

Estimating the Level of Abortion In the Philippines and Bangladesh

By Susheela Singh, Josefina V. Cabigon, Altaf Hossain, Haidary Kamal and Aurora E. Perez

In countries where data on induced abortion are underreported or nonexistent—such as the Philippines and Bangladesh—indirect estimation techniques may be used to approximate the level of abortion. The collection of data about women hospitalized for abortion complications and the use of such indirect estimation techniques indicates that the abortion rate in the Philippines is within the range of 20–30 induced abortions per 1,000 women aged 15–49, and the rate in Bangladesh ranges between 26 and 30 per 1,000. About 400,000 abortions are estimated to occur each year in the Philippines, while the number in Bangladesh is calculated to be about 730,000. Some 80,000 women per year are estimated to be treated in hospitals in the Philippines for complications of induced abortion; in Bangladesh, about 52,000 women are treated for such complications, and another 19,000 are treated for complications resulting from menstrual regulation procedures. The probability that a woman will be hospitalized for abortion complications in the Philippines is twice that in Bangladesh, probably because menstrual regulation procedures by trained providers account for about two-thirds of all voluntary pregnancy terminations in Bangladesh.

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Regardless of the legal status, accessibility or safety of induced abortion, information about it is essential if health planners are to ensure that women's reproductive health is protected. However, reliable information on abor-

tion is extremely difficult to obtain in many parts of the developing world.¹ Although the problem is most severe where the procedure is highly restricted by law, there are a number of reasons why the procedure is often underreported, even in countries where abortion is legally permitted under broad conditions. Providers may not report all of the procedures they perform, an official system for recording abortions may not exist or may be incomplete, and women may not always acknowledge an abortion.

The countries of South Central and Southeast Asia are no different from the rest of the developing world in this regard, and most lack accurate information on abortion. These countries span a wide range of situations regarding the legal status and safety of abortion provision. The Philippines and Bangladesh are at very different points along the continuums of legality, access and safety. Although we focus on these countries partly to portray the variation that exists in Asia, other, equally important factors that influenced the choice of these two countries include the high level of concern about the con-

sequences of unsafe abortion,² the possibility of collecting data that would allow us to estimate the level of abortion, the availability of collaborators who had experience with research on the subject of abortion and resource limitations that restricted the research to only two countries of moderate size.

The Philippines and Bangladesh have very different official policies on abortion. The Philippine penal code contains a general prohibition on abortion, but while no exceptions are specified, it may be interpreted to permit abortion to save the life of a pregnant woman.³ Despite the law's severity, abortion appears to be widely practiced, however, judging from studies carried out over the past few decades.⁴ A recent survey of health professionals in the Philippines suggests that about one-third of women seeking an abortion obtain it from a doctor or nurse; the majority of women consult traditional practitioners or attempt to induce the abortion themselves—increasingly, through the use of prostaglandins like misoprostol.⁵

In Bangladesh, the penal code permits induced abortion only to save a woman's life. However, menstrual regulation by vacuum aspiration is not regulated by the code and is considered to be an "interim method for establishing nonpregnancy."⁶ The procedure is allowed up to 10 weeks since the last menstrual period, but in practice, it is sometimes provided up to 12 weeks.⁷ About 12,000 doctors and paramedical providers have received formal training in menstrual regulation,⁸ although many other practitioners with only informal training are also believed to provide it. However, many women do not know that menstrual regulation is available, do not know of a provider or are unaware of time limits. In addition, access to legal menstrual regulation services is poorer in rural areas than in urban areas. As a result, in both urban and rural areas,

Susheela Singh is director of research at The Alan Guttmacher Institute, New York. Josefina V. Cabigon is professor at and Aurora E. Perez is director of the Population Institute of the University of the Philippines, Manila; Altaf Hossain is research coordinator and Haidary Kamal is director of the Bangladesh Association for Prevention of Septic Abortion (BAPSA), Dhaka. The authors would like to thank the following individuals for their invaluable contribution to the collection, processing and analysis of data: in the Philippines, Corazon Raymundo (both for comments and for special tabulations), Zenaida E. Quiray, Florio Arguillas and Josefa Zafra, all of the University of Philippines Population Institute; Benjamin Marte and Vidal Pantillano, Jr., Department of Health, Manila; and in Bangladesh, Reena Yasmin and Purabi Ahmed, who are quality control officers, and Abu Taher, Hedayat Bhuiyan, Lutful Mannan and Tariful Prodhan, who are interviewers, all at BAPSA. The authors also thank Heidi Jones and Reina Nuñez at AGI for research assistance and Jacqueline E. Darroch, Adrienne Germain, Stanley Henshaw, Roger Rochat and Deirdre Wulf for reviewing drafts of this article. The research on which this article is based was supported by The World Bank. The findings and conclusions expressed are entirely those of the authors, however, and do not necessarily represent the views of The World Bank.

a substantial proportion of women are believed to obtain abortions from traditional midwives or attempt to perform the abortion themselves.⁹

Despite the policy differences, both countries face serious health and health service problems related to the widespread practice of abortion. In both, maternal mortality resulting from unsafe abortion and a heavy demand for hospital services to treat abortion complications are serious public health problems.¹⁰ The maternal mortality ratio is estimated to be much higher in Bangladesh (480 maternal deaths per 100,000 births) than in the Philippines (100 per 100,000).¹¹ A survey of health workers in Bangladesh in the late 1970s indicated that as many as 26% of maternal deaths were due to abortion;¹² Philippine government statistics indicate that about 10% of recorded maternal deaths were classified as due to abortion.¹³

This article presents estimates of levels of induced abortion in the Philippines and Bangladesh in the mid-1990s, based on an indirect estimation methodology. However, the data collection efforts differ for each country, reflecting variations both in the availability of the relevant data and in the provision of abortion services.

The Philippines

Estimating the level of abortion in the Philippines involved several steps: collecting information on the number of women hospitalized due to abortion complications; adjusting this number for incompleteness; separating out women treated for complications of spontaneous abortion; and calculating the total number of women having an induced abortion, safe or unsafe, based on the number of women hospitalized and on assumptions concerning the ratio of the total to the number hospitalized. We arrived at these assumptions after considering all available information concerning the safety of abortion practice and access to hospitals. These data were then used to estimate the abortion rate and the abortion ratio.

Methodology

•*Data availability and data collection.* As part of licensing regulations, all hospitals in the Philippines are required each year to complete and submit to their regional Department of Health office a form reporting on their facilities and on services provided, including the number of patients treated for each of the top 10 causes of hospital admission. However, these forms are not compiled, processed or tabulated for the country as a whole.* For the

project described in this article, all available forms for 1993, 1994 and 1995 were collected in early 1996 from each regional Department of Health office.[†]

Because some hospitals do not submit a reporting form, we assembled a comprehensive list of Philippine hospitals, to place in context the information obtained from hospitals with forms. Existing lists of all known private and public hospitals were compiled, and hospitals that were not on these lists but that were identified through the reporting forms they had submitted were added. We identified a total of 1,863 hospitals from all sources. (By comparison, government statistics for 1992 indicated that there were 1,663 hospitals.¹⁴)

Using information from existing hospital lists or from reporting forms, we created a data file of basic descriptive characteristics for all hospitals, including ownership, type and level of hospital, and number of beds. For hospitals that had submitted a form, other selected information was added to the data file, including the number of abortion complication cases treated (in hospitals where abortion was among the top 10 causes of admission) or the number of patients treated for the 10th most common cause of admission (in hospitals where abortion was not among the top 10 reasons for admission).

•*Calculating the total number of hospitalized abortion patients.* Of the 1,863 hospitals identified in the Philippines, we obtained usable reporting forms for 1,121.[‡] We then made two basic adjustments to the data: If reporting forms were available for more than one year, the data were averaged; if the form covered only part of a year, the number of patients was adjusted to create an annual estimate, proportional to the number of months covered by the form.[§]

Overall, in 345 hospitals, abortion was one of the 10 main causes of admission and a direct count of the number of women hospitalized for abortion complications was available. For the remaining 776, we used the number of patients admitted for the 10th most common cause of hospitalization as part of our estimation process.

We developed a three-step methodology to estimate the number of women hospitalized because of abortion in all hospitals, including those for which the number was not directly available. First, there were almost 51,000 hospitalizations because of abortion in the 345 hospitals in which abortion complications were among the 10 leading causes of admission and for which a direct count of such admissions was available; this information needed no further adjustment.

For the remaining 776 hospitals, we assumed that admissions for abortion complications would account for about half as many patients as the number hospitalized for the lowest-ranking or the 10th-ranking cause.** This yielded an additional count of about 18,500 abortion complication cases per year from these 776 hospitals, for a combined total from the 1,121 hospitals with reporting forms of about 69,500 abortion-complication patients.

The third step was to estimate the likely annual number of abortion complications treated in the 742 hospitals for which there were no reporting forms. We used a regression equation in which the number of abortion patients was the dependent variable and hospital characteristics considered to be important determinants of the intake of abortion complication cases were analyzed. These characteristics were ownership (public vs. private), hospital level (primary, secondary or tertiary), hospital size (number of beds) and region. The regression equation was based on the 1,121 hospitals with information on the number of abortion patients, whether directly reported or estimated.

One interaction, between ownership and size, was significant and was included in the final regression equation. We estimated that these 742 hospitals treated about 30,100 women for abortion-related complications per year, making a total of 99,600 women hospitalized for abortion in all hospitals in the Philippines in 1994 (the cen-

*Nevertheless, these data have been used in special projects: For example, the LUCENA system has collected and processed admissions statistics from 21 hospitals since 1993, and in a pilot project in Northern Mindanao, a coding and tabulation program was developed to utilize the data from hospital reporting forms. Both of these projects were developed by the Health and Management Information System of the Philippine Department of Health.

†A letter of authorization was obtained in 1996 from Secretary of Health H. J. Ramiro to facilitate data collection, and both central and regional staff from the Department of Health assisted with the fieldwork. Data for Northern Mindanao were obtained directly from the Department of Health, which had already processed that region's records in their pilot study.

‡Forms were obtained for 80 additional hospitals, but these lacked some information that was essential to this analysis, and could not be used. Nonobstetric specialty hospitals were also excluded.

§Of the 1,121 hospitals with usable reporting forms, 221 had data for three years, 347 had data for two years, 383 had information for one year and 170 had information for part of a year only.

**Additional information for Northern Mindanao supports this assumption: For six hospitals where abortion ranked below the 10th cause and for which data were available on both the 10th cause and the number of abortion patients, abortion complications accounted for about 60% of the total number of patients hospitalized for the 10th-ranking diagnosis.

tral year of the period covered, 1993–1995).
• *Estimating the number of women requiring hospitalization exclusively for induced abortion.* Some hospitalized abortion patients are treated for the complications of a spontaneous pregnancy loss rather than of an induced abortion. However, in settings in which induced abortion is illegal, as in the Philippines, hospital records typically do not distinguish between induced and spontaneous abortions, because of the possible legal consequences. An essential step, therefore, is to separate out the number of patients hospitalized for treatment of the complications of spontaneous abortion.

Because it has the advantage of being comparable across areas, an indirect method of estimating the number of women hospitalized for spontaneous miscarriages was used. In the absence of induced abortion, both the distribution of pregnancy loss by gestation and the proportion of live births among all pregnancies are fairly constant across populations. Such data are available both historically and from recent clinic-based studies in the United States and other countries.¹⁵

In clinic studies, estimates of pregnancy loss by gestation are based on all pregnancies recognized at an early point in gestation (e.g., at five weeks). We assume that late miscarriages (those at 13–22 weeks) are likely to be accompanied by complications that require hospital care.* Miscarriages at 13–22 weeks account for about 2.89% of all recognized pregnancies, although since live births are 84.8% of all recognized pregnancies, such miscarriages are equal to 3.41% of all live births. Since the number of live births is known, this proportion can be used to estimate the number of women having late miscarriages.¹⁶ We applied this proportion to the number of annual births in the Philippines to estimate the number of late spontaneous abortions there.

However, a further adjustment is needed to obtain the number of women likely to be hospitalized because of a late spontaneous abortion. Since not all women who need hospital care for the treatment of late spontaneous abortion have access to a hospital, we assumed that the proportion of women having a late spontaneous abortion who are likely to be hospitalized is the same as the proportion of women giving birth who deliver in a hospital. Data from the

1993 National Demographic Survey show that nationally, 28% of women delivered at a health facility, but this proportion ranges from 11% in the Cagayan Valley region to 68% in metropolitan Manila.¹⁷

Thus, by applying 3.41% to the number of live births¹⁸ and by multiplying the resulting number by the proportion likely to obtain hospital care, we can estimate the number of women likely to be hospitalized for a late spontaneous abortion separately for each of the 16 regions; by combining regions, we obtain values for the four major areas of the country. The resulting estimated annual number of women hospitalized because of spontaneous abortion is just under 20,000, or about 20% of all women hospitalized each year for all abortions. The remainder, about 80,000, are considered to be women hospitalized for complications of induced abortion.

• *Estimating the total number of induced abortions.* Our next step was to derive a multiplier, or inflation factor, with which to estimate the number of women who have an abortion but who do not need or do not obtain treatment at a hospital. This includes women who die before obtaining hospital care, those who have a complication but do not obtain hospital care (whether due to poor access to hospitals or to a reluctance to seek treatment), those who obtain care from a private doctor and those who have an uncomplicated abortion. For example, if 20% of women having an abortion are hospitalized for complications (i.e., one out of every five women having an abortion), then the inflation factor would be five, and multiplying the number of women hospitalized as a result of an induced abortion by five would yield the total number of abortions occurring in the reference period.

In general, the safer abortion services are, the higher the multiplier that is needed, because for every woman hospitalized, many have abortions that do not result in complications or hospitalizations. Concomitantly, the poorer and less safe abortion services are in a given setting, the lower the multiplier will be, because a higher proportion of women have serious complications.

Safety is not the only consideration, however. The multiplier is also a function of the general availability of hospital services. Where such services are easily accessible, the proportion of women with complications who receive hospital treatment will be higher. In poor regions or in underdeveloped rural areas, on the other hand, where hospitals are few, even the most seriously affected woman is unlikely

ly to get the treatment she needs for medical problems related to abortion.

Unfortunately, there have been no large-scale, community-based surveys of women that might provide a reasonable estimate of the proportion of all women having induced abortions who become hospitalized. After reviewing all available information, we concluded that this proportion most likely ranges between one in four and one in five nationally, but that in regions with greater access to safe abortion—or with poorer access to hospitals—it may be one in six. Thus, the multiplier appropriate for the Philippines would range between four and six.

Data from a number of studies provided the basis for this estimate:

• Two Philippine community surveys produced relevant information. One, a 1978 community survey in Cavite province, found that 12% of women (or about one in eight) who reported having one or more abortions had been hospitalized for complications.¹⁹ The other, conducted in 1994, found that among 170 women in metropolitan Manila who reported ever having had an abortion, about 36% (or one in three) had been hospitalized for complications.²⁰

Neither of these studies may be generalizable to the whole country in the 1990s, though. The proportion of women hospitalized in a rural area such as Cavite, and in other rural areas, may have been higher in the mid-1990s than it was in 1978. On the other hand, the estimate for Manila was based on a small number of cases and had a large sample error. In addition, it is difficult to generalize to the rest of the Philippines from Manila, a large urban area with better access both to hospital care and to safe abortion services.

• Philippine health professionals knowledgeable about abortion believe that about one in four women (27%) who had an induced abortion would be hospitalized for complications.²¹ Over the last two decades, the safety of abortion services has improved, as abortions have increasingly been provided by medical and paramedical personnel, reducing the proportion needing hospitalization among all women obtaining an abortion. The 1996 health professionals survey found that while untrained abortion practitioners in the Philippines are still thought to frequently use traditional methods, such as abdominal massage, these providers are also believed to have increased their use of hormones and modern drugs.²² The health professionals also estimated that about half of nonpoor urban women seeking an abortion would obtain it from a physician, a nurse or a midwife, and that even among

*Although some women with miscarriages at gestations of less than 12 weeks may seek medical care, many are likely to do so on an outpatient basis, and relatively few will be hospitalized. Pregnancy losses at 22 or more weeks are not considered because they are usually not classified as abortions, but as fetal deaths.

Table 1. Measures related to calculating the number of women hospitalized for induced abortion complications, and estimated total number of induced abortions, by multiplier to account for women not hospitalized, according to major area, the Philippines, 1994

Area*	Total no. of hospitals	No. of hospitals with reporting forms	All hospitalizations for abortion	No. of women hospitalized for induced abortion†	Total no. of induced abortions		
					4	5	6
Philippines	1,863	1,121	99,601	80,103	320,413	400,515	480,618
Metro Manila	166	108	25,951	20,917	83,668	104,585	125,502
Rest of Luzon	871	478	45,938	38,899	155,596	194,495	233,394
Visayas	278	181	10,831	6,895	27,580	34,475	41,370
Mindanaos	548	354	16,881	13,392	53,568	66,960	80,352

*The four major areas are: metropolitan Manila; the rest of Luzon, which is comprised of Ilocos Region, Cagayan Valley, Central Luzon, Southern Tagalog, Bicol and Cordillera Autonomous Region; the Visayas, which are comprised of Western Visayas, Central Visayas and Eastern Visayas; and the Mindanaos, which are comprised of Western Mindanao, Northern Mindanao, Southern Mindanao, Central Mindanao, the Autonomous Region Muslim Mindanao and Caraga. Calculations were done separately for each of the 16 regions, and then summed to obtain results for the four major areas. †After the number hospitalized for spontaneous abortion was subtracted.

poor urban and rural women, between one-quarter and one-third would do so.

•One of the highest documented hospitalization levels was that found in Chile in the 1960s, when abortion provision was highly unsafe: Community surveys showed that about one in three women having an abortion were hospitalized.²³

Across the Philippines, there evidently are large differences in the types of abortion methods used, in the safety of the procedure and in the probability of complications, according to a woman's income level, social class and area of residence. However, it seems highly unlikely that by the early 1990s, the multiplier for the Philippines would be as low as three. To provide a range within which the true level is likely to fall, therefore, we made three estimates, based on multipliers of four, five and six.

Results

Nationally, according to the moderate estimate (a multiplier of five), the annual number of induced abortions in the Philippines in 1994 was about 400,000 (Table 1). If the multiplier were four, the total would be 320,000, while if it were six, the total would be about 480,000. In comparison, an earlier study estimated that the annual number of induced abortions in the Philippines in 1982 was in the range of 155,000 to 750,000.²⁴ That study's estimates

Table 2. Estimated annual abortion rate and abortion ratio, by major area, according to multiplier

Area	Abortion rate			Abortion ratio		
	4	5	6	4	5	6
Philippines	20	25	30	13	16	19
Metro Manila	33	41	50	28	33	37
Rest of Luzon	24	30	36	15	18	21
Visayas	9	11	13	6	7	8
Mindanaos	14	18	21	9	11	13

Note: Abortion rate is the number of abortions per 1,000 women aged 15–44; abortion ratio is the number of abortions per 100 pregnancies.

were based on the assumption that the number of abortion providers might range from as few as 1,000 to as many as 5,000 and on estimates of the average number of abortions performed each year, based on interviews with providers.

The medium-level national abortion rate derived from our analysis (based on a multiplier of five) is 25 induced abortions per 1,000 women aged 15–44 (Table 2). The low estimate is 20 per 1,000 and the high estimate is 30 per 1,000. The abortion ratio (the number of abortions per 100 pregnancies) would be 16 per 100 if the multiplier were five and would fall between 13 and 19 per 100 if the multiplier were either four or six.

Regional variations in the estimated abortion rate are large. The two most urban regions of the country have high rates: the medium estimate for metropolitan Manila (41 per 1,000) is the highest, and that for the rest of Luzon is moderately high (30 per 1,000). A relatively low rate is found in the Mindanaos (18 per 1,000), although it is somewhat higher in some parts of this island grouping (e.g., 23–24 per 1,000 in Southern and Western Mindanao and 29 per 1,000 in Central Mindanao). Very low levels of abortion are found in the Visayas (11 per 1,000).

We converted the number of women hospitalized into annual rates to measure the incidence of hospitalization for treatment of abortion complications per 1,000 women of reproductive age. The estimated rates indicate clear regional differences in the likelihood that a woman would be hospitalized in any given year for the treatment of complications from induced abortion. The rate of hospitalization is highest for women living in metropolitan Manila—eight per 1,000 women aged 15–44. It is lowest in the Visayas (two per 1,000) and intermediate (five per 1,000—around the national average) in the remaining two major areas, Luzon and the Mindanaos.

Bangladesh

The process of estimating the level of abortion in Bangladesh differs from that for the Philippines because there are two components to be considered: clandestine, unsafe induced abortion, and menstrual regulation performed by vacuum aspiration. We combined separate estimates of the total number of women having induced abortions other than menstrual regulations and the total number of menstrual regulation procedures, to produce an overall estimate of the number of voluntary pregnancy terminations occurring in Bangladesh.

The estimation process for the first component was similar to that used in the Philippines, except that Bangladeshi hospitals have no standardized reporting of abortions or of any other statistics (although a few very large teaching hospitals produce annual statistical reports). Thus, we obtained the total number of women hospitalized for abortion complications by carrying out a sample survey of hospitals. To derive an estimate of the total number of menstrual regulations, we began with official statistics on menstrual regulation and then estimated the level of underreporting of these procedures.

Number of Induced Abortions

•*Survey of Bangladesh hospitals.* In 1996, to estimate the number of women hospitalized each year for complications of induced abortion, we carried out a sample survey of 110 hospitals (about one-seventh of all facilities).^{*} A 1978–1979 study had found large variations by area in the level of maternal mortality attributed to abortion,²⁵ suggesting that variation in the level of abortion complications and of abortion itself may still be substantial. We expected that a survey of this many hospitals, based on a systematic area sample drawn with a random start, would capture the range of variation.

A senior medical officer in each sampled facility was interviewed using a structured questionnaire.[†] Two sets of questions were asked on the number of patients treated for abortion complications, allowing us to create and compare

*The universe of facilities represented by this sample is all hospitals and clinics that treat inpatients. The sample does not represent the large number of clinics without beds, some of which may treat women with abortion complications on an outpatient basis.

†The Bangladesh Association for Prevention of Septic Abortion (BAPSA) fielded the survey. In larger hospitals, the person interviewed was the consultant, medical officer or chief of the department of obstetrics and gynecology; in smaller facilities, the local health officer or family planning officer was interviewed.

Table 3. Sample information; estimated number of women hospitalized for complications of abortions, by type of abortion; estimated total number of induced abortions, by multiplier; and total number of menstrual regulations; all according to division, Bangladesh, 1995

Division	No. of hospitals in sample	Sample hospitalizations for abortion	No. of women hospitalized for				Total no. of induced abortions			Total no. of menstrual regulations
			All abortions	Spontaneous abortions	Menstrual regulations	Induced abortions*	4	5	6	
Bangladesh	110	24,377	90,766	18,973	19,367	52,426	209,704	262,130	314,556	468,299
Dhaka	29	7,163	32,747	7,126	7,155	18,466	73,864	92,330	110,796	229,689
Rajshahi	27	5,160	18,904	3,822	4,380	10,702	42,808	53,510	64,212	81,911
Khulna	15	3,144	14,308	3,470	3,632	7,206	28,824	36,030	43,236	31,235
Barisal	10	1,458	3,375	112	1,320	1,943	7,772	9,715	11,658	42,055
Chittagong	29	7,452	21,432	4,443	2,880	14,109	56,436	70,545	84,654	83,409

*After subtracting the number hospitalized with complications due to spontaneous abortion or menstrual regulation.

two estimates. The first was based on direct questions about the monthly number of patients treated for any abortion complications, separately for outpatients and inpatients. The second, an indirect approach, used questions about the average weekly number of all patients treated (separately for each ward in which abortion patients are treated), and the proportion of patients on each ward who are hospitalized for abortion complications. We examined the consistency of answers to these two sets of questions, as well as their consistency with other data (e.g., the number of beds in the wards, the total number of patients treated and the number of deliveries at that hospital).

As an external consistency check, we also compared the number of women hospitalized for abortion complications at three large hospitals (according to their annual hospital reports) with our survey results. This comparison confirmed that the survey data were of acceptable quality.²⁶

The sample was selected to represent all hospitals in the country that receive abortion cases, as well as to maximize coverage of large hospitals. Bangladesh has 13

teaching hospitals, about 59 district hospitals, 372 hospitals at the *thana* level (a *thana* is the next smaller administrative area below a district) and approximately 333 nongovernmental hospitals.* All 13 teaching hospitals—the largest facilities in the country—were included in the survey.

To obtain representative coverage of all other hospitals, we drew a systematic area sample with a random start, selecting 16 of the 64 districts in the country and 55 of the 88 thanas in the selected districts. (Almost all districts have one district-level hospital, and about 75% of the 486 thanas have a *thana*-level facility. In addition, nongovernmental or voluntary facilities also operate in many thanas.) The sample included the district hospital in each selected district and the *thana* hospital in each selected *thana*, as well as at least one voluntary facility in each selected district.

Interviews were completed in all 13 teaching hospitals, in 17 district hospitals, in 55 *thana* hospitals and in 25 voluntary facilities (nine more than expected). The sample was weighted by type of facility and by division: Within each of the five administrative divisions, weights for district and *thana* hospitals were calculated based on the proportion of beds in the sampled facilities; for private or voluntary hospitals, weights were based on the proportion of facilities that were sampled, because detailed information on number of beds in each facility was unavailable. (No weighting was needed for teaching hospitals, because all were surveyed.) The sample was designed to permit estimates at the division level.

The 110 hospitals sampled reported a total of nearly 24,400 hospitalized abortion patients. After applying sample weights, we found that the total estimated number of hospitalized abortion patients in Bangladesh in 1996 was about 90,800 (see Table 3), of whom almost 14,000 were treated in teaching hospitals, 13,800 in district hospitals, 33,200 in *thana* hospitals and 29,800 in voluntary facilities. Nationally, 21,000 (about 23%) are estimated to

have been treated as outpatients, while the remainder were treated as inpatients.

• *Estimating the number of patients hospitalized for induced abortion complications.* To obtain the number of women hospitalized for complications from induced abortion, we had to separate out and subtract two types of abortion patients: women admitted to a hospital due to a spontaneous abortion, and those hospitalized for a complication resulting from menstrual regulation.

To identify the first group, we examined responses to a direct question on the 1996 hospital survey. In it, respondents estimated that slightly more than 19,000 women (or 21% of all hospitalized abortion patients) were treated for complications related to a spontaneous abortion.[†]

The 1996 hospital survey also showed that about 19,300 of all women hospitalized for abortion nationwide were treated for complications of menstrual regulation. If these patients are subtracted from the total number hospitalized for induced abortion, we can conclude that over a year, an estimated 52,400 women in Bangladesh are treated for complications of induced abortions other than menstrual regulations.

• *Estimating the total number of induced abortions other than menstrual regulations.* As with the Philippines, in order to estimate the total number of women having an induced abortion, we must use a multiplier representing the ratio of women who had an induced abortion but were not hospitalized for complications to women who were hospitalized. No existing Bangladeshi community surveys provide an estimate of this proportion, but we can use other available information to arrive at such an estimate.

Two factors must be taken into account: women's likelihood of experiencing a complication that requires hospitalization, and their likelihood of being treated in a hospital when they experience complications. Bangladeshi respondents to a survey of health professionals knowledgeable about abortion services estimated that 40% of

*An additional 174 government facilities, specialized according to purpose (e.g., infectious diseases or tuberculosis, among others) or organization (the Population Control Division's maternity hospitals, for example, or police and jail hospitals) were not included, because they were not considered likely to receive women with abortion complications.

†Applying the same indirect methodology used for the Philippines to estimate the number of women likely to have a late miscarriage each year would produce a much lower estimate—about 4.5% of all hospitalized abortion complication cases. A 1988 study carried out in eight hospitals of varying types applied the World Health Organization classification and estimated that 32% of 1,262 hospitalized abortion patients interviewed were being treated for spontaneous pregnancy losses (see: S.F. Begum et al., 1991, reference 10). However, the symptoms of spontaneous and induced abortion are very similar; in addition, a substantial proportion (about one-third) of abortions classified as spontaneous were at low gestations (10 weeks or less), when women experiencing a miscarriage are unlikely to be hospitalized. It is possible that some of these women may have had an induced abortion, and that spontaneous abortions represented a somewhat lower proportion than was estimated.

women obtaining an abortion have a serious medical complication, and that about half of these would be hospitalized.²⁷ Those interviewed in the hospital survey also estimated that about 50% of women requiring hospitalization for an abortion complication would obtain such care.

These results suggest that about one in five women who have an induced abortion will both need and obtain hospital care, producing a multiplier of five. Considering the very high ratio of population to hospital beds in Bangladesh (there are about 3,189 persons per hospital bed in Bangladesh, compared to 647 persons per bed in the Philippines),²⁸ it seems realistic to expect that a lower proportion of women needing care would obtain it; if so, the multiplier would be higher. However, since we lacked any additional information that might provide the basis for a more likely multiplier than five, we chose to apply a range around it (four, five and six). These three multipliers were applied to the number of women estimated to be hospitalized for induced abortion each year in Bangladesh—52,400—to obtain a range of estimates of the total number of induced abortions (other than menstrual regulations) occurring each year—from 210,000 to 314,000 (Table 3).

Number of Menstrual Regulations

The legal provision of menstrual regulation was initiated in Bangladesh in 1975, and is administered by the government under the division of family planning. Programs to train medical personnel in menstrual regulation, started in the late 1970s, have expanded over the years and now include several government centers, as well as centers operated by nongovernmental organizations such as the Bangladesh Women's Health Coalition, the Bangladesh Association for Prevention of Septic Abortion (BAPSA) and the Menstrual Regulation Training and Services Program.

Formal training courses, typically of 2–3 weeks' duration, are given to physicians and family welfare visitors.* Some trained providers may informally train others, mainly by allowing them to observe, assist in and, in some cases, practice the procedure under observation. These informally trained providers include physicians, family welfare visitors, medical assistants, nurses and traditional birth attendants.²⁹

Some private doctors, family welfare visitors and nongovernmental facilities report the procedures they have performed to the government's management information system, and BAPSA publishes these statistics on a regular basis. How-

ever, such statistics suffer from a very high level of underreporting: A 1985–1986 survey of menstrual regulation providers found that recorded menstrual regulations represented only 29% of the number of procedures that surveyed providers said they had actually performed.³⁰ Thus, we chose to use indirect methods to estimate the number of menstrual regulation procedures performed in 1995.

We combined estimates from the 1985–1986 study of the annual number of menstrual regulations performed in the mid-1980s with information on the rate of increase in the number of trained providers to project the number of menstrual regulations in the mid-1990s. From BAPSA records of the number of formally trained providers—both doctors and family welfare visitors—it is clear that this number almost doubled between 1985–1986 and 1995, from 6,158 to 11,944.³¹

The 1985–1986 survey drew sampled providers from existing lists of formally trained providers and included informally trained providers reported by formally trained health professionals; an estimated 241,400 menstrual regulations were performed annually at that time. Given that the number of providers has nearly doubled since then, we might expect a corresponding increase in the number of procedures carried out—that is, about 468,000 menstrual regulation procedures in 1995 (Table 3).[†]

Results

Combining the estimated numbers of induced abortions and of menstrual regulations yields three alternative estimates of the annual number of pregnancy terminations in Bangladesh in the mid-1990s (Table 3). Rounded to the nearest thousand, the national totals derived from these three alternative approaches come to 678,000, 730,000 and 783,000.

At the national level, the three estimates of the number of abortions in Bangladesh produce a range of estimated abortion rates for 1995—annual rates of 26, 28 and 30 abortions per 1,000 women aged 15–44 (Table 4). These rates are moderate compared to levels worldwide. Dhaka division, which contains the large Dhaka metropolitan area, has the highest incidence, a rate of 40 per 1,000 women (the medium estimate); estimated rates in all other divisions are much lower. Rajshahi and Khulna have similar, relatively low rates (20 per 1,000 women per year), while Barisal and Chittagong have slightly higher rates (28 and 24 per 1,000, respectively).

A recent review concluded that at least 450,000 menstrual regulations and in-

Table 4. Estimated annual abortion rate and abortion ratio, by division, according to multiplier

Division	Abortion rate			Abortion ratio		
	4	5	6	4	5	6
Bangladesh	26	28	30	17	18	19
Dhaka	38	40	42	22	23	24
Rajshahi	18	20	22	13	14	15
Khulna	18	20	23	13	15	16
Barisal	27	28	29	17	17	18
Chittagong	22	24	27	13	14	16

duced abortions were performed annually in Bangladesh in the early 1990s.³² Our lowest annual total—678,000—is substantially higher than that estimate, because our approach produces higher estimates both of the number of menstrual regulations and of the number of induced abortions.

Are these estimates exaggerated? Almost 20 years ago, a 1978–1979 study concluded that nationally in Bangladesh, there were 780,000 abortions per year,³³ a figure that some analysts considered too high.³⁴ Yet an estimate of even half that level for the late 1970s (365,000 abortions) would imply an annual abortion rate of 24 per 1,000 women aged 15–44 in 1978. It seems unlikely that a rate twice that level (48 per 1,000) would have prevailed in the late 1970s; it is more likely that the level prevailing in the late 1970s would be similar to that currently estimated for 1995, or even lower. In light of the tremendous amount of social change in Bangladesh since 1978—not least of which are the increased desire of women and couples to control their family size, a concomitant decline in family size, a large increase in contraceptive use and the expansion of menstrual regulation services—it seems highly likely that the abortion rate would have at least remained at its earlier level, if not increased.

The overall rate of hospitalization due to complications of induced abortion is 2.4 per 1,000 women per year. Most of these complications (about 75%) are due to un-

*Family welfare visitors are women who have completed a high school education and who have obtained two years of paramedical training; they represent the majority of menstrual regulation providers in rural areas.

†An alternative, plausible approach could be to use estimates of the 1985–1986 average annual number of menstrual regulations performed by each of the two main types of providers (82 by physicians and 46 by female welfare visitors) and of the number of active providers in 1995 (the total number trained, reduced by the 42% of physicians and 27% of female welfare visitors thought in 1985–1986 to be no longer active in providing menstrual regulations), and then adjust these to allow for the proportion of menstrual regulations done by informally trained providers. This approach produces a much higher annual total number of menstrual regulation procedures (722,000). Such an estimate suggests that the rates presented in this article may be conservative.

Table 5. Fertility-related measures that may contribute to levels of induced abortion, the Philippines and Bangladesh, mid-1990s

Measure	Philippines (1993)	Bangladesh (1993–1994)
Annual abortion rate*	25	28
Total fertility rate†	4.1	3.4
% of pregnancies that are unplanned	53	46
% of recent births that are unwanted	16	13
% of recent births that are mistimed	28	20
% who ever used any method‡	61	66
% who currently use any method‡	40	45
Sterilization	12	9
IUD	3	2
Pill	9	22
Other modern methods§	1	3
Traditional methods**	15	9
% who discontinued using pill due to health-related side effects††	31	52
First-year discontinuation rate for pill‡‡	33	38
% with unmet need§§	26	19

*Medium estimate. †Derived from respective Demographic and Health Surveys (DHS) for the three-year period preceding the survey date. ‡Among currently married women aged 15–49. §Condom, diaphragm, foam and jelly. **Periodic abstinence and withdrawal. ††Among all discontinuations during the past five years. ‡‡Excluding those who stopped to become pregnant. §§DHS definition. Sources: Bangladesh—see S.N. Mitra et al., 1994, reference 36; Philippines—see reference 17.

safe induced abortions, and the remainder are estimated to result from menstrual regulation. The annual estimated number of complications requiring hospitalization that result from menstrual regulation (19,300) represents about 4% of the approximately 468,000 menstrual regulation procedures performed annually. This is a very low level of hospitalization, considering that it reflects care by some providers who are informally trained. In comparison, induced abortions other than menstrual regulations are estimated to have a complication rate of about 40% and a hospitalization rate of about 20%.³⁵

Discussion

Recent national fertility surveys reveal that unplanned births are still common in both Bangladesh and the Philippines.³⁶ In Bangladesh, about one-third of all recent births were reported as unplanned—13% unwanted and 20% mistimed. In the Philippines, the equivalent proportions were 44%—16% unwanted and 28% mistimed. When the annual number of abortions estimated here is added to the annual number of live births, we conclude that each year, 45% of pregnancies in Bangladesh and 53% in the Philippines are unplanned. (An estimated 18% of pregnancies in Bangladesh and 16% in the Philippines are resolved as abortions.)

These high levels of unplanned pregnancy are probably a result of the strong motivation of women and couples in both countries to control their family size and to space their births, combined with still high levels of nonuse or poor use of contraceptives. Table 5 shows that unmet need is high

in both countries, although it is somewhat higher in the Philippines (26%) than in Bangladesh (19%). Yet contraceptive use has greatly increased over the past 10–15 years, especially in Bangladesh, where about 45% of currently married women were practicing contraception in the early 1990s. In the Philippines, this proportion was slightly lower (40%), but reliance on less effective, traditional methods was much higher. Moreover, research in the Philippines points to an additional barrier—the frequent objection of the male partner to contraceptive practice.³⁷

Considering that contraceptive use is somewhat lower in the Philippines, that traditional methods with high failure rates are more commonly used and that societal support for family planning is less strong than in Bangladesh, we would expect to find a higher level of abortion there than in Bangladesh. However, estimated levels of abortion for the two countries are similar: according to the medium-level estimates (a multiplier of five), annual rates of 25 abortions per 1,000 women of reproductive age in the Philippines and 28 per 1,000 in Bangladesh. Such factors as greater social conservatism, ambivalence about social values and about attitudes concerning family planning services (and fertility control in general), strong public opposition to abortion and poorer access to safe abortion services in the Philippines may account for this seeming discrepancy.

Because of the high level of reliance on menstrual regulation in Bangladesh, hospitalization of women with complications of abortion is much lower there than in the Philippines. The number of women hospitalized each year for treatment of complications of induced abortion is somewhat higher in the Philippines—about 80,000, compared with 72,000 in Bangladesh. Given that the Filipino population is approximately 60% that of Bangladesh, the rate of hospitalization due to unsafe abortion is much higher in the Philippines than in Bangladesh: 5.0 hospitalizations per 1,000 women per year vs. 2.7 per 1,000.

Government provision of family planning services is emphasized in both countries. However, one commonly accepted

summary index suggests that family planning program strength is greater in Bangladesh than in the Philippines.³⁸ Since the 1970s, the family planning program has been a priority for the Bangladeshi government, and service delivery has taken a multisectoral, broad-based approach, with activities including the extensive training of fieldworkers (emphasizing the use of female staff to meet the cultural need for women to be served by women), the establishment of information and education services, the use of mobile sterilization teams, the setting up of local-level clinics, a focus on the extension of services into rural areas and an attempt to increase limited maternal and child health services. Nevertheless, to maintain its momentum and effectiveness, critics say that the program must address many continuing challenges.³⁹

The Philippine family planning program has been in place since the 1970s, but it suffered a setback during the Aquino administration (1986–1992), when political and financial support was weakened as a result of the strong influence of the Catholic Church. In addition, as a result of the devolution of health services to local government bodies in 1993, local government now assumes the primary responsibility for the provision of family planning services. Thus, the national program now focuses mainly on technical assistance and policy issues. Although devolution does not yet seem to have had a negative impact on numbers of contraceptive users (as contraceptive use among married women aged 15–44 increased from 42% in 1993 to 48% in 1996), community influence is likely to become greater, and in some areas, opposition to the provision of family planning services may be stronger than when policy was more centrally established and directed.⁴⁰

Bangladesh and the Philippines face somewhat different policy options to address their induced abortion problems. In Bangladesh, where menstrual regulation is legally allowed, improved menstrual regulation services (increased availability in rural areas, better access for all women—including the unmarried and those having a first pregnancy—and intensive efforts to educate women about the legality of menstrual regulation, where to obtain services and gestational limits) could substantially reduce resort to unsafe abortion. In the Philippines, where abortion is legally restricted, and in Bangladesh as well, contraceptive counseling and referrals for women being treated for complications of abortion are both greatly needed.

At the same time, both countries would also benefit from some similar policy and service measures. Improvements in any aspect of contraceptive services would help in reducing levels of unplanned pregnancy and abortion. These might include extending the network of family planning services (thereby expanding the range of contraceptive methods offered), improving the quality of services (especially with the goal of counseling women and couples about the proper use of methods and about alternative choices if a method is unsatisfactory), including husbands in the process of family planning decision-making, and improving communication between spouses.

However, the practice of abortion always reflects wider influences than simply that of a country's family planning program. A range of cultural, social, religious and economic factors contribute to women's need for abortion, to the type of services available and to the level of induced abortion. Consequently, governments may use many different approaches to address the problem. However, they are unlikely to be able to act on all fronts simultaneously.

The Philippines and Bangladesh face a number of difficult decisions about where and how to invest their scarce health resources most cost-effectively. Moreover, these decisions and choices will have to be made within widely differing political and cultural contexts. These variables include religion (Catholicism vs. Islam), the rate of urbanization and modernization, current and changing roles of women, the availability of resources and political feasibility.

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Resumen

En los países en que no existen o se registran en forma deficiente los datos sobre el aborto inducido—tales como las Filipinas y Bangladesh—se pueden utilizar técnicas de estimación indirecta para realizar un cálculo aproximado del nivel de aborto. La recopilación de datos de mujeres hospitalizadas debido a complicaciones del aborto y el uso de técnicas de estimación indirecta indican que la tasa de aborto en las Filipinas se encuentra en un margen de 20-30 abortos inducidos por cada 1.000 mujeres de entre 15 y 49 años, y la

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tasa en Bangladesh se sitúa entre 26 y 30 por 1.000. Cada año se realizan aproximadamente 400.000 abortos en las Filipinas y esta estimación alcanza a aproximadamente 730.000 en Bangladesh. Se calcula que unas 80.000 mujeres reciben atención hospitalaria en las Filipinas debido a complicaciones del aborto inducido, y en Bangladesh, aproximadamente 52.000 mujeres se tratan por el mismo tipo de complicaciones, y otras 19.000 son tratadas debido a complicaciones resultantes de los procedimientos para regular la menstruación. La probabilidad de que una mujer sea hospitalizada en las Filipinas debido a complicaciones causadas por un aborto llega al doble de la registrada en Bangladesh, probablemente porque los procedimientos de regulación mens-

trual realizados por personas capacitadas alcanzan a aproximadamente los dos tercios de todas las terminaciones voluntarias de embarazo que ocurren en Bangladesh.

Résumé

Dans les pays où les données sur les avortements provoqués sont sous-déclarées ou n'existent pas—comme aux Philippines ou au Bangladesh—on peut avoir recours à des techniques indirectes d'estimation pour apprécier le niveau d'avortement. La collecte de données au sujet des femmes hospitalisées pour complications de l'avortement et l'utilisation de ces techniques indirectes d'estimation indiquent que le taux d'avortement aux Philippines se situe dans la plage de 20 à 30 avortements provoqués pour 1.000 femmes âgées de 15 à 49 ans, et le taux au Bangladesh varie

entre 26 et 30 pour 1.000. On estime à 400.000 le nombre approximatif d'avortements pratiqués chaque année aux Philippines, tandis que ce même nombre au Bangladesh est établi à environ 730.000. On estime qu'environ 80.000 femmes par an sont traitées dans les hôpitaux des Philippines pour complications de l'avortement provoqué; au Bangladesh, environ 52.000 femmes sont traitées pour ces complications, et 19.000 autres sont traitées pour des complications résultant de procédures de régulation des menstruations. La probabilité qu'une femme soit hospitalisée pour complications de l'avortement aux Philippines est le double de celle au Bangladesh, probablement parce que les procédures de régulation des menstruations par des travailleurs formés représentent environ les deux tiers de tous les avortements volontaires au Bangladesh.