

Pilot study of the economic and social costs of unsafe abortion in Ethiopia, Mexico and Pakistan: Design, instruments and lessons learned

Project title: Assessing the public health, social and economic costs of unsafe abortion

Project number: RHB5R121

Implementing partner: Guttmacher Institute

Intercountry Programme output to which project contributes: Evidence-based arguments developed for use in advocacy and policy dialogues that demonstrate the importance of RH and RR to achieve national development goals and MDGs

Date: September 5, 2008

Table of contents

1. Purpose and objectives of pilot study.....	3
a. Objectives	
b. Background	
c. Relevance for UNFPA country offices	
2. Pilot study specifications.....	5
a. Design components	
b. Key personnel	
c. Timeline	
3. Lessons learned from the health system costs component.....	13
4. Lessons learned from the individual and household costs component.....	16
5. Other considerations for studies of the economic and social costs of unsafe abortion.....	19
6. Conclusion.....	21
Endnotes.....	22

Appendices

- a. List of participants in August 2007 workshop on pilot study design and instruments – 1 page
- b. Health system costs: Questionnaire A (capital costs, other general inputs, overhead costs) – 57 pages
- c. Health system costs: Questionnaire B (drugs, supplies, lab tests, personnel and other facility costs) – 16 pages
- d. Interviewer manual for questionnaires A & B – 17 pages
- e. Standard protocol for treating post-abortion complications – 12 pages
- f. Women’s questionnaire – 17 pages
- g. Provider case interview questionnaire – 4 pages
- h. Guidelines for in-depth interview of patients – 5 pages
- i. Interviewer instructions for women’s, provider’s and follow-up in-depth interviews – 7 pages

1. Purpose and objectives of pilot study

The purpose of the pilot study “Assessing the public health, social and economic costs of unsafe abortion” was to contribute to improved public health by developing a study design and instruments to measure the economic costs to health systems, households and individuals of unsafe abortion as well as to increase understanding of the social consequences for women and their families of unsafe abortion. A lack of adequate research protocols and methodologies has resulted in scarcity of the data needed to provide a deeper understanding of the social and economic costs of unsafe abortion in developing countries.

a. Objectives

- 1) Collaboratively develop a new research protocol for the study of the direct, short-term social and economic costs of unsafe abortion;
- 2) Pilot test the study protocol in Ethiopia, Mexico and Pakistan; and
- 3) Increase the research capacity of collaborating in-country institutions and individuals in the areas of economic and social costing.

The pilot study design and instruments were developed, debated and revised with respect to what would be needed for a full-scale study of these multiple costs of unsafe abortion. Ethiopia, Mexico and Pakistan were selected to pilot test the design and instruments because they are representative of the three large developing regions, because they all have (or will soon have) data on the incidence of unsafe abortion and abortion complications and because access to safe abortion is still limited in these countries.

b. Background

Health-systems economic costs: Small-scale studies over the past 20 years have provided some measures of specific components of the economic costs of unsafe abortion. However, existing studies on this issue have not used comparable methodologies, nor have they taken a comprehensive view of the multiple dimensions of unsafe abortion costs. Furthermore, many were based on small samples and did not attempt to make estimates at the national or health system level. The large majority of studies on economic costing were limited to estimating the cost-effectiveness of the manual vacuum aspiration (MVA) procedure as compared to the D&C (dilation and curettage) procedure. Some studies have also compared the cost of using these methods under different scenarios of abortion laws (e.g., from highly restrictive to liberal laws).

It is clear that a more standardized and comprehensive approach is needed to appropriately document the true economic costs of unsafe abortion. Some recent expert group meetings and research efforts in the past few years provide a strong starting point for this project. The key studies and activities accomplished to date include:

- (a) Three expert group meetings have taken place since 2005 on the subject of the economic costs of abortion-related morbidity and mortality, and these meetings provided important inputs and guidance to the pilot study work described here. These meetings were supported by the Hewlett Foundation, and were held in April 2005, June 2006 and April 2007. They focused on assessing the evidence available on this issue and gaps in

existing research, as well as furthering the development of a model or framework for estimating the cost of unsafe abortion. The key paper discussed at the second and third of these meetings is the foundation for the approach we use for measuring direct economic costs.¹

(b) The Savings Model developed by Ipas, a recent study by PATH and the Population Council on the cost of abortion in Mexico City and a study by Guttmacher on the cost of unsafe abortion in Nigeria.²

(c) Two literature reviews that have been done on the topic of unsafe abortion (for sub-Saharan Africa and Latin America, respectively) contained chapters that summarize the key findings of studies on economic costs of unsafe abortion in each region.³ We draw upon some of these studies to inform the current work.

Individual and household level economic costs: The pilot study was designed to measure the economic costs that are incurred by individuals and their households, and that are not directly related to health system costs—out-of-pocket costs (e.g., transportation), loss of productive time due to illness, loss of income before, during and after treatment (including loss of income by other family members) and the impact on household income.

Ipas conducted a recent study in Cambodia, where abortion law change occurred in 1997, permitting abortion on demand in the first trimester. The current pilot study benefited from the questionnaire and fieldwork experience of the Cambodia study, which took into account unsafe abortion. Although safe and legal abortion services are increasingly available in Cambodia, unsafe practices continue at some level, and this recent study collected and analyzed information about the number of days lost from the woman's normal routine and missed wages of the woman and family members due to abortion care-seeking, procedures and morbidity from abortion attempts.⁴

Social costs: Existing empirical research on the social costs of unsafe abortion to the woman, household and community is scarce. Literature reviews for both sub-Saharan Africa and Latin America reveal that very few studies have specifically focused on the social costs of unsafe abortion.⁵ The social costs described in these reviews were social stigma, negative personal feelings (e.g., guilt, shame) and interruption of economic activities and schooling.

Other country-specific studies include limited aspects of social costs of unsafe abortion. Guttmacher Institute, in collaboration with Ugandan and Guatemalan partners, conducted an exploratory qualitative study in these two countries with the aim of increasing knowledge of abortion morbidity among women who had health complications resulting from unsafe abortion and who do not seek/obtain medical care from the modern health sector, and exploration of the social and economic costs of unsafe abortion.⁶ The experience of implementing this exploratory study helped in the development of protocols for the current study.

c. Relevance for UNFPA country offices

The study design and instruments developed in this pilot study are intended to support the efforts of UNFPA country offices to guide national policy and program efforts to reach ICPD and MDG goals by providing means for generating accurate, objective information on the economic and social impacts of unsafe abortion. The revised pilot test protocol is included in this report and lays the groundwork for implementing full-scale studies of the economic and social costs of unsafe abortion.

2. Pilot study specifications

The pilot study began with instrument and design development in June 2007. Data collection in Ethiopia, Mexico and Pakistan began in December 2007 and evaluation of the pilot studies began in April 2008. Numerous steps for successful progress took place in between: Guttmacher organized a workshop which brought together a large interdisciplinary team of researchers to discuss and revise drafts of the study design and questionnaires (see Appendix a for the participant list); the drugs and supplies normally used in treating post-abortion complications were reviewed in depth by a panel of obstetrician-gynecologists in developing countries with wide experience; IRB approval for human-subjects research was obtained, taking three months to complete; and health facility permissions to conduct the pilot studies were obtained in each country. The sections below describe the design components of the pilot study, key personnel, timelines and study specifications in Ethiopia, Mexico and Pakistan.

The overall focus of the pilot studies was on short-term rather than long-term economic and social costs. This distinction is crucial in terms of study design and may partially determine what costs can be observed. For example, social stigma can be captured in the short-term but the empirical measurement of the impact on children's schooling of abortion-related health complications would need a much longer window of observation. The same can be said for measuring the cost of infertility caused by a prior unsafe abortion. A study to measure long-term costs would be very expensive to undertake.

Although unsafe abortion causes both morbidity and mortality among affected women, the pilot studies focused on measuring the costs of abortion-related morbidity. Including mortality would have been difficult in a pilot test setting since abortion deaths are relatively rare events. Given the current paucity of data on economic and social costs, much can be achieved even by focusing only on short-term economic and social costs of morbidity from unsafe abortion.

a. Design components

The pilot studies had two components: i) direct short-term health system costs of treating complications resulting from unsafe abortion and ii) economic and social costs of unsafe abortion to individuals and households. Each component necessitated its own design and data-collection instruments.

i) Health system costs

Traditional studies that measure the health-system cost of unsafe abortion have mainly used a “cost per case” methodology. In this approach, data-collection efforts aim at determining the average cost for treating women needing post-abortion care (PAC). An analysis of studies of this type (there are around 24 such studies) shows an enormous variation in the reported costs per case, from around \$5 to over \$400. Apart from factors relating differential access to health services across countries and over time, a most likely major reason for such a wide disparity is that some cost components were omitted in some studies but not in others. The four main components of cost to health systems can be categorized as follows: 1) drug/supplies/materials/lab tests costs, 2) personnel/hospital facilities costs, 3) overhead costs and 4) capital costs. Of these, the latter two are particularly hard to measure and have often been ignored in previous empirical studies. Other reasons for the wide range of empirical results include differential completeness in measuring the first two components, and differences among studies in the categories of patients covered (for example, some studies include first trimester patients only, while others canvassed all cases from tertiary hospitals, which would include a higher proportion of women with severe complications).

Another approach to costing unsafe abortion, which can be termed a “bottom up” approach, has been used in costing studies, although less frequently. Instead of estimating an overall cost per case, this approach attempts to model the detailed inputs that, taken together, constitute a complete treatment for a particular post-abortion complication. The costs of each input are estimated and then combined with data on the incidence rates of the various types of complications needing PAC in order to estimate total costs.⁷

The World Health Organization (WHO) has developed a tool, the Mother-Baby Package (MBP) costing spreadsheet, which uses the “bottom up” approach to cost the bundle of health interventions that comprise the package’s system of basic care for reproductive and newborn health.⁸ One of the interventions contained in the MBP is post-abortion care, which the MBP defines as treatments for the following five specific post-abortion complications: shock/loss of fluid, sepsis, incomplete abortion, cervical/vaginal lacerations and uterine lacerations and/or perforations. Using the MBP model to estimate the health-system cost of unsafe abortion has the advantage of tapping into a well-developed model in which all costs are systematically incorporated, with the option to use default values in cases where data are very difficult to collect or where there is little variation expected in the real world from a default value. This feature allows researchers to design cost-effective studies where the amount of data collection can be traded off against the precision of the cost estimates. The MBP model’s default values are based on international prices for certain inputs⁹

The pilot study adopted this “bottom up” approach and implemented a design and instruments that could be used to provide data for the MBP costing spreadsheet. Data needed to estimate the costs of treating complications due to unsafe abortion were collected from health facilities and central offices of the government using two types of questionnaires (A and B). At least two levels of health facilities (tertiary and secondary)

and public and private sector facilities were included though most of the facilities were in the public sector. One of the goals of the pilot testing was to look at the relative merits of collecting data on specific inputs versus relying on MBP default values. The difficulty of data collection and the homogeneity of data from facility to facility were two criteria which would be used, post-test, to determine the final form of the data-collection instruments.

Questionnaire A was designed to collect data from key informants on personnel costs, overhead costs and capital costs. This form was administered to knowledgeable medical providers and administrators at selected health facilities and to staff at the central level (such as a Ministry of Health). Questionnaire B was administered to collect information about the quantity of drugs, supplies, materials and lab tests used in PAC. This instrument was administered to medical providers such as heads of gynecology/obstetrics departments and chief medical officers or nurses as well as administrative personnel.

ii) Individual and household economic and social costs

Information on individual and household economic costs was obtained through in-person interviews with women receiving post-abortion care in health facilities and in follow-up in-depth interviews with the same women two to three weeks following their discharge from the health facility. In countries where abortion is highly restricted and/or socially stigmatized, a facility-based approach is a more efficient way to obtain a sample of women who have had an abortion than a community-based design as women are already presenting with abortion-related problems. However, the facility-based approach has limitations. These include: 1) facility-based samples are only representative of women who have reached a health facility; 2) some women may be unable to respond to the interview due to their clinical or emotional condition; 3) it is not always the case that women will be more forthcoming in a health facility setting about whether their abortion was spontaneous or induced; 4) it can be difficult to ensure privacy of the interview in a health facility setting; and 5) it may be difficult to do a follow-up with respondents after leaving the health facility as some may not give correct contact information on admission or to the interviewer.

The alternative approach—a community-based sample—has a clear (theoretical) advantage if the aims of the study are to cover all abortions, safe and unsafe, and for the unsafe ones, to probe whether women received medical care or not. An important limitation of this approach, however, is that underreporting of induced abortions is notoriously high in community-based studies because such studies are done using in-person, face-to-face interviews. Although post-abortion care patients interviewed in facilities are also biased to report abortions as spontaneous rather than induced, underreporting is likely to be less of an issue, and other clinical information can help to determine whether the pregnancy loss resulted from a spontaneous miscarriage or from an attempt to induce an abortion. All in all, facility-based samples were determined to be the more cost-efficient method for obtaining a sufficient number of cases of women with induced abortions in the pilot tests to measure the individual and household-level economic and social costs of unsafe abortion.

Follow-up in-depth interviews with female patients were also planned in order to capture short-term social and economic costs of unsafe abortion following treatment at a facility. A limitation of this design is the risk of losing cases for follow-up. Women may give wrong or non-existent addresses or may refuse to participate after they are discharged (this is likely to be a difficult challenge in countries where abortion is very restricted).¹⁰

The types of individual and household economic and social costs measured were:

1. **Out-of-pocket expenses incurred in attempting to obtain an induced abortion prior to coming to the health facility:** data were collected for up to five termination attempts (expenses include transportation, medication, fees for services, and any other expenses) [see Appendix f. “Women’s questionnaire”].
2. **Treatment-related costs of abortion-related complications:** data were collected on expenses incurred in and outside the health facility at the time of treatment (e.g., fees for consultations, tests and medication as well as transport, medicines and supplies bought and brought to the facility) [see Appendix f. “Women’s questionnaire”]. Respondents were also asked in the follow-up in-depth interviews about any treatment sought in the period following discharge from the health facility and costs of these treatments [see Appendix h. “Guidelines for in-depth interview of patients”].
3. **Productive time lost:** questions focused on the period prior to and following release from the health facility (i.e., number of days not able to do normal activities such as work, housework, schooling) [see Appendix f. “Women’s questionnaire” and Appendix h. “Guidelines for in-depth interview of patients”]. Information was captured on the duration of stay at the facility for post-abortion care in the provider case interview [see Appendix g. “Provider case interview questionnaire”].
4. **Income lost:** data were collected on income losses by the woman and anyone else in her household due to her illness prior to, during treatment at the health facility and 2-3 weeks following release from the health facility [see Appendix f. “Women’s questionnaire” and Appendix h. “Guidelines for in-depth interview of patients”].
5. **Woman’s perceptions of how she was treated at the health facility** when she was receiving post-abortion care [see Appendix h. “Guidelines for in-depth interview of patients”].
6. **Woman’s perceptions of how other people have treated her** with respect to her having had an abortion and related complications [see Appendix h. “Guidelines for in-depth interview of patients”].

Additionally, a short set of questions were asked of the respondents to determine their household's **relative wealth**, including questions about toilet and water facilities, access to electricity and ownership of different household assets. A full battery of questions akin to those in the Demographic and Health Surveys was not implemented in order to keep the average interview length in the health facility at a reasonable duration (approximately 20 minutes). Based on previous research, high priority items on assets were retained.¹¹ Knowing the relative wealth status of the household enables one to determine the selectivity of the sample and to measure the relative burden of out-of-pocket expenses and time and income losses due to abortion-related complications.

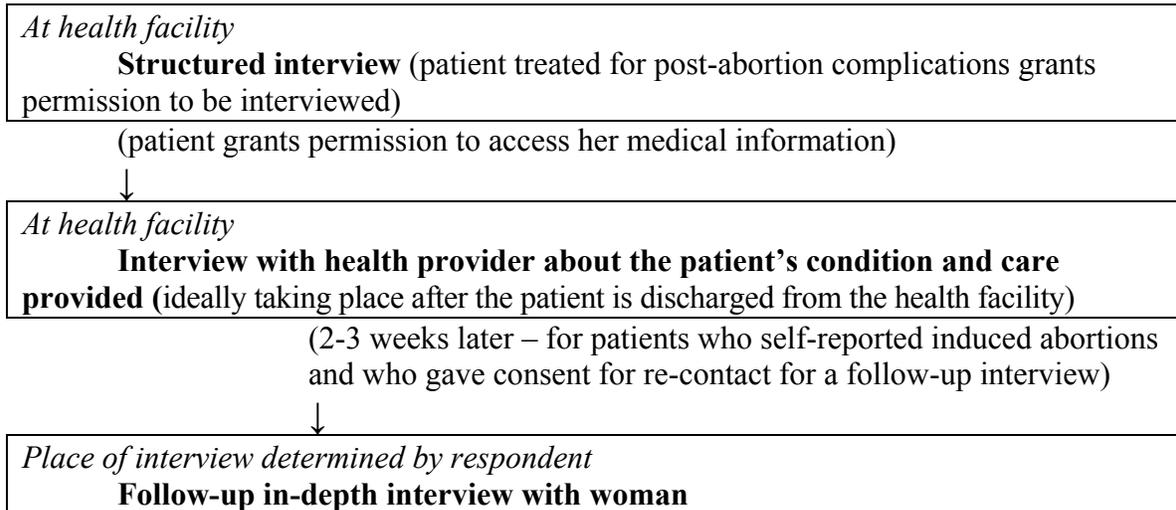
The last two items about perceptions (#5 and #6 above) were only asked in the follow-up in-depth interviews because they were more exploratory in nature and were dependent on care at the health facility being completed. It was also felt that patients would not feel comfortable giving negative opinions of health personnel while still at the health facility and under their care.

It was important to be able to distinguish between women who likely had had an induced abortion and women who had had a spontaneous abortion, given the study's goal of measuring the cost of unsafe abortion. We hypothesized that the former group would bear higher expenses and more social stigma from their attempts at ending an unwanted pregnancy than those had experienced a spontaneous abortion. According to a hospital-based study in Nigeria, women who had induced abortions paid more than twice as much in out-of-pocket expenses for treatment of complications than those who had spontaneous abortions.¹²

Two approaches were used to identify whether a woman had an induced or spontaneous abortion: 1) a series of questions were asked of the patients in the "Women's questionnaire" to obtain self-reported induced abortions; and 2) a brief, self-administered form was completed by the principal medical provider of each patient (contingent on the permission of the patient) providing clinical information, including the final diagnosis of the patient's case, the medical treatment administered and the duration of her stay at the health facility. There are other approaches that were not used but will be described later in the "lessons learned" sections of this report.

The series of interviews and consent necessary to progress to the next interview are illustrated in the flow chart below.

Flow chart of data collection of individual and household-level costs of unsafe abortion



b. Key personnel

The pilot study was designed, coordinated, implemented and evaluated by a team of key research colleagues listed below. The country teams that undertook the pilot data-collection efforts were much larger and are reflected in Table 1.

- *Guttmacher Institute, United States*: Ann Biddlecom, Akinrinola Bankole, Susheela Singh, Michael Vlassoff, Elena Prada and Rubina Hussain
- *Population Council and El Colegio de Mexico, Mexico*: Sandra Garcia and Fatima Juarez
- *Ethiopian Society of Obstetricians and Gynecologists, Ethiopia*: Solomon Kumbi, Damen Haile Mariam and Eskinder Kebede
- *Population Council, Pakistan*: Zeba Sathar and Zakir Hussain Shah

In addition, the design and content of the study were informed by contributions from an interdisciplinary group of colleagues, at a three day workshop, as well as through follow-up exchanges: Hedia Belhadj (UNFPA), Lindsay Edouard (UNFPA), Friday Okonufua (Women's Health Action Research Centre, Nigeria), Damian Walker (John Hopkins University, United States), Chimaraoke Izugbara (African Population Health Research Center, Kenya), Ann Moore (Guttmacher Institute, United States), Tamara Fetters (Ipas, United States), Janie Benson (Ipas, United States) and Carol Levin (PATH, United States).

c. Timeline

- May-June 2007: Recruitment of three partner research institutions
- June-July 2007: Draft research protocol
- August 2007: Expert workshop on study design and instruments
- September-October 2007: Designs and instrument revision and translation
- September-November 2007: Institutional Review Board and other reviews for protection of human subjects
- September-October 2007: Review of Questionnaire B by panel of expert obstetricians-gynecologists
- November 2007 – February 2008: Secure permissions from health facilities in Ethiopia, Mexico and Pakistan
- November 2007 – February 2008: Training
- December 2007 – April 2008: Fieldwork
- April–August 2008: Distill key lessons learned—a debriefing memo was prepared by research partners in each of the countries (Ethiopia, Mexico and Pakistan); description of the pilot tests and overarching lessons learned summarized by Guttmacher staff

Table 1: Pilot test specifications in Ethiopia, Mexico and Pakistan

Component	Ethiopia	Mexico	Pakistan
Fieldwork timing	<p>Training: December 2007</p> <p>Data collection: March-April 2008</p> <p>Field team: Project coordinator -- Eskinder Kebede, MD Interviewer -- Abduletif Mohammed, MD Interviewer -- Ato Mindaryalew Zewde (social anthropologist) Interviewer -- Ato Girma Mamo (public health specialist) Interviewer -- Ato Berhanu Kifle (senior nursing instructor)</p>	<p>Training: November 2007</p> <p>Data Collection: December 2007 - April 2008</p> <p>Field team: Principal investigator -- Fatima Juarez, PhD Co-Principal investigator -- Sandra Garcia, PhD Interviewer -- Xipa Contreras (research staff at the Population Council, Mexico) Interviewer -- Sandy Poire (staff at the Population Council, Mexico) Interviewer -- Belkis Aracena, PhD (Senior Health Economist at the National Institute of Public Health) Interviewer -- Ileana Heredia, MD and MSc (Senior Health Economist at the National Institute of Public Health) Fieldwork coordinator -- Claudia Diaz Olavarrieta, PhD (research staff at the Population Council, Mexico)</p>	<p>Training: January 2008</p> <p>Data Collection: February-April 2008</p> <p>Field team: Project coordinator -- Zeba Sather, PhD Principal investigator -- Zakir Hussain Shah, MD, MPH Interviewer -- Zeba Tasneem (master trainer of traditional birth attendants) Interviewer -- Farzana Parveen (qualified lady health visitor) Interviewer -- Lubna Abbas (qualified lady health visitor) Interviewer -- Nasreen Akhter (laboratory supervisor) Research officer -- Saima Pervaiz, MA (psychology)</p>
Health system costs pilot test specifications Number and type of facilities	<p>n = 7</p> <p>Tertiary (public) = 1 Tertiary (private) = 1 Secondary (public) = 1 Secondary (private) = 2 Primary (public) = 1 NGO (private) = 1</p> <p>Ministry of Health office</p>	<p>n = 4</p> <p>Tertiary (public) = 2 Secondary (public) = 2</p> <p>Dirección Nacional de Información en Salud</p>	<p>n = 6</p> <p>Tertiary (public) = 3 Tertiary (private) = 1 Secondary (public) = 1 Primary (public) = 1</p> <p>* Note: 2 facilities refused permission to conduct the pilot test--a tertiary (private) & a secondary (private) facility</p> <p>Ministry of Health office, provincial health department office</p>
Individual and household costs pilot test specifications	n = 20	n = 21	n = 31
Number of female PAC patient interviews	<p>Duration of interview ~ 20-30 minutes</p>	<p>Duration of interview ~ 30 minutes</p> <p>* 26 eligible</p>	<p>Duration of interview ~ 20-25 minutes</p> <p>* 37 originally contacted * 2 women refused * 4 were incomplete or partial interviews</p>
Number of provider case interviews	n = 20	n=19	n = 20
		* 21 cases originally sought	* 31 cases originally sought * 9 records not traceable due to out-patient status of the patient * 2 records of in-patient women not traceable
Number of follow-up in-depth interviews (~ 2-3 weeks after discharge)	n = 6	n=2	n = 2
	<p>* Of 17 eligible, 12 gave consent for a follow-up interview * 3 refused at follow-up * 2 continuously postponed appointments ("soft refusals") * 1 could not be traced at follow-up</p> <p>Duration of interview ~ 20 minutes</p>	<p>* 8 cases originally sought * 6 remained interested -- follow-up was only pursued for 2 cases</p>	<p>* 4 cases originally sought * 1 refusal (husband refused) * 1 could not be traced at follow-up</p> <p>Duration of interview ~ 40 minutes</p>
Translation	Women's questionnaire and IDI guidelines translated into Amharic	All instruments translated into Spanish	Woman's questionnaire and IDI guidelines translated into Urdu
Tokens of appreciation	Refreshments provided at follow-up in-depth interview if interview in the respondent's home	None	None

3. Lessons learned from the health-system costs component

There were a number of common lessons learned across the three country pilot tests with respect to measuring the health-system costs of unsafe abortion using the set of costing instruments and methodology developed in this project.

- a. **WHO MBP default values for treatment of abortion-related complications should first be tailored to country-specific standards:** There was sizable variation in standard protocols for treatment of abortion complications among OB/GYN practitioners in Mexico, Ethiopia and Nigeria (additional case study information was also provided by an expert in Pakistan). For example, with respect to Questionnaire B (drugs, supplies, lab tests, etc.), there was agreement from the panel of gynecologists/obstetricians that 44 items from the WHO Mother-Baby Package Costing Spreadsheet were part of standard treatment and 78 inputs were not part of standard care for any of the major categories of abortion complications. But for 148 other inputs there was disagreement: some experts said the inputs were normally used, while others said that they were never used. As a result, the cost form for drugs/supplies was revised to exclude the 78 inputs that all experts agreed were never used in treatment. Note that this exercise was done for each of the five abortion complications separately.
- b. **Data on capital and overhead costs (Questionnaire A) were generally difficult to obtain:** All three pilot studies experienced problems obtaining the required data on Questionnaire A, especially at the central level. It became apparent that a more rigorous training of interviewers would be needed in a full-scale survey. In particular, there was a tendency in all pilot studies to attempt to obtain hard data (that may already have existed from official statistics or from HIS/MIS), which was not the intent of the data-collection methodology which was to rely on the informed opinions of expert informants. In practice, “hard data” were found to be available only in crude form, to be completely missing, or to be aggregated across costing categories, such as overhead costs for maintenance and utilities. Obtaining these “Delphi” type data may have been easier to collect if there had been more extensive training of interviewers to ensure that instructions were closely followed.
- c. **Data on personnel inputs, overheads and capital expenses may have to be obtained from multiple sites and averaged:** Given decentralized health systems in some countries, “central level” data may have to be collected from multiple sites and not just from the central office of the Ministry of Health. The Ethiopian pilot experience showed that some of these data were available at the regional level. This would require obtaining information from Regional Health Bureaus and perhaps even District Health Departments, both of which are parts of the Ministry of Health. The pilot study in Mexico also found that, given the many subdivisions of the public health system, there was no single office that could act as a centralized source for the data on personnel inputs, overheads and capital expenses. Overall, these pilot studies suggest that such data need to be collected at

- lower levels, and at more sites, invalidating the expectation that data collected from one central source would suffice, and thus increasing the data-collection cost.
- d. **Data on personnel inputs, overheads and capital expenses need to be tailored to the specific health-system structure in the country:** The MBP spreadsheet assumes a structure consisting of three levels of facilities: primary (health posts), secondary (health centers) and tertiary (hospitals). The pilot tests showed that health-system structures can be more complex than this. For example, in Ethiopia, the health system is organized as specialized hospitals, regional hospitals, district hospitals and primary health care units (health centers and their satellite health posts). Also, the lowest level of the health system that is allowed to treat abortion related complications may vary from country to country. Our recommendation is that researchers need to identify, for their own country, what are the groups of facilities that are sufficiently different in the level of care that they provide, that costing of services would differ sufficiently: costs would then need to be separately identified and measured for each such group of facilities. Depending on the precision required in an actual full-scale costing study, the questionnaires and spreadsheets would need to be customized to more accurately reflect the system's structure, or, if some loss of precision was acceptable (the more likely case), the interviewer training would have to be modified to emphasize the need to adapt the system structure to the MBP pattern.
 - e. **Drop the primary care level from the facility sample for determining health-system costs, if the local research team determines that facilities at this level do not provide abortion-related care:** The case load of women with complications of unsafe abortion requiring treatment at the primary care level (rather than referral to a higher-tier facility) was extremely small in the three countries since cases are referred to higher level facilities and, as a consequence, most of the cost data questions were seen as not applicable. This was the original assumption prior to the pilot tests but interviews at the primary care level were included to test the assumption in Ethiopia and Pakistan. The findings in both countries confirmed the assumption. The Mexico pilot test did not include any primary care facilities in the sample. This lesson learned applies also to the sample of facilities for obtaining individual and household costs of unsafe abortion.
 - f. **What constitutes hospitalization is unclear:** The definition of hospitalization needed to be clarified. For example, in the Ethiopian pilot test no hospitalization was observed in most of the cases and patients stayed at the emergency rooms for a maximum of 6 – 8 hours for stabilization. This clarification has been added to the revised questionnaires.
 - g. **Interviewer training time and written instructions need to be more extensive:** The pilot study assumed familiarity with the rather detailed spreadsheets used in WHO's Mother-Baby Package. Though a brief set of interviewer instructions was

included in the spreadsheets and training took place for each pilot test, there must be a more thorough explanation and test of understanding of the purpose of each component of data collected in the forms. There were many questions from providers and administrators in the field about the information requested. Moreover, the meaning and purpose of each item must be clarified. Questionnaires A and B have been thoroughly revised and an interviewer manual has been developed (providing more complete definitions and explanations) based on the findings of the three pilot tests [see Appendix materials b-d].

- h. **The field team should include the technical support of a health economist with medical system familiarity and/or a medical doctor with a clear understanding of the study's objectives:** Technical support for the field team of a health economist familiar with the country's health system and/or a medical doctor with a clear understanding of costs would improve the ease of data collection as well as their quality. If possible, the field team should include one or both of these specialists. This point was particularly important to the Mexican and Pakistan pilot study teams. In addition, responses might be more forthcoming if a medical doctor from each facility in the sample accompanied the field team (some form of reimbursement for their time may have to be instituted).
- i. **The total amount of time needed to implement Questionnaire B in each selected health facility needs to be longer than anticipated in this pilot for a number of reasons:** The time to implement the questionnaire was longer than expected due to: 1) having to consult more than one person at a facility; 2) limited availability of necessary staff or staff interruptions due to their work obligations; and 3) uncooperative or uncomfortable staff, mainly due to not understanding or being engaged in the objectives of the data-collection effort. Providing forms ahead of time to facility staff before the actual interview did not prove to be useful, as staff did not read them or, when they did, found the material too difficult to understand (Pakistan experience).
- j. **More staff time than expected was needed for ensuring continuing access to health facilities:** Obtaining the necessary permissions to field the pilot study in each selected facility took more time than anticipated. Even when permissions for collecting data at a health facility were secured, a fair amount of follow-up interaction was still needed to ensure access to the facility over the data-collection period. Even securing initial permissions was no small task; for example, in the Pakistan pilot study permissions were requested of provincial heads of health departments, district heads, facility heads and the OB/GYN department heads. Considerably more staff time was needed for this component of the pilot test than was initially expected.

4. Lessons learned from the individual and household costs component

- a. **Recruitment of women coming to facilities for treatment of abortion-related complications was challenging:** It took more time than expected to obtain cases of women coming to health facilities for treatment of abortion complications. This problem was unexpected since each team planned ahead of time to target at least one or two facilities with a high volume of PAC patients. The Pakistan team spent three days at each facility and this was, in the end, too short. In Mexico, at the start of the pilot test, an interviewer spent 1-2 weeks at each of two facilities; however, only five interviews were completed because most cases were out-patients and were processed quickly. In Ethiopia, there were only a few cases of abortion complications in the selected facilities; instead, most of the cases were safe abortions, which may be due in part to the pilot study being implemented in the capital city of Addis Ababa.

One solution was to set staff at multiple entry points for post-abortion care patients in tertiary facilities—out-patient department, gynecology emergency department and patient wards—which demands a sizable field team (4-6 interviewers) and flexibility in interview time as patients shift among departments (from emergency to ward). However, the Pakistan field team recommended that only in-patient cases should be considered in the future due to a separate challenge of locating medical records for out-patient cases. This may result in a biased group of patients who on average have more serious complications, and this needs to be taken into consideration before opting for this solution. Another alternative that was suggested in the case of Mexico is to make appointments with women being treated in outpatient departments to interview them at a subsequent time, after they are discharged, at a place that is convenient for them; it would also be necessary to determine a process for getting the principal medical provider to complete the form for such patients. Any solution should include provision for sufficient time in the facility to enable interviewers to obtain the expected number of interviews.

- b. **It was difficult to obtain cases of women self-reporting induced abortion:** It was assumed that women being treated in facilities for abortion-related complications would be more willing to report having tried to terminate the pregnancy than women interviewed in a community-based sample, where the experience is generally not so immediate. However, few women undergoing treatment for abortion-related complications reported having tried to induce the abortion. Nevertheless, prior studies show that this approach may still be valid. The questions in this pilot study instrument, for example, were taken from a prior study in Nigeria where 92% of women classified as having an induced abortion (or 63% of all women admitted into hospitals for abortion-related reasons) admitted to the interviewers that the abortion was induced.¹³ Other research suggests that with careful interviewing techniques self-reporting of induced abortion is less of a challenge.¹⁴

Additionally, the series of questions aimed at improving self-reporting of induced abortion made some women in the pilot tests (Pakistan, Mexico) uncomfortable for women who had not had a first birth yet (since it is generally unacceptable to delay the first birth for married women) or because these were women who wanted children and had indeed experienced a spontaneous abortion.

- c. **Obtaining complete information on detailed out-of-pocket costs of PAC was somewhat of a challenge.** Pilot-test interviewers in Mexico reported that patients had difficulty in answering questions about specific out-of-pocket expenses for a series of detailed items (six items and an “other” category). Given that women were unable to report on costs of treatment when treatment was still ongoing, the team changed the field protocol so a resident doctor would conduct remaining interviews at the time when the patient was ready to settle the bill. This helped somewhat to improve women’s reporting on costs, though some women also included expenses outside the health facility (e.g., medical fees before reaching the hospital or medication costs not related to the abortion treatment). In general, questions about expenses that were covered by relatives (e.g., medications purchased by relatives) proved difficult for respondents to answer.

These challenges were not observed in the Pakistan and Ethiopia pilot tests to the same degree. For example, data from the 31 women interviewed at facilities in Pakistan showed that only two women (or 7%) reported that they did not know what the costs were for various categories of expenses (e.g., lab tests, meals). All other respondents either reported a value or said they did not have any out-of-pocket expenses for the particular category.

An issue for possible further discussion is whether reporting of out-of-pocket expenses could be further encouraged (or respondent burden decreased) if respondents were asked for a general estimate of total out-of-pocket costs for treatment as part of an exit interview (i.e., at the end of the in-patient or out-patient period), similar to what is done in the Service Provision Assessments conducted in various developing countries. For example, respondents are asked about paying any out-of-pocket fees for antenatal care services on the day of the survey when they are receiving these services (e.g., consultation, laboratory test or medicines). In the pilot tests, a summary question on out-of-pocket expenses paid for induced abortion attempts was asked though it is difficult to use these data for comparison since so few women admitted having tried to terminate their pregnancy. This option, of course, masks the different categories of costs, which may also serve to prompt respondents to recall and include out-of-pocket expenses they initially did not think of.

- d. **Women’s interviews in facilities must be short:** The woman’s interview at the health facility should be relatively short in duration given that respondents are patients being treated in a health facility and that sustained privacy for an interview is challenging. The average duration of interview in the pilot tests was

20-30 minutes. The current number of questions in the instrument could be seen as an upper bound.

- e. **Provider case interviews require repeated contacts and should occur near the time of the patient interview:** Repeated contacts were needed because of the work demands placed on providers. Case interviews should ideally happen on the same day and when the patient is still at the facility as there were problems with recall about a case and retrieving a patient's records once a day or more had elapsed. For example, in some facilities in Pakistan, despite the fact that the date of admission, date of discharge and patient's ID number were recorded, there were substantial difficulties locating patient records.
- f. **Being associated with the medical establishment and having good rapport with health facility staff facilitated interviews with providers:** The close identification of the interviewer with the medical establishment facilitated obtaining information from physicians (in Ethiopia the interviewer wore a white gown in his position of nurse instructor and in Pakistan the interviewers were qualified Lady Health Visitors).
- g. **Attrition rates were high for follow-up in-depth interviews:** The attrition rate for follow-up in-depth interviews—though based on small numbers—was high: 50% in both Ethiopia (6 of 12 eligible) and Pakistan (2 of 4 eligible). Attrition was difficult to ascertain for the Mexico pilot test because while 8 women were eligible only 2 were purposely selected to obtain a follow-up interview.

A study in Tanzania following abortion patients after discharge yielded a 35% attrition rate over 6 months.¹⁵ While other research using facility-based samples may have lower rates of attrition (e.g., a prospective cohort study in Burkina Faso of women delivering normally in health facilities and those admitted for obstetric emergencies had 10% attrition rate over 12 months following release from the health facility¹⁶), given the sensitive nature of abortion, attrition levels are likely to be substantially higher.

The issue of confidentiality was uppermost in respondents' minds in the pilot tests. For example, some women, while initially giving their consent for re-contact, were nevertheless uncomfortable to give their home address or refused to be re-contacted when the question was asked about where they lived.

The small size and selectivity of the sample may offset the value of obtaining economic and social cost data following release from a health facility. Selectivity of the respondents interviewed in the follow-up survey stems from these sequential conditions:

- women selected by those who come to health facilities for treatment,
- women selected by those who self-report an unsafe abortion,
- women selected by those who agree to be followed-up, and
- women selected by those who are successfully re-contacted.

Alternative approaches to obtaining information on the economic and social costs following release from a facility are not clear. Apart from the critical issue of selectivity, there is no information from the few in-depth interviews that were conducted in Ethiopia and Pakistan about whether these interviews provided any additional useful information on costs or a better understanding of the social costs of abortion.

- h. **The data-collection schedule must be determined by the expected case load at each facility:** The number of facilities and the time needed to be spent at each facility are mainly dependent on case load, so careful planning based on best estimates of case load at each sampled facility will determine a realistic data-collection schedule. Challenges in the pilot study on this point are described in point “a” at the start of this section.

5. Other considerations for studies of the economic and social costs of unsafe abortion

- a. **For measuring health-system costs using the MBP costing spreadsheets, there is a tradeoff between achieving time savings in data collection by using pre-specified cost categories and encountering difficulties because of the low relevance of some cost categories:** Questionnaire B was already revised before the pilot tests from the default inputs from the MBP spreadsheet. Several inputs (of specific drugs and supplies) were dropped and several more were added. In trying to be all-encompassing, the questionnaire has many more inputs than will ever be used in the typical treatment for a typical complication in any given facility. This can lead to respondent fatigue and inaccurate reporting. Better training and an interviewer manual will help alleviate this problem. It is also suggested that Questionnaire B should not be administered all at once, but broken up into two or more sessions, possibly with different respondents. For example, for some complications—e.g., sepsis, uterine evacuation—a nurse/midwife may make a good respondent, while for others—e.g., uterine perforations requiring surgery—a gynecologist may be preferred.

This is a key issue using the MBP model to determine health system costs: weighing the loss of precision from using international averages or default values for some inputs versus the effort needed to obtain reliable local estimates. If a certain specific input makes a very small contribution to the total PAC cost, but would take a large expenditure of time and effort to estimate via a local study, then using an internationally-derived default value may be the most efficient approach. For example, in the Nigerian study cited earlier, a sensitivity analysis showed that management/supervision costs, IEC/social marketing costs and maintenance/utility costs each made only small contributions to the total cost, so that large variations in them produced only marginal differences in the total cost estimate.¹⁷

- b. Incidence of abortion-related complications necessary for determining health system costs:** When conducting national costing studies, the total number of post-abortion complications that are treated by the health system, broken down, if possible, by complication type must also be available to determine the costs of unsafe abortion to the health care system. For some countries, empirical information is available; however, where empirical data are not available, it will be necessary to draw upon existing data for countries with similar conditions of unsafe abortion and/or to use a Delphi approach (obtaining estimates from a panel of knowledgeable experts).
- c. Double-counting of costs:** When both health system costs and individual economic costs are included in the same study, it is important to avoid double-counting of costs. In particular, drugs and supplies purchased and supplied by the patient may be replacing inputs that have been taken into account in the health-system costing questionnaire. Care must be taken not to count these costs twice—costs coming from the two sources should not be simply added together without a careful analysis.
- d. Include cost of safe, induced abortion:** Where legal reform and implementation are making safe, induced abortion more common, the associated costs should also be measured. This was the case, although in the early stages, for Mexico City and Ethiopia. In fact, in a separate study being conducted by the Ethiopian Society of Obstetricians and Gynecologists and Ipas, this modification has been made to the pilot study instruments and data have been collected in mid-2008 (using some of the central-level data collected for this pilot study).
- e. Include cost of medical abortion, where relevant:** While medical abortion may not be officially provided (or misoprostol, for example, registered for use in treating abortion-related complications), it may be worthwhile assessing the cost to obtain medical abortion in the private sector or its use in facilities for inducing abortion or treating complications due to unsafe abortion.
- f. Include questions about the quality of care received:** This issue arose in the Mexican pilot test: interviewers suggested to expand the dimensions of social costs as respondents frequently mentioned long waiting periods, providers' (negative) attitudes and quality of care. Of course, this may be the case for patients regardless of the reason why they are at the facility.
- g. Allow 4-6 months to secure human subjects reviews and permissions to work in health facilities:** Project schedules for national scale studies should provide for 4-6 months following finalization of instruments to obtain permissions to work in health facilities, to obtain ethical reviews and to undertake training. In the case of the pilot study, the time taken to obtain ethical approval (both at the Guttmacher Institute and by the respective Institutional Review Boards in the study countries) for the study components that survey individual women (i.e., interviews with

female patients at health facilities and follow-up in-depth interviews with a subsample of these patients) was two months. The experience of the pilot studies shows that obtaining specific facility-level permissions to implement the pilot takes about two to three months on average. This introduced delay because the process was started after completing revision of the study design and instruments. Such delays might be minimized by having the process of obtaining permissions occur at the same time as other preparations are taking place.

6. Conclusion

This project has made significant progress in developing a standard methodology for research into the economic and social costs of unsafe abortion, a major reproductive health problem worldwide. By pilot testing a study design and instruments in three countries, one in each major developing region, the project has made considerable progress in developing a design and instruments that are broadly generalizable. The pilot tests highlighted many issues that need to be taken into account in order to successfully implement a study of the cost of unsafe abortion, starting from the data-collection instruments, to the training of interviewers, IRB approval and permissions from facilities in which the study would be fielded, the need for ownership of the data-collection exercise, the estimation of PAC cases from facility case load, and the balancing of cost-estimation accuracy with the cost of data collection. The end result of the project is, by no means, a standardized “cookie cutter” methodology, but positive steps have been taken in devising a robust study design, data-collection instruments and interviewer manuals that can be used to carry out larger-scale or nationally-representative studies. We anticipate that researchers who want to carry out studies of the cost of unsafe abortion will be able to avoid many pitfalls in designing their studies by a careful reading of this report.

Endnotes

- ¹ Vlassoff M. 2006. “Economic impact of abortion related morbidity and mortality: modeling worldwide estimates” presented at expert meeting on defining a future research agenda on the economic impact of abortion-related morbidity and mortality (ARMM), Guttmacher Institute, New York, 2 June, 2006; Vlassoff M, Shearer J, Walker D and Lucas H. (forthcoming, 2008) Economic Impact of Unsafe Abortion-Related Morbidity and Mortality: Evidence and Estimation Challenges. IDS Working Paper. Institute for Development Studies, University of Sussex, Brighton.
- ² Johnston HB, Gallo MF and Benson J. 2007. “Reducing the costs to health systems of unsafe abortion: a comparison of four strategies.” *Journal of Family Planning and Reproductive Health Care* 33(4): 250-257; PATH. 2006. Estimating the Costs of Unsafe Abortion in Mexico City, Final Report, February 17, PATH: Seattle, Washington; Bankole A, Singh S, Vlassoff M and Woog V. 2007. “Estimating the cost of post-abortion care in Nigeria: A case study,” in Elizabeth Lule, Susheela Singh and Sadia Afroz Chowdhury (eds.), *Fertility Regulation Behaviors and their Costs: Contraception and Unintended Pregnancies in Africa and Eastern Europe & Central Asia, 2007*, The International Bank for Reconstruction and Development/The World Bank Washington, DC.
- ³ Guillaume A and Molmy W. 2004. Abortion in Africa, Chapter 5 (which can be accessed at <http://ceped.cirad.fr/avortement/gb/800/page-type.html>) and Guillaume A and Lerner S. 2006. Induced Abortion in Latin America and the Caribbean, Chapter 7 (which can be accessed in Spanish at http://ceped.cirad.fr/cdrom/avortement_ameriquelatine_2006/sp/chapitre7.html or a preliminary English version can be sent upon request).
- ⁴ Potdar R, Fetters T and Phirun L. 2008. “Initial loss of productive days and income among women seeking induced abortion in Cambodia.” *Journal of Midwifery & Women’s Health* 53(2):123-129.
- ⁵ Guillaume A and W Molmy, 2004, op.cit. (see reference 3); Guillaume A and Lerner S, 2006, op. cit. (see reference 3).
- ⁶ MediJagwe-Wadda G, Moore A and Woog V. 2006. Abortion morbidity in Uganda: evidence from two communities, Occasional Report, New York: Guttmacher Institute, No. 26; Sáenz de Tejada S, Prada E y Ball G. 2006. Morbilidad por aborto en Guatemala: Una visión de la comunidad, Informe Ocasional, Nueva York: Guttmacher Institute, No. 27.
- ⁷ Bankole A, Singh S, Vlassoff M and Woog V, 2007, op. cit. (see reference 2); Jowett M. 2000. “Safe motherhood interventions in low-income countries: an economic justification and evidence of cost effectiveness.” *Health Policy* 53(3):201-228.
- ⁸ World Health Organization (WHO). 1994. Mother-Baby Package: Implementing Safe Motherhood in Countries. Division of Family Health, Maternal Health and Safe Motherhood Programme. Geneva: WHO. (document number WHO/FHE/MSM/94.11); World Health Organization (WHO). 1999. Mother-Baby Package Costing Spreadsheet: User Guide, Version 1.01, WHO/FCH/RHR/99.17. Geneva: WHO.
- ⁹ A costing study conducted in three health facilities in Mexico City in 2005 (see reference 2) used the “bottom up” approach and some elements from the MBP model, but relied on fewer default data than were used in the present pilot studies.
- ¹⁰ In a study involving follow-up interviews of patients in Tanzania who underwent PAC, 35% were lost to follow-up one to six months after discharge, with the most common reasons for loss to follow-up being they had moved out of the catchment area or they had provided an unspecific address (Rasch

V. et al. 2004. "Acceptance of contraceptives among women who had an unsafe abortion in Dar es Salaam." *Tropical Medicine and International Health* 9(3): 399-405).

¹¹ E. Pitchforth, E. van Teijlingen, W. Graham and A. Fitzmaurice. 2007. "Development of a proxy wealth index for women utilizing emergency obstetric care in Bangladesh." *Health Policy and Planning* 22: 311-319; Henshaw SH, Adewole I, Singh S, Bankole A, Oye-Adeniran B and Hussain R. 2008. "Severity and cost of unsafe abortion complications in Nigerian Hospitals." *International Family Planning Perspectives* 34(1):40-50.

¹² Henshaw SH, Adewole I, Singh S, Bankole A, Oye-Adeniran B and Hussain R, 2008, op. cit. (see reference 11).

¹³ Ibid.

¹⁴ For example, in a hospital-based study in Tanzania, 60 percent of women presenting with an incomplete abortion admitted to having induced it in an interview (with a very skilled interviewer using a more general approach of questioning to establish rapport and comfort) (Rasch V, et al. 2000. "Self-reports of induced abortion: an empathetic setting can improve the quality of data." *American Journal of Public Health* 90(9): 1141-1144.

¹⁵ Rasch V, et al. 2004. "Acceptance of contraceptives among women who had an unsafe abortion in Dar es Salaam." *Tropical Medicine and International Health* 9(3): 399-405.

¹⁶ Storeng KT, et al. 2008. "Paying the price: The cost and consequences of emergency obstetric care in Burkina Faso." *Social Science and Medicine* 66:545-557.

¹⁷ Bankole A, Singh S, Vlassoff M and Woog V, 2007, op. cit. (see reference 2).