

# Initiation of effective postpartum contraceptive use in public hospitals in Guatemala

Edgar Kestler,<sup>1</sup> Maria del Rosario Orozco,<sup>2</sup> Silvia Palma,<sup>2</sup>  
and Roberto Flores<sup>2</sup>

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## ABSTRACT

**Objective.** Low frequency of effective contraceptive use remains a challenging problem. This article examines the frequency of effective postpartum contraception and the methods used before discharge in public hospitals in Guatemala. It also discusses the need to implement best practices in providing family-planning and contraceptive services.

**Methods.** In March 2006, a surveillance system was implemented to collect data on the initiation of effective contraceptive methods. Postpartum women were monitored in 34 public hospitals. Univariate and bivariate analyses were performed, and a chi-square test for linear trends was used to compare female surgical sterilization rates after vaginal delivery and cesarean section.

**Results.** Between 1 March 2006 and 31 December 2008, of the 218 656 women who had a postpartum event, 31% received an effective contraceptive method before hospital discharge. The frequency of initiation of effective postpartum methods varied across hospitals. Hospital results were consistent with national data on women of reproductive age. Among women who underwent surgical sterilization, differences between those who had delivered vaginally and those who had a cesarean section were statistically significant.

**Conclusions.** The overall frequency of initiation of effective postpartum contraceptive use is low in public hospitals in Guatemala. It is higher, however, in hospitals at lower health care levels with strong community ties. Routine data collection revealed specific areas for improvement, particularly the need to enhance health providers' knowledge of medical eligibility criteria for effective contraceptive use postpartum. The priority is to promote the provision of high-quality family-planning and contraceptive services in Guatemala's public health system.

## Key words

Postpartum period; contraception behavior; family planning services; Guatemala.

In the Mesoamerican region, Guatemala remains one of the countries with the poorest sexual and reproductive health indicators. Although in recent years there has been an increase in the use of effective contraceptive methods, efforts have not produced policies that

could significantly improve the health of women and newborns. According to the 2002 National Maternal and Child Health Survey, 34.0% of women of reproductive age used an effective contraceptive method (1), compared with 44% in 2008 (2). Nevertheless, there are significant differences across population sectors; for example, among Ladino women (part Caucasian, part Mayan), 54% use effective contraception, compared with only 28% of Mayan women (2). In Latin America, the overall use of effective contraception is around 70%,

ranging from 22% to 72%, with substantial differences between socioeconomic groups. In Central America, the frequency ranges from 34% in Guatemala—the lowest in the region—to 71% in Costa Rica (3).

According to international human rights norms, ensuring sexual and reproductive rights means that the Guatemalan state must ensure universal access to information and effective contraceptive services at all public health facilities (4). Thus, the limited progress made by the central government in that regard

<sup>1</sup> Center for Epidemiological Research in Sexual and Reproductive Health, Hospital General San Juan de Dios, Guatemala City, Guatemala. Send correspondence to: Edgar Kestler, [ekestler@ciesar.org.gt](mailto:ekestler@ciesar.org.gt)  
<sup>2</sup> Ministry of Health of Guatemala, Vice Minister of Hospitals, Guatemala City, Guatemala.

has been harshly criticized and perceived as a failure to uphold this fundamental human right.

The medical benefits of fertility regulation and effective contraceptive methods for maternal and newborn health have long been recognized (5). First, spacing of births decreases infant and neonatal mortality rates and allows for longer breastfeeding, improving the overall health and wellbeing of the newborn. Second, it prevents high-risk pregnancies among young adolescents and multiparous women. Finally, it prevents unsafe abortions being performed to terminate unwanted pregnancies, thereby reducing maternal mortality and morbidity and secondary infertility (5).

Effective contraceptive methods are the basis for preventing maternal mortality. Guatemala has one of the highest maternal mortality rates in Latin America, with trends that have not changed in decades (6). Recent reports (3) emphasize that increased use of effective contraceptive methods reduces maternal mortality rates—that is, high-risk pregnancies and pregnancies among high-parity women.

This study seeks to determine the frequency of effective postpartum contraception and the methods used before discharge in public hospitals in Guatemala, by type of hospital. It also discusses the need to implement best practices in providing family-planning and contraceptive services.

## MATERIALS AND METHODS

### Data collection

A surveillance system for postabortion care was implemented in 2003. Since data on comprehensive postabortion care have been published elsewhere (7), specific abortion data are not included in this report. On the basis of lessons learned, in March 2006 systematic collection of information on postpartum women was initiated and effective contraceptive methods were offered before hospital discharge. Having received all pertinent information about side effects and correct use and care, women freely chose a method of contraception.

The data collection form that was used included number of vaginal deliveries and cesarean sections performed monthly at each hospital, number of postpartum counseling sessions, number of women

who agreed to use effective postpartum contraception before hospital discharge, and details about the effective contraceptive method chosen after counseling. Staff at each hospital were responsible for sending the completed forms to the central office by fax, email, or personal delivery at the beginning of each month. The forms were reviewed for completeness and entered into Epi Info 2000 by trained personnel. For data completeness, cases of missing or inconsistent information were discussed with each hospital's representative. Data were entered twice to avoid errors and inconsistencies.

### Availability of methods

Five effective contraceptive methods are available at service delivery points, including hospitals, clinics, and health posts, in Guatemala. They are 1) voluntary male and female surgical sterilization, performed upon request and after having obtained the user's informed consent; 2) intrauterine device (IUD) (TCu 380A with 380 mm<sup>2</sup> of copper); 3) quarterly injectable (medroxyprogesterone acetate, 150 mg only); 4) combined oral contraceptive (norgestrel, 0.3 mg; ethinyl estradiol, 0.03 mg); and 5) male condoms (lubricated and nonlubricated, type 1, class A, style 3, size 1). Some hospitals also offer monthly injectables (norethisterone enanthate, 50 mg; estradiol valerate, 5 mg) and subdermal hormone therapy (levonorgestrel implants). No other contraceptive methods are available in Guatemala's public health system. For frequency estimation, this study considered only the effective contraceptive methods initiated before hospital discharge. Patient follow-up on contraceptive use was outside the scope of this study.

### Hospital location

Hospitals in the country are classified by health care level and by their human and financial resources. In descending order by health care level, the 34 public hospitals include 6 regional hospitals, 15 department-level hospitals, and 13 district hospitals—which have the closest community ties. All these hospitals are considered in this report, with the exception of two referral teaching hospitals in Guatemala City. One of these hospitals reported very low rates of effective contraceptive provision after vaginal deliv-

ery (9%) and after cesarean section (19%) before hospital discharge in 2007.

### Data analysis

Univariate and bivariate analyses were done with Epi Info 2000 and Excel. The statistical software StatsDirect 2.4.5 was used to calculate the chi-square test for linear trends to assess the statistical significance of differences between vaginal deliveries and cesarean sections among women who received surgical sterilization or depot medroxyprogesterone acetate.

## RESULTS

Between 1 March 2006 and 31 December 2008, a total of 218 656 obstetric events, including vaginal deliveries and cesarean sections, took place. Of all postpartum women, 90% received contraceptive counseling, but 69% did not receive a contraceptive method at hospital discharge, which means that only 31% initiated effective contraception at hospital discharge. During the reporting period, of the 155 468 women who had vaginal deliveries, 29% received and initiated an effective contraceptive method before hospital discharge. Of the 63 188 women who underwent a cesarean section, 38% received and initiated an effective contraceptive method before discharge.

The share of effective contraceptive use after vaginal delivery increased from 13% in 2006 to 31% in 2007 and 2008. In contrast, the share of effective contraceptive use after a cesarean section increased annually from 25% in 2006 to 37% in 2007 to 40% in 2008. Of all postpartum women who chose a method before discharge, 43% (30 417) initiated a quarterly injectable (150 mg of medroxyprogesterone acetate), 28% (18 884) underwent voluntary surgical sterilization, 14% (9 349) initiated another effective contraceptive method, 7% (4 488) received a male condom, 7% (4 593) initiated a combined oral contraceptive (norgestrel, 0.3 mg; ethinyl estradiol, 0.03 mg) regardless of whether they were breastfeeding, and less than 1% (251) received an IUD (TCu 380A with 380 mm<sup>2</sup> of copper). Only 1% of men (546) underwent surgical sterilization (vasectomy) while the women were in hospital.

Table 1 shows the frequency of effective contraceptive use before hospital

**TABLE 1. Postpartum use of effective contraceptive method by type of hospital, Guatemala, 2006–2008**

Characteristic	Type of hospital		
	Regional (n = 6)	Departmental (n = 15)	District (n = 13)
Number of deliveries (vaginal and cesarean section)	59 637	107 518	51 501
Number of women provided contraception before hospital discharge	15 766	30 523	22 239
Frequency (%) of effective contraceptive method at hospital discharge (95% confidence interval)	26.4 (24.0–33.0)	28.4 (25.0–36.0)	43.2 (41.0–48.0)
Number of vaginal deliveries	42 637	76 632	36 199
Number of women provided contraception before hospital discharge	10 236	19 385	14 940
Frequency (%) of effective contraceptive method at hospital discharge (95% confidence interval)	24.0 (16.0–34.0)	25.3 (2.0–49.0)	41.3 (5.0–77.0)
Number of cesarean sections	17 000	30 886	15 302
Number of women provided contraception before hospital discharge	5 530	11 138	7 299
Frequency (%) of effective contraceptive method at hospital discharge (95% confidence interval)	32.5 (15.0–58.0)	36.1 (5.0–62.0)	47.7 (20.0–74.0)

discharge by delivery method and type of hospital. Effective contraceptive use was higher at district hospitals (43%) than at regional (26%) and department-level (28%) hospitals. After vaginal delivery, frequency of use was 24% at regional hospitals, 25% at department-level hospitals, and 41% at district hospitals. Post-cesarean section use of effective contraceptive methods was also higher (48%) at district hospitals.

Table 2 presents the trends in effective postpartum contraceptive use observed during the study. The use of quarterly injections of 150 mg of medroxyprogesterone (Depo-Provera) after vaginal delivery was inversely proportional to the use of female surgical sterilization after cesarean section. In each year of the study, the use of female surgical steril-

ization after vaginal delivery decreased while the use of medroxyprogesterone increased; the use of female surgical sterilization after a cesarean section increased, whereas the use of medroxyprogesterone decreased. Over the course of the study, linear trends for female surgical sterilization postpartum were statistically significant (chi-square test for linear trend  $P = 0.0001$ ) (Table 2).

At all types of public hospitals, women who underwent a cesarean section were more likely to receive surgical sterilization than were women who delivered vaginally. At regional hospitals, surgical sterilization after vaginal delivery was 12%, compared with 43% after a cesarean section. At department-level hospitals, surgical sterilization after vaginal delivery was 15%, compared

with 51% after a cesarean section. Finally, at district hospitals, 20% of women who had delivered vaginally received postpartum surgical sterilization, compared with 50% of women who had undergone cesarean sections (Table 3).

## DISCUSSION

Hospital frequency of fertility control methods was consistent with national data on women of reproductive age, as reported in 2008 (2). According to the results of the Demographic and Health Survey, the two most widely used contraceptive methods were female surgical sterilization (19%) and quarterly depot medroxyprogesterone acetate injections (15%). Combined oral methods (3%), condom (3%), IUD (2%), and male surgical sterilization (1%) were the least frequently used.

All hospitals reported a postpartum counseling rate of more than 90%, which did not influence initiation of effective contraceptive use. Furthermore, 157 972 women (69%) were discharged postpartum without receiving any effective contraceptive method, and 40 766 (18%) chose fertility awareness or another natural method at hospital discharge. According to the World Health Organization (WHO) (8), fertility awareness-based methods may not be appropriate because of their relatively higher typical-use failure rates postpartum, as it is quite common to have some delay before the resumption of normal periods.

Of all postpartum women, 4 593 received a combined oral contraceptive before discharge, which represents 7% of effective contraceptive use. The only combined oral contraceptive available at the Ministry of Health consists of norgestrel (0.3 mg) and ethinyl estradiol (0.03 mg) [Lo-Femenal and Perla], but according to WHO it is contraindicated postpartum (8). According to contraceptive eligibility criteria, the method falls into category 4 (not to be used) because of concerns that the neonate may be at risk of exposure to steroid hormones during the first weeks postpartum. There are also theoretical concerns about the association between use of the combined oral pill during the first 3 weeks postpartum and the mother's risk of thrombosis. Moreover, in the first 6 months postpartum, use of combined oral methods may decrease milk production, affecting the duration of breastfeed-

**TABLE 2. Effective contraceptive use postpartum in public hospitals, Guatemala, 2006–2008**

Contraceptive method	2006		2007		2008	
	Vaginal delivery (%)	Cesarean section (%)	Vaginal delivery (%)	Cesarean section (%)	Vaginal delivery (%)	Cesarean section (%)
Female surgical sterilization <sup>a</sup>	23.0	67.0	16.0	48.0	15.0	49.0
Depot medroxyprogesterone acetate	57.0	24.0	46.0	28.0	55.0	33.0
Male surgical sterilization	0.0	2.0	0.0	4.0	0.0	0.0
Intrauterine device	0.0	0.0	1.0	0.0	0.0	0.0
Combined oral contraceptive	14.0	5.0	7.0	4.0	9.0	4.0
Male condom	4.0	2.0	7.0	5.0	8.0	5.0
Other	2.0	0.0	23.0	11.0	13.0	9.0

<sup>a</sup> Chi-square test for linear trend  $P < 0.0001$ .

**TABLE 3. Postpartum use of effective contraceptive methods by type of public hospital, Guatemala, 2006–2008**

	Regional (n = 6)		Departmental (n = 15)		District (n = 13)	
	Vaginal delivery (%)	Cesarean section (%)	Vaginal delivery (%)	Cesarean section (%)	Vaginal delivery (%)	Cesarean section (%)
Female surgical sterilization	12.0	43.0	15.0	51.0	20.0	50.0
Depot medroxyprogesterone acetate	49.0	35.0	46.0	24.0	62.0	40.0
Male surgical sterilization	0.0	0.0	0.0	3.0	0.0	2.0
Intrauterine device	1.0	0.0	0.0	0.0	1.0	0.0
Combined oral contraceptive	6.0	4.0	14.0	5.0	2.0	1.0
Male condom	3.0	3.0	13.0	7.0	3.0	3.0
Other	29.0	15.0	12.0	10.0	12.0	4.0

ing and the newborn's growth. It is crucial to explain this information to all medical and nursing staff and suggest using the progestogen-only pill instead of the combined oral contraceptive.

The contraceptive method least offered and least requested in public hospitals nationwide was the IUD (TCu 380A with 380 mm<sup>2</sup> of copper). Only 251 women—205 after vaginal delivery and 46 after cesarean section—chose this method. It is widely known that the IUD can be inserted within 48 hours after birth, but insertion should ideally be done within 10 min after expulsion of the placenta when the risk of IUD expulsion is smallest (9, 10).

This study identified the urgent need to train public health providers in Guatemala. A recently released publication (11) provides comprehensive, standardized, and scientifically accurate information and evidence on use of the IUD; it

also offers guidelines on the best ways to help improve access to and quality of services. Increasing access to the IUD and providing high-quality services will help women assert their right to contraceptive choice and contribute to the sustainability of family-planning programs and effective contraceptive use.

This study focuses on the frequency of contraceptive use only at public hospitals; it does not include information about contraceptive use at private or social security hospitals. In addition, it presents data on the initiation of effective contraceptive methods before hospital discharge, but it does not provide follow-up data on family planning or contraceptive users at clinics and health posts around the country. Finally, any concerns about the successful recording of all obstetric events at all public hospitals can be dispelled by the fact that Ministry of Health staff monitored each hospital

monthly via telephone and by carrying out evaluations and on-site visits to review monthly records of deliveries.

## Conclusion

In the 21st century, developing countries like Guatemala will have to improve provision and use of effective contraceptive methods. The surveillance system established to systematically collect information to assess clinical practices is a useful tool for health personnel. Most importantly, it can also identify weaknesses in training, equipment, and supplies and contribute to improving the health of the population through the provision of effective postpartum contraception.

Despite the above efforts, frequency of contraceptive use is still low in Guatemala. It is urgent that health authorities improve access to quality care in family planning by reviewing the medical eligibility criteria for choosing contraceptive methods. The goal is to provide policy and decision makers and the scientific community with a set of recommendations that can be used to develop or revise national guidelines on medical eligibility criteria for contraceptive use.

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**RESUMEN****Inicio de un método anticonceptivo eficaz durante el puerperio en hospitales públicos de Guatemala**

**Objetivo.** La baja frecuencia del uso de métodos anticonceptivos eficaces sigue siendo un arduo problema. En este artículo se analiza la frecuencia con que se adopta un método de anticoncepción eficaz durante el puerperio y los diferentes métodos anticonceptivos empleados antes del egreso de los hospitales públicos de Guatemala. También se analiza la necesidad de mejorar las prácticas de los servicios de planificación familiar y anticoncepción.

**Métodos.** En marzo del 2006, se implantó un sistema de vigilancia para recopilar datos sobre el inicio de métodos anticonceptivos eficaces. Se hizo un seguimiento de mujeres durante el puerperio en 34 hospitales públicos. Se llevaron a cabo análisis de una sola variable y de dos variables, y se utilizó la prueba de la chi al cuadrado de las tendencias lineales con objeto de comparar las tasas de esterilización quirúrgica femenina después del parto vaginal y la cesárea.

**Resultados.** Entre el 1 de marzo del 2006 y el 31 de diciembre del 2008, de las 218 656 mujeres a las que se les hizo un seguimiento durante el puerperio, en 31% se inició un método anticonceptivo eficaz antes del alta hospitalaria. La frecuencia de inicio de un método anticonceptivo eficaz en el puerperio varió entre los diferentes hospitales. Los resultados hospitalarios concordaron con los datos nacionales sobre las mujeres en edad fecunda. En las mujeres que se sometieron a esterilización quirúrgica, las diferencias entre las que habían dado a luz por vía vaginal y las sometidas a una cesárea fueron estadísticamente significativas.

**Conclusiones.** En general, existe una baja frecuencia de inicio de un método anticonceptivo eficaz durante el puerperio en los hospitales públicos de Guatemala. Sin embargo, es mayor en los hospitales de inferior nivel de atención de salud cuyos vínculos con la comunidad son intensos. La recopilación sistemática de datos reveló que determinadas áreas debían ser objeto de mejora, en particular era necesario mejorar el conocimiento de los proveedores de servicios de salud en materia de criterios médicos sobre la indicación del uso de un método anticonceptivo eficaz durante el puerperio. La promoción de la provisión de servicios de planificación familiar y anticoncepción de alta calidad en el sistema de salud pública de Guatemala constituye una prioridad.

**Palabras clave**

Período de posparto; conducta anticonceptiva; servicios de planificación familiar; Guatemala.