APPENDIX to

Estimates of Induced Abortion in Mexico: What's Changed Between 1990 and 2006?

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Women Treated for Abortion Complications

The data for the three categories of postabortion patients had different levels of detail.

•*Inpatient cases (long-stay or hospital discharge data).* We obtained data on the number of women hospitalized for treatment of abortion complications from seven hospital systems, for the years 2000–2006[1]: Secretaría de Salud (SSA), Instituto Mexicano de Seguridad Social (IMSS), Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado (ISSSTE), Petróleos Mexicanos (PEMEX), Secretaría de la Defensa Nacional (SEDENA), Secretaría de Marina (SEMAR) and IMSS Oportunidades. Two hospital systems—estatales and universitarios (state and university hospitals, respectively)—are very small and do not make a significant contribution. Internal consistency of the data was assessed by examining patterns and trends across years, type of institution, state and duration of stay; in addition, key officials in charge of data management were interviewed. Given the stable and plausible patterns in the data and the absence of sharp fluctuations (see Appendix Table 1 for 2004–2006 data)—as well as the opinion of officials that the completeness and accuracy of the data are very high—we concluded that these data were of good quality and did not need adjustment. Several factors may have contributed to the improvement in data quality since 2000, among them, development of the data management capacity of the institutions, an increase in the number of coders, decentralization of the collection and processing of statistics, and increased use of hospital data information for evaluation and planning of services.[2] The total number of inpatient cases in 2006 was 112,978 (Appendix Table 1).

•*Outpatient cases (short-stay).* Outpatients are treated and discharged without staying overnight in the hospital. Data on this group were available only as a total national count, and were not broken down by hospital system or diagnostic code. The total number of outpatient cases in 2006 was 26,823.

•*Emergency room cases.* Information on emergency room cases is available only for the year 2007, and only for the largest hospital system, Secretaría de Salud (38,051 cases). We estimated the total number of emergency cases for 2006 by assuming that the 2007 number approximated the number for 2006,* and that the other hospital systems treated emergency cases in the same proportion as did Secretaría de Salud. Hence, the total annual number of emergency abortion cases treated in public-sector hospitals was estimated to be 54,973. Our key informants at the federal and Mexico City ministries of health, as well as at hospitals providing postabortion services, supported this assumption.

The total number of women treated for either spontaneous or induced abortion in the public-sector hospital system is therefore 194,774.

Health Professionals Survey

The Health Professionals Survey was designed to elicit the perceptions of a wide range of knowledgeable key informants on various aspects of induced abortion in Mexico, with adequate sample size to provide estimates for the country's four major regions. The survey was fielded from January to September 2007. Field staff interviewed a total of 132 health professionals in five states (Baja California, Chiapas, Guanajuato, Veracruz and Yucatán) and Mexico City (Distrito Federal). The majority of respondents were medical providers (62%), and the rest were from a range of nonmedical professions (social workers, researchers, policymakers, advocates, public administrators); 55% were women, and respondents' median age was 45.

The survey closely paralleled that used in the 1994 study by Singh and Wulf,[3] with several modifications: Two new questions were asked about the use of Cytotec (misoprostol) for inducing abortion and the probability that women would have serious_complications from such use, and the original question on the proportion of women with complications who obtained hospital care was modified to determine the proportion who were treated in public-sector hospitals (as well as the

proportion treated in private-sector hospitals and the proportion who did not obtain hospital care). The modification regarding hospital care was essential for generating the multiplier used to estimate the total number of induced abortions. In the earlier study, the survey asked about the proportion of women obtaining treatment in any type of hospital, and the count of women treated in public-sector hospitals was increased by 20% to include an estimate of women treated in the private sector.

Because conditions vary greatly by socioeconomic status and place of residence, the full set of questions was asked separately about each of four subgroups of women: urban poor and nonpoor, and rural poor and nonpoor. The three questions are given below.

- "What percentage of all induced abortions among urban nonpoor women do you think are performed by each type of provider? Please estimate an approximate percentage (all providers must add up to 100%). Here we are referring not only to abortions, but also to all the procedures that are carried out to induce an abortion even if the abortion is not completed. First, please indicate the percentage that uses Cytotec/misoprostol, regardless of where this was obtained or who is the provider."

We then asked this question about each of the other five provider categories (pharmacist, traditional birth attendant, nurse or trained midwife, doctor or gynecologist, and the woman herself), but specifically excluding misoprostol, which may be obtained from a variety of sources. The second question also asked about each provider, but the third one did not, as this factor was not expected to influence treatment.

- "Of every 10 women who obtain an abortion from the provider I am going to mention, how many do you think would present complications requiring medical treatment?"

- "Of every 10 women who experience a complication as a consequence of an induced abortion, how many would not obtain (seek) treatment in a hospital, how many would obtain treatment in a public hospital and how many in a private hospital?"

Calculation of the Multiplier

Appendix Tables 2 and 3 show the steps for estimating the proportion of women with abortion complications, the proportion who were treated in public hospitals and the national multiplier. The same estimation process was applied for each region, and the four socioeconomic groups were given varying weights by region. Poor and nonpoor were defined using the schooling level of women, because data on income are available only for those who work, and these data are unreliable. Nonpoor women were defined as those with 10 or more years of schooling, and poor women were those with nine or fewer years of schooling. Towns with 15,000 or more inhabitants were defined as urban, following the standard national definition; settlements of less than 15,000 inhabitants were deemed rural. Data used to estimate the population distribution by socioeconomic group came from the 2006 National Survey of Demographic Dynamics.[4]

Appendix Table 2 shows how we calculated the percentage of women in each socioeconomic group who experienced a complication. First, we multiplied the proportion of all abortion patients in a specific group who obtained their abortion from a given type of provider by the proportion of those women who experienced a complication. For example, 43.8% of urban nonpoor women who had an abortion obtained it from a doctor or gynecologist, and according to medical respondents, 17.8% of those women experienced complications. By multiplying these two percentages, we calculated that 7.8% of urban nonpoor women experienced complications from an abortion obtained from this type of provider. After performing this calculation for each of the other five provider types, we totaled the resulting percentages and found that—according to this group of respondents—34.8% of all urban nonpoor women who had an abortion suffered from complications.

Appendix Table 3 shows the second set of calculations: The four subgroup proportions with a complication were multiplied by the respective proportions who had been treated in public hospitals; the resulting percentages were then weighted proportionally by socioeconomic group, yielding the weighted

proportions of women treated in public hospitals for abortion complications, among all women having an abortion, for the country as a whole.

Because direct experience in treating women with abortion complications may influence key informants' perceptions, we estimated these proportions and the multipliers for two different groups of respondents; approximately 60% were medical providers (i.e., those directly involved in clinical care) and 40% were nonmedical professionals. Because key informants who were medical providers perceived that the probability of medical complications was greater (resulting in a multiplier of 4.75) than did those who were nonmedical professionals (6.94), we adjusted for this bias by giving equal weight to each group of respondents. Hence, we averaged the two multipliers, resulting in a national multiplier of 5.84.

REFERENCES

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2. Instituto Nacional de Salud Pública, Estadística de egresos hospitalarios del sector público del Sistema Nacional de Salud, 2000, *Salud Pública de México,* 2002, 44(2):158–187.

3. Singh S and Wulf D, Estimated levels of induced abortion in six Latin American countries, *International Family Planning Perspectives,* 1994, 20(1):4–13.

4. Consejo Nacional de Población (CONAPO), Encuesta Nacional de Dinámica Demográfica, 2006, Mexico City: CONAPO, 2006.

FOOTNOTE

*Secretaría de Salud administrators advised us that the 2007 number was likely to be incomplete because it was the first year that these data had been tabulated, and recommended that we should not adjust the count downward for 2006.

APPENDIX TABLE 1. Number of women treated for complications from spontaneous or induced abortion, by hospital system and type of patient, 2004–2006

System and type	2004	2005	2006
Hospital system			
Secretaría de Salud (SSA)	70,849	77,653	82,614
Instituto Mexicano de Seguridad Social (IMSS)	18,618	18,632	19,342
Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado (ISSSTE)	5,765	5,830	5,646
Petróleos Mexicanos (PEMEX)	5,160	4,943	4,936
Secretaría de la Defensa Nacional (SEDENA)	454	266	251
Secretaría de Marina (SEMAR)	165	138	189
IMSS Oportunidades	748	0	0
Total inpatient cases*	101,759	107,462	112,978
Type of patient			
Total outpatient cases	33,831	28,567	26,823
Estimated emergency room cases	u	u	54,973†
Total postabortion cases	u	u	194,774

*Includes diagnostic codes O003–O008 of the ICD-10 classification system, which was used for 2006; these codes are comparable to those in the ICD-9 system (codes 633–639). As in the 1990 analysis, ectopic pregnancy, hydatidiform mole and other abnormal conceptions were excluded. †Based on the number reported in 2007. *Note:* u=unavailable. *Source:* Dirección General de Información en Salud, Sistema Nacional de Información en Salud, Mexico City, hospital data, 2004–2006.

APPENDIX TABLE 2. Steps for estimating the proportion of women with abortion complications, by type of respondent and abortion provider, according to socioeconomic group, 2007 Health Professionals Survey, Mexico

Respondent and provider	Urban nonpoor			Rural nonpoor			Urban poor			Rural poor		
	% of all women who had an abortion*	% with complications	% with complications among all women who had an abortion*	% of all women who had an abortion*	% with complications	% with complications among all women who had an abortion*	% of all women who had an abortion*	% with complications	% with complications among all women who had an abortion*	% of all women who had an abortion*	% with complications	% with complications among all women who had an abortion*
Medical												
Misoprostol	36.9	50.0	18.4	17.1	39.5	6.7	30.9	40.0	12.4	9.3	44.3	4.1
Pharmacist	6.2	30.1	1.9	11.5	19.9	2.3	15.6	41.2	6.4	10.3	38.1	3.9
Traditional birth attendant	2.0	47.6	0.9	19.9	25.7	5.1	13.1	43.3	5.7	38.9	38.8	15.1
Nurse/trained midwife	2.8	35.9	1.0	8.5	22.7	1.9	7.4	34.0	2.5	12.3	37.8	4.6
Doctor/ gynecologist	43.8	17.8	7.8	27.2	18.6	5.1	13.2	24.6	3.2	5.7	24.3	1.4
Woman herself	8.3	57.4	4.8	15.8	48.7	7.7	19.9	66.5	13.2	23.6	51.5	12.1
Total	100.0	na	34.8	100.0	na	28.8	100.0	na	43.4	100.0	na	41.2
Nonmedical												
Misoprostol	36.9	37.0	13.6	17.1	26.1	4.5	30.9	41.8	12.9	9.3	30.0	2.8
Pharmacist	6.2	35.6	2.2	11.5	20.8	2.4	15.6	41.8	6.5	10.3	41.1	4.2
Traditional birth attendant	2.0	41.8	0.8	19.9	22.5	4.5	13.1	44.1	5.8	38.9	38.6	15.0
Nurse/trained midwife	2.8	23.9	0.7	8.5	20.7	1.8	7.4	32.0	2.4	12.3	27.9	3.4
Doctor/ gynecologist	43.8	15.1	6.6	27.2	15.2	4.1	13.2	23.3	3.1	5.7	20.8	1.2
Woman herself	8.3	59.8	5.0	15.8	44.7	7.1	19.9	60.3	12.0	23.6	49.7	11.7
Total	100.0	na	28.9	100.0	na	24.3	100.0	na	42.6	100.0	na	38.3

*Percentages are the average of the responses from the medical and nonmedical respondents for each socioeconomic group.

Notes: For misoprostol, respondents were asked to estimate the proportion of women who used this method, regardless of the source. For the other provider categories, respondents were asked what proportion went to this source for any method or procedure other than misoprostol.

APPENDIX TABLE 3. Steps for estimating the proportion of women treated in public hospitals for abortion complications, by type of respondent and socioeconomic group

Respondent and socioeconomic group	% with complications among all women who had an abortion	% treated	% treated among all women who had an abortion	% of population by socioeconomic group	Weighted % treated among all women who had an abortion	Multiplier (inverse of proportion who were treated)
Medical						
Urban nonpoor	34.8	18.3	6.4	34.2	2.2	
Rural nonpoor	28.8	45.9	13.2	3.1	0.4	
Urban poor	43.4	72.6	31.5	44.6	14.1	
Rural poor	41.2	59.0	24.3	18.1	4.4	
Total/multiplier	na	na	na	100	21.0	4.75
Nonmedical						
Urban nonpoor	28.9	20.4	5.9	34.2	2.0	
Rural nonpoor	24.3	38.0	9.2	3.1	0.3	
Urban poor	42.6	50.3	21.4	44.6	9.6	
Rural poor	38.3	36.7	14.1	18.1	2.5	
Total/multiplier	na	na	na	100	14.4	6.94
Average multiplier						5.84

Note: na=not applicable.