unintended pregnancies. This scenario means that efforts to improve both the overall government system of logistics and procurement as well as the capacity to track and manage supplies (including MVA kits) at the facility level should be undertaken if the program is to show sustainability and results at wider scale. Training and technical assistance that focuses on the availability of essential supplies will be critical.

CONCLUSIONS

Although likely to contain valuable lessons, program evaluation data are often not conducted or reported in a manner that is accessible to stakeholders. The lessons elicited from this evaluation are necessary to determine the success of interventions for NGOs and imperative for policymakers as governments move to deliver, sustain and scale up services that have traditionally been led by the NGO sector. Efficacy should be a criterium for determining sustainability and therefore contribute to the process of evidence-based decisionmaking.

Although progress has been achieved in these regions, many Ethiopian women still do not have access to comprehensive, or even limited, PAC services. In 2004, the Ethiopian Parliament took bold steps to address the sexual and reproductive health and rights of women by revising the Ethiopian Penal Code; these efforts should be applauded internationally. Revisions to the Code restricting early marriage, abduction, rape, harmful traditional practices, child trafficking, sexual violence and potentially offering more women access to safe and legal abortion services avails tremendous opportunity to advocate for equitable, woman-centered reproductive health care. One of these amendments directly addressed the social and health consequences of unsafe abortion, yet impact will only be achieved if women know their rights; have access to health facilities equipped to perform abortion and postabortion care; are informed of safe termination of pregnancy services; and if providers are willing and able to implement the new changes to the abortion code to the fullest extent of the law. Research in South Africa and Zambia indicates that some women will continue to choose unsafe abortion even where safe abortion services are available (Jewkes et al., 2005; Webb, 2000). It is imperative that policymakers, donors, NGOs and individuals continue to struggle to make the intent of this law – sexual and reproductive rights, access to high-quality reproductive-health care and safe legal abortion services – a reality for all Ethiopian women.

REFERENCES

Abdella, A. 1996. Retrospective study on abortion admissions in Jimma Hospital, South West Ethiopia. *Ethiopian Journal of Health and Development*, 10:167-170.

Armitage P, G. Berry, JNS Matthews. 2002. *Statistical Methods in Medical Research* (4th edition). Oxford: Blackwell Science.

Brookman-Amissah, E., J.E. Taylor, T. Baird, D. Billings, H. Odoi-Ayarko, K. Ababio and F. Quarcoopome. 1999. Decentralising postabortion care in Africa: A call to action. *African Journal of Reproductive Health*, 3(1):109-114.

Center for International Earth Science Information Network (CIESIN). Columbia University; and Centro Internacional de Agricultura Tropical (CIAT) 2004. Gridded Population of the World (GPW), Version 3. Palisades, NY: CIESIN, Columbia University.

Ethiopian Central Statistical Authority and MEASURE DHS ORC Macro. 2005. Ethiopia Demographic and Health Survey 2005: Preliminary Report. Addis Ababa, Central Statistical Authority and MEASURE DHS ORC Macro. Calverton, MD.

Ethiopian Central Statistical Authority and ORC Macro. 2001. Ethiopia Demographic and Health Survey, 2000. Addis Ababa, Central Statistical Authority and ORC Macro, Calverton, MD.

Ethiopian Ministry of Health. 1999. *Health and health related indicators*. Addis Ababa, MoH.

Ethiopian Ministry of Health. 1996. *Ethiopia safe motherhood needs assessment*. Addis Ababa, MoH.

Ethiopian Ministry of Health. 1999. *Reproductive health sub-program 1999-2001*. Addis Ababa, MoH.

Ethiopian Ministry of Health. 2005a. *Health and health related indicators*. Addis Ababa, MoH.

Ethiopian Ministry of Health. 2005b. *Health Sector Strategic Plan (HSDP III) 2005/6-2009/10*. Addis Ababa, MoH.

Ethiopian Society of Obstetricians and Gynecologists. Survey of unsafe abortion in selected health facilities in Ethiopia. Addis Ababa. May 2002.

Fetters, T., L. Bowen and H. Gebreselassie. *Disappointing my mother: Clandestine abortion experiences in Ethiopia*. Unpublished manuscript, Ipas.

Forna, F. and A.M. Gülmezoglu. 2002. Surgical procedures to evacuate incomplete abortion (Cochrane Review). In: *The Cochrane Library*, Issue 1. Oxford: Update Software.

Fraser, A., M. Kamal-Smith and K. Watkins. 2004. *The Cost of Childbirth*. OXFAM Great Britain.

Gebreselassie, H. 2001. *Victims of unsafe abortion*. Unpublished patient interviews translated from Amharic.

Gebreselassie, H. and T. Fetters. 2002. Responding to unsafe abortion in Ethiopia. A facility-based assessment of postabortion care services in public health sector facilities in Ethiopia. Chapel Hill, NC.

Genebo, T., M. Gebrehiwot, K. Rudolf and H. Donat. *Review of abortions at Gondar College of Medical Sciences Hospital.* 1987. Paper presented at the Gondar College of Medical Sciences annual conference, Gondar, Ethiopia.

Getahun, H. 1999. *Determinants of abortion in rural Ethiopia*. Paper presented at the Ethiopian Public Health Association 10th annual conference, Addis Ababa, Ethiopia.

Greenslade, F.C. and W.H. Jansen. 1998. Postabortion care services: an update from PRIME. *Resources for Women's Health*, 1(2):1-12.

Greenslade, F.C., A.H. Leonard, J. Benson, J. Winkler, and V.L. Henderson. 1993. *Manual vacuum aspiration: A summary of clinical and programmatic experience worldwide*. Carrboro, NC, IPAS.

Hassen, F. 2000. A*nalysis of factors for unwanted pregnancy among women in reproductive age group attending health institutions in Jimma town, South-western Ethiopia.* Paper presented at Jimma University, Jimma, Ethiopia.

Jeppsson, A., M. Tesfu and L. Bohmer. 1999. Magnitude of abortion-related complications in Ethiopian health facilities: A national assessment. *East Africa Medical Journal*, 76:547-551.

Jewkes, R. K., T. Gumede, M.S. Westaway, K. Dickson, H. Brown and H. Rees. 2005. Why are women still aborting outside designated facilities in metropolitan South Africa? *BJOG: an International Journal of Obstetrics of Gynaecology*, 112: 1236-1242.

Kiza, A.P. and K.O. Rogo. 1990. Assessment of the manual vacuum aspiration (MVA) equipment in the management of incomplete abortion. *East Africa Medical Journal*, 67:812-822.

Kwast, B.E., M. Bekele, S. Yoseph, A. Gossa, L. Mehari and O. Frost. 1989. Confidential enquiries into maternal deaths in Addis Ababa, Ethiopia 1981-1983. *Journal of Obstetrics and Gynecology of Eastern and Central Africa*, 8:75-82.

Kwast, B.E., R.W. Rochat and W. Kidanemariam. 1986. Maternal mortality in Addis Ababa, Ethiopia. *Studies in Family Planning*, 17:288-301.

Lukman, Y. and D. Pogharian. 1996. Management of incomplete abortion with MVA in comparison to sharp metallic curettage in an Ethiopian setting. *East Africa Medical Journal*, 73:598-603.

Madebo, T. and T. Gebretsadik. 1993. A six-month prospective study on different aspects of abortion. *Ethiopian Medical Journal*, 31:165-172.

Mitchell, E.M.H., K. Mwaba, M.S. Makoala and K. Trueman. 2004. *A facility assessment of termination of pregnancy (TOP) services in Limpopo Province, South Africa*. Ipas.

Mulugeta, E., M Kassaye and Y. Berhane. 1998. Prevalence and outcomes of sexual violence among high school students, *Ethiopian Medical Journal,* 36: 167-174.

Population Action International. 2001. *A world of difference: Sexual and reproductive health & risks*. Washington, DC, Population Action International.

Simmons, R., et al. 1997. The strategic approach to contraceptive introduction. *Studies in Family Planning*, Volume 28 (2):79-94

Solo, J., A. Ominde, M. Makumi, D. Billings and C. Aloo-Obunga. 1999. Creating linkages between incomplete abortion treatment and family planning services in Kenya. *Studies in Family Planning*, 30:17-28.

UNFPA. State of World Population 2005, the Promise of Equality: Gender Equity, Reproductive Health and the Millenium Development Goals. United Nations Population Fund. UNFPA 2005.

Webb, D. 2000. Attitudes to 'Kaponya Mafyumo': the terminators of pregnancy in urban Zambia. *Health Policy and Planning*, 15: 86-193.

Woldmeskel, Y. and A. Chekol. 1999. Induced abortion and prevalence of sexually transmitted disease and contraceptive behavior in abortion cases. *Ethiopian Journal of Health Sciences*, 9:77-83.

Worku, G. and S. Kumbi. 1999. *A one-year analysis of abortion in Gondar College of Medical Sciences Hospital*. Paper presented at the Gondar College of Medical Sciences annual conference, Gondar, Ethiopia.

World Health Organization. 2005. WHO multi-country study on women's health and domestic violence against women: summary report of initial results on prevalence, health outcomes and women's responses. Geneva, WHO.

World Health Organization. 2003. *Safe Abortion: Technical and policy guidance for health systems*. Geneva, WHO.

Yoseph, S., A. Gossa, and E. Tadesse. 1993. *A survey of illegal abortion in Addis Ababa, Ethiopia*. Unpublished.

Yoseph, S. and G. Kifle. 1988. A six year review of maternal mortality in a teaching hospital in Addis Ababa. *Ethiopian Medical Journal*, 26:115-20.

supervision & follow up

logistics & procurement

emergency transportation

management

EXPETH-E06