

Evaluation & the Health Professions

<http://ehp.sagepub.com>

Provider Selection of Evidence-Based Contraception Guidelines in Service Provision: A Study in India, Peru, and Rwanda

Federico R. León, Rebecka Lundgren and Victoria Jennings

Eval Health Prof 2008; 31; 3 originally published online Dec 21, 2007;

DOI: 10.1177/0163278707311868

The online version of this article can be found at:
<http://ehp.sagepub.com/cgi/content/abstract/31/1/3>

Published by:

 SAGE Publications

<http://www.sagepublications.com>

Additional services and information for *Evaluation & the Health Professions* can be found at:

Email Alerts: <http://ehp.sagepub.com/cgi/alerts>

Subscriptions: <http://ehp.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

Citations (this article cites 26 articles hosted on the SAGE Journals Online and HighWire Press platforms):
<http://ehp.sagepub.com/cgi/content/refs/31/1/3>

Provider Selection of Evidence-Based Contraception Guidelines in Service Provision

A Study in India, Peru, and Rwanda

Federico R. León

Rebecka Lundgren

Victoria Jennings

Georgetown University Institute for Reproductive Health

Providers underutilize evidence-based practice guidelines as they prescribe contraceptives. To discern biases in guideline utilization by 172 providers of three countries, this study used observations from simulated clients trained to choose oral contraceptives. Providers implemented less than one third of the guideline set, but they addressed, more frequently than other guidelines, items categorized as essential by expert opinion ($p < .01$). Indian providers emphasized instructions on method use in 9-minute consultations, Rwandan providers emphasized contraindications in 29-minute sessions, and Peruvian providers did not emphasize any single guideline category. Providers should use job aids to improve guideline utilization. Those pressed for time need an evidence-based, rather than arbitrary, selection of essential guidelines that optimizes client outcomes. Practice-based research must be generated to meet this need.

Keywords: *contraception; practice guidelines; provider implementation*

Conversion of scientific findings into practical health applications is a subject of growing interest (Bausell, 2006; World Health Organization [WHO], 2006). In the contraception field, this process starts when a biomedical

Authors' Note: Preliminary data analyses were presented at the Annual Meeting of the Population Association of America, Los Angeles, March 2006. The authors are grateful for the contributions of Ana Huapaya, Jim Foreit, Marcos Arévalo, Caroline Blair, and Irit Sinai. Correspondence should be addressed to Federico R. León at frleon@amauta.rcp.net.pe.

discovery leads to the development of a contraceptive method (Schwartz & Gabelnick, 2002) and continues with the conduct of safety and efficacy studies of the final product. Textbooks and manuals produced by national and international organizations summarize thousands of findings from clinical trials and set lessons for practice, such as indicating what to do when one misses taking one pill or contraindicating female sterilization for women with pelvic inflammatory disease (Hatcher et al., 1989; Johns Hopkins Population Information Program, 1997; WHO, 2004, 2005). Ministries of Health (MOHs) of developing countries issue local versions of practice guidelines for the prescription of contraceptives and periodically change their official service delivery norms in accordance with technical updates (e.g., Ministerio de Salud del Perú, 2005).

Optimal provision of family planning services requires that providers make full use of service guidelines as they help clients choose a contraceptive method and instruct them on how to use it (Bruce, 1990). Two types of evidence concerning guideline utilization are available. A portion of the international literature reports that family planning providers do implement best practices (Bessinger & Bertrand, 2001; Brown et al., 1995; Mensch et al., 1994; Williams, Schutt-Ainé, & Cuca, 2000), implying that the current process of knowledge translation is sufficient to propel widespread adoption of guidelines by those providing family planning care. In reality, the extent of implementation varies widely. For example, an observational study in 12 African countries revealed that the percentage of clients instructed on how to use her method and its possible side effects ranged from 5% in Tanzania and 22% in Burkina Faso through 64% in Kenya and 68% in Botswana (Miller, Miller, Askew, Horn, & Ndhlovu, 1998). Moreover, these studies focus on large behavioral categories (e.g., “provider instructs client on method use”) and do not specify the exact information exchanged; thus, the extent to which accurate information is exchanged with clients remains unknown.

Other studies focus on the specific information exchanged (e.g., “provider tells client that injection will stop ovulation”); these studies indicate that the information exchanged may be scarce or otherwise inadequate. For example, an analysis of audiotaped counseling sessions in Kenya showed that a majority of providers gave only two use instructions to oral contraceptive users, side effects were addressed by a small minority of providers, and virtually no provider mentioned warning signs (Kim, Kols, & Muccheke, 1998). In Peru, according to simulated clients trained to choose the medroxyprogesterone acetate injectable (DMPA) in the consultation, 84% of providers correctly told clients that menstruation might stop, but only 15% mentioned

that temporary infertility might follow discontinuation of the method (León, Monge, Zumarán, García, & Ríos, 2001). Provider deficiencies in implementing service guidelines have been documented for the most frequently used methods—sterilization (Visaria, 1999), intrauterine devices (IUDs; Viberga, Odlind, & Zodzika, 2006), pills (Kim et al., 1998; León, Ríos, & Zumarán, 2005), and injectables (León et al., 2001), as well as emergency contraception (Ngoc, Ellertson, Surasrang, & Loc, 1997) and the Standard Days Method (León, Arévalo, et al., 2007; León, Lundgren, Huapaya, Jha, et al., 2007).

There is evidence suggesting that provider failure to implement guidelines does not occur at random; rather, providers seem to systematically select certain items for implementation. Kim et al. (1998) reported that 66% of Kenyan providers counseling pill clients told them to take one pill daily at the same time each day and 48% explained how to start a new pack; other guidelines were implemented by less than 29% of providers. Overwhelming majorities of Peruvian providers addressed certain use instructions (e.g., DMPA doses are given every 3 months, 93%) and side effects (e.g., menstruation may be irregular or spotting may occur, 77%); yet, action mechanisms and contraindications, as well as other use instructions and side effects, were addressed by small minorities of providers (León et al., 2001). León, Ríos, et al. (2005, Table 1) reported that Peruvian providers counseling pill clients provided more emphasis on how to use the chosen method (3.12 items on average) than on screening for contraindications (1.47) or providing information on its action mechanisms/advantages (.79) or side effects/warning signs (1.57). However, these relationships were not replicated in a subsequent round of data collection (León, Ríos, et al., 2005, Table 3).

Preconceived conceptions regarding essential versus less important items seem to underlie providers' guideline selection, both between and within guideline categories. Across studies, use instructions are more frequently addressed than contraindications, side effects/warning signs, or action mechanisms/advantages. Within guideline categories, the WHO defines a 4-point hierarchy of medical eligibility criteria (WHO, 2004), and MOHs make distinctions between absolute and relative contraindications, but no one officially differentiates items within other guideline categories. Yet, Peru MOH staff were able to select as essential items three out of nine for each of various other types of guidelines: use instructions, action mechanisms/advantages, side effects/warning signs, and others (León, 2001). Will professionals from other countries show similar preconceived conceptions?

The purpose of the present study was to achieve a precise description of provider guideline selection in different countries. Such a description is

needed to identify, understand, and overcome barriers to implementation of best practices in contraception. It was predicted that providers in various countries would place greater emphasis on use instructions than on other types of guidelines and would focus on certain essential items within guideline categories when providing services.

Method

The present study took advantage of a multistage data-collection effort associated with the introduction of the Standard Days Method in India, Peru, and Rwanda. This is a fertility awareness-based method that requires a woman to abstain or have protected intercourse during days 8 to 19 of her cycle (Arévalo, Sinai, & Jennings, 1999). Users rely on CycleBeads^R, a color-coded string of beads representing the menstrual cycle, to identify whether they are on a day when pregnancy is likely (Arévalo, Jennings, & Sinai, 2002). The research process included four phases:

1. Providers attended a contraceptive update workshop.
2. Providers were observed offering services (León, Lundgren, Huapaya, Sinai, & Jennings, 2007).
3. Some providers were trained in provision of the Standard Days Method.
4. Providers were again observed providing services (León et al., 2006; León, Arévalo, et al., 2007; León, Lundgren, Huapaya, Jha, et al., 2007).

This study focused on the provision of contraceptives in the first round of data collection, that is, a few weeks after the contraceptive update. At this time, the Standard Days Method was not yet provided at any site. Thus, this study focused on provision of oral contraceptives, which was observed in all three countries. Data concerning provision of sterilization and DMPA were also available, but the former was limited to India and the latter to Peru and Rwanda.

Research Sites

MOH providers with prior experience in family planning service delivery were the participants. Their facilities provided primary care to low-income populations. The site selected in India was the state of Jharkhand, with a largely rural population (80%), 36% of married women in reproductive age and in union using family planning, and 7% using a modern method (International Institute for Population Sciences and ORC Macro, 2006).

Within Jharkhand, the Ranchi district was selected, and within it, three sub-districts: Burmu, Kanke, and Ormanjhi. The research sites in Peru were the provinces of Jaén in the Cajamarca department (58% urban) and Moyobamba in the San Martín department (64% urban). Modern contraceptive prevalence in Cajamarca is 41.1 and in San Martín, 57.5 (Instituto Nacional de Estadística e Informática, 2001). The sites in Rwanda were the provinces of Byumba (91% rural) and Kibungo (87% rural), wherein the prevalence of modern method use is only 3.3 and 5.3, respectively (Rwanda National Census Service, 2003). In the three countries, an overwhelming majority of family planning providers are women, and nearly 100% of clients are women. Indian providers are auxiliary nurse midwives. Peruvian providers are mostly nurse-midwives with university education. Rwandan providers are mostly nurses. In the three countries, a minority of physicians also provide family planning.

Interventions

To be effective, dissemination of guidelines to providers must be reinforced with training (Stamback, Griffey, Lynam, Ruto, & Cummings, 2007). To ensure that standard guidelines were disseminated effectively to this study's providers, they were invited to participate in a contraceptive update workshop in September-December 2004, 2 to 5 weeks before data collection. The training addressed action mechanisms, use instructions, contraindications, side effects, warning signs, and follow-up indications for the methods included in the national family planning program of each country. These included natural methods, condom, pill, IUD, and sterilization in India; these plus DMPA in Peru; and these plus implants and emergency contraception in Rwanda. The workshops were structured around the standard learning objectives of each country and were conducted by different institutions: Krishna Gram Vikas Kendra (KGVK) and Center for Development and Population Activities in India, Instituto para la Salud Reproductiva in Peru, and Prime II/IntraHealth and the Institute for Reproductive Health in Rwanda. Training lasted 2 days in Peru and India. In Rwanda, in consonance with a strong quality of care campaign led by the MOH at the time, it included 5 days in a classroom setting and 4 additional days of supervised field practice. The number of clinics sending providers to the workshop, generally at the rate of one per clinic, were: Burmu, 23; Kanke, 34; Ormanjhi, 32; Jaén, 32; Moyobamba, 30; Byumba, 20; and Kibungo, 20. At the end of the workshop, the trainees of the three countries were asked their consent to receive visits by simulated clients.

Measurement Tool

Service test. This test consists of a client script that depicts a contraceptive history, conjugal circumstances, method preferences, and other client characteristics; a trained simulated client who pretends to be the woman of the script as she requests services and responds to questions from a provider who believes she is attending a real client, and an observation checklist in a Yes-No format that the simulated client completes upon exiting the clinic. (For details, see León et al., 2001, 2006; León, Brambila, et al., 2005; León, Ríos, et al., 2005.) In the service test, item responses pertaining to the expected provider behaviors are scored 1 (observed) or 0 (not observed), and the item scores are summated or averaged to generate indicator scores. In addition, simulated clients are asked to use a watch to report the time at which the consultation started and the time at which it ended. The test has a high internal-consistency reliability (Cronbach's $\alpha = .93$; León, Ríos, et al., 2005). In a related field, Luck and Peabody (2002) showed that the service provision reports supplied by trained simulated clients who follow a script are consistent with audiotapes of health consultations. Madden, Quick, Ross-Degnan, and Kafle (1997) provide a comprehensive literature review on the use of simulated clients in health services research and evaluation that shows the general validity and usefulness of their observations.

Client script. The following client script was used:

New in town. Wife of a small trader. 25 years old, two children (3 and 2 years old). Not breastfeeding. Mutually faithful relationship. No family violence. Healthy. Wishes children in the future. Used condom (husband disliked using it every time). Currently using condom inconsistently (not always and inadequately). Wants to switch method. Knows little or nothing about other methods. Does not trust natural family planning. Afraid of inserting anything into uterus. Would not want to be injected (fear of needles). Will choose pill if given the option. On day four of her menstrual cycle. Would reject pelvic exam (embarrassed).

Checklist. The observational checklist used in this study encompassed 32 practice guidelines for pill provision and tapped four areas: information exchanged on contraindications to pill use (e.g., "Provider asked whether I had heart disease"), mechanisms/advantages/disadvantages (e.g., "Told me that the pill helps regulate menstruation"), use instructions (e.g., "Told me that I should continue with a new package of pills immediately after one is

finished”), and side effects/warning signs (e.g., “Told me that I could experience headaches”). Eight items were used per topic, although they were not exhaustive of the guideline set concerning oral contraceptives because inclusion of all the published items would have been impractical. The items were originally formulated by León (2001) considering contraception guidelines issued by Hatcher et al. (1989) and Johns Hopkins Population Information Program (1997). They were updated for this study considering WHO’s (2004, 2005) and India, Peru, and Rwanda MOH’s updated guidelines. Hindi was used in India, Spanish in Peru, and French in Rwanda.

Essential guidelines. Only Level 4 and Level 3 contraindications (WHO, 2004) were included in the service test checklist. Because we needed a subset of essential items for comparative analysis within each guideline category, we adapted a list of prioritized items provided by the Peru MOH (León, 2001) to define four essential items per guideline type. The appendix lists the 16 items classified as essential and the 16 less important items.

Recruitment and Training of Simulated Clients

We recruited personnel with high school education and pre-selected a group on the basis of interviews and psychological tests. In Peru, all of the simulated clients were recruited locally (in Moyobamba and Jaén) and most were university students. They had the same ethnic appearance as most clients of the health services and went to the field dressed in the manner of a typical client. The Rwandan clients were recruited in the capital city of Kigali and mostly were nurses, which was a social standing similar to the average family planning client of the clinics of Byumba and Kibungo. They were not working for the Ministry of Health. In India, village health workers identified women of the Ranchi district from the same socioeconomic status as typical public-sector clients.

Training of simulated clients lasted 5 days. The first 3 days were dedicated to introductory presentations and role-playing exercises in the classroom using the client script and checklist. Written instructions to trainers who played the role of providers specified various levels of guideline utilization, and each simulated-client candidate conducted role plays at each level and received feedback. The exercises were repeated until the simulated clients showed no errors filling out the checklist. The other 2 days were dedicated to practices in the field, that is, supervised visits to facilities that enhanced simulated clients’ mastery of the client-provider interaction. At the end of training, the highest-ranked candidates were selected.

Data Collection

Three simulated clients were selected in India (one per block) and two in Peru and Rwanda (one per province). To control observational bias within subdistricts or provinces, each simulated client visited one third of the facilities in each subdistrict in India or half the facilities in each province in Peru and Rwanda. They approached the clinics asking for family planning services; they had been instructed to avoid volunteering information and just respond to the provider's questions. The simulated clients visited whichever person provided family planning services at each facility and revisited the clinic two times if a provider was not found in the first visits. In urban areas, the simulated clients found their way to the assigned clinic under the supervision of a monitor who stayed close to the facility. In rural settings, the simulated clients had to be dropped off far from the clinic and in some cases walk several kilometers to avoid detection. Nonetheless, comments from Peruvian providers suggested that a few providers discovered the simulated clients in rural areas, which did not prevent the latter from receiving services. The data were collected from October 2004 through January 2005. Whereas all the providers asked to participate in the study ($N = 191$) accepted the invitation, observations were obtained only on 172 of them.

Results

Table 1 presents a selection of the five most frequently addressed guidelines, per country. Within this set, items previously classified as essential were addressed more frequently than guidelines classified as less important in India (5:0), Peru (5:0), and Rwanda (3:2). In India and Peru, use instructions were addressed more frequently than other guideline categories. However, this was not the case of Rwanda, where contraindications were more prevalent than use instructions. Marked national differences were found. For example, the item about what to tell clients concerning what to do when one misses taking an active pill one day was addressed by 72% of the providers in Peru, 54% of providers in India, and 15% in Rwanda. Only two items recurred in the three national sets of most frequently addressed guidelines.

Table 2 presents a comparison of essential guidelines versus less important items for each guideline category per specific location considering the full guideline set. In each location, essential use instructions were addressed more frequently than less important use instructions ($p < .02$, two-tailed). (The sign test using the binomial distribution requires that in each of the

Table 1
Five Most Frequently Addressed Guidelines and Their Percentages
of Occurrence, per Country: India, Peru, and Rwanda, 2004–2005

India		Peru		Rwanda	
Item	%	Item	%	Item	%
Provider told me that I would need to take the pill every day ^a	80	Provider told me that I would need to take the pill every day ^a	97	Provider asked whether I could be pregnant (menstruation) ^a	97
To initiate use of the pill on days 1–5 of menstruation ^a	69	Asked whether I could be pregnant (menstruation) ^a	89	About my blood pressure or measured it (or someone else did) ^a	85
That I should start a new package the day after finishing the previous one ^a	66	Told me that I could experience headaches ^a	89	About breast cancer/ breast lumps	83
Asked whether I could be pregnant (menstruation) ^a	63	That I should start a new package the day after finishing the previous one ^a	82	Told me that I would need to take the pill every day ^a	83
Told me to take white pill as soon as I remember if I forget one ^a	54	That I could experience nausea or feel dizzy ^a	82	Asked if I have diabetes	82

a. Essential items.

seven comparisons, the targeted event be above the alternative event [Siegel, 1956].) Similar results were observed for each of the other guideline categories. However, the essential items' national averages were below .50, ranging from .30 in India to .48 in Peru. Only one subcategory, essential use instructions, reached or surpassed .50 in the three countries. Figure 1 synthesizes these results per country, showing the extent to which utilization of essential items is more prevalent in service provision than application of less important guidelines.

Although the five locations in India and Peru presented use instructions above other guideline categories, contraindications ranked above use instructions in both locations in Rwanda (see Table 2). Figure 2 compares information exchanged on use instructions, eligibility (contraindications), action mechanisms/advantages/disadvantages (AMAD), and side effects/warning signs at the country level. Use instructions were considerably above the other guideline categories in India, whereas the predominance of

Table 2
Average Item Score for Essential Items (EI) and Less Important Items (LII), per Guideline Category and Location: India, Peru, and Rwanda, 2004–2005

Location	Guideline Category and Item Type							
	Use		Contraindications		AMAD ¹		Side Effects/ Warning Signs	
	Instructions		EI	LII	EI	LII	EI	LII
Burmu (<i>n</i> = 18)	.727	.085	.182	.052	.250	.167	.180	.167
Kanke (<i>n</i> = 29)	.655	.092	.172	.031	.215	.135	.120	.095
Ormanjhi (<i>n</i> = 23)	.642	.070	.162	.066	.205	.127	.132	.062
Jaén (<i>n</i> = 32)	.742	.007	.415	.211	.202	.070	.435	.155
Moyobamba (<i>n</i> = 30)	.742	.057	.445	.322	.350	.157	.477	.215
Byumba (<i>n</i> = 20)	.562	.001	.912	.655	.275	.162	.412	.250
Kibungo (<i>n</i> = 20)	.437	.037	.775	.466	.062	.000	.225	.175
Hypothesis testing using the sign test	<i>p</i> < .02*		<i>p</i> < .02*		<i>p</i> < .02*		<i>p</i> < .02*	

Note: AMAD = action mechanisms, advantages, and disadvantages.

*Two-tailed.

Figure 1
Average Item Score for Essential and Less Important Items, per Country: India, Peru, and Rwanda, 2004–2005

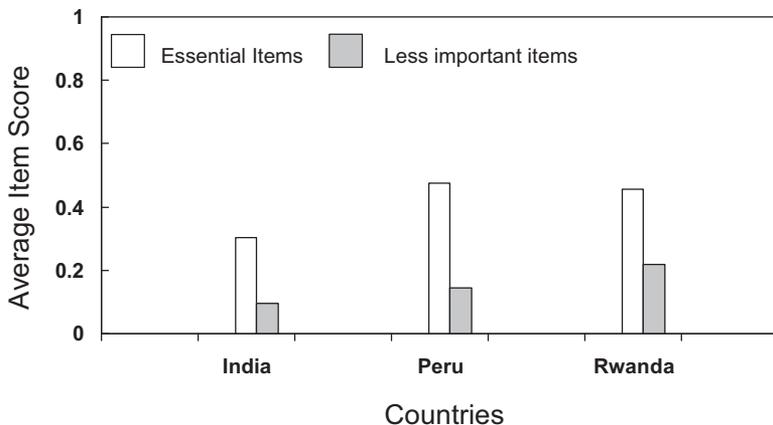
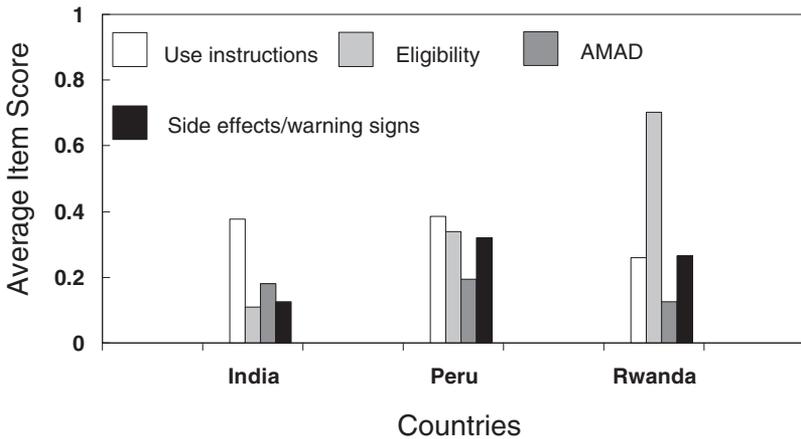


Figure 2
Average Item Score for Guideline Categories, per Country:
India, Peru, and Rwanda, 2004–2005



AMAD = Action mechanisms, advantages, and disadvantages

contraindications in Rwanda was overwhelming. Contraindications, whether essential or less important, reached or surpassed .50 in Rwanda (see Table 2). Use instructions barely surpassed the other guideline categories in Peru; in this country the distribution of guideline categories presented noticeably smaller disparities than in the other two countries (see Figure 2).

The summated score entailing guidelines addressed, computed over the full set of items, shows that, on average, providers addressed less than one third of the guideline set (see Table 3). In the case of India, the average represented 1/5. According to the *t* test for independent samples, this score was significantly greater in Rwanda ($p < .01$, two-tailed) and Peru ($p < .01$, two-tailed) than in India. Average session length also was significantly greater in Rwanda ($p < .01$, two-tailed) and Peru ($p < .01$, two-tailed) than in India. The guidelines-addressed score, divided by the length of the counseling session, yields an efficiency index that expresses the number of guidelines addressed per minute of consultation. India presented the greatest efficiency and Rwanda the poorest efficiency ($p < .01$, two-tailed). Table 4 presents median and maximum session length in minutes as well as the percentage of consultations in which simulated clients reported that providers did not

Table 3
Average Number of Guidelines Addressed in Consultations,
Session Length in Minutes (m) and Seconds (s), and Efficiency
Index: India, Peru, and Rwanda, 2004–2005

Country	Number of Guidelines	Session Length	Efficiency Index
India (<i>n</i> = 70)	6.38	8m 38s	0.74
Peru (<i>n</i> = 62)	9.94	17m 14s	0.58
Rwanda (<i>n</i> = 40)	10.82	28m 33s	0.38

Table 4
Median and Maximum Session Lengths and Percentage of Providers
Who Did Not Dispense Pills to Simulated Clients, per Location:
India, Peru, and Rwanda, 2004–2005

Location	Session Length (minutes)		Percentage of Providers Who Did Not Dispense Pills to Simulated Clients
	Median	Maximum	
Burmu (<i>n</i> = 18)	5	15	33
Kanke (<i>n</i> = 29)	5	25	34
Ormanjhi (<i>n</i> = 23)	10	30	48
Jaén (<i>n</i> = 32)	12.5	40	19
Moyobamba (<i>n</i> = 30)	17	45	17
Byumba (<i>n</i> = 20)	37.5	65	5
Kibungo (<i>n</i> = 20)	20	40	5

give them pills. Indian providers differed from Peruvian and Rwandan providers in the three respects.

Discussion

This study used trained simulated clients to obtain observations of provider behavior in typical situations of contraceptive service delivery. A limitation of this methodology is the simulated clients' possible failure to store in their memory 100% of the provider behaviors that take place in a consultation and retrieve all the stored observations as they are filling out the checklist of the service test. Another limitation is that in some instances

blinding is broken, that is, the simulated clients are discovered and consequently providers tend to show their best performance. Despite these limitations, however, the results of the study came out clear and interpretable.

The findings were consistent with the prediction that providers would concentrate on a specific subset of items classified as essential by expert opinion rather than selecting for implementation in service provision a random sample of items within guideline types. Indian, Peruvian, and Rwandan providers, in reference to a Peru MOH selection of essential guidelines (León, 2001) that we adapted for this study, addressed items from this set more frequently than the remainder items of the checklist. This relationship was notably consistent; it recurred over four guideline categories and seven locations. We do not know anything about the process whereby providers identify, select, and use essential guidelines in service provision.

Nonetheless, providers did not frequently use even the essential items. Their national average ranged from .30 in India to .48 in Peru, that is, not even essential guidelines, on average, were addressed by a majority of providers. More general, providers addressed less than one third of the guideline set. In the case of India, the average represented 1/5. These figures may represent underestimates. The finding that a considerable percentage of Indian providers did not give pills to clients suggests that method shortages affected the Indian clinics. Method shortage is a frequent occurrence in India. Kahn, Gupta, and Patel (1999) noted shortages and erratic supplies of temporary contraceptive methods in the Indian state of Uttar Pradesh, where 33% of rural facilities reported that oral contraceptives were not regularly supplied. This figure is similar to the percentage of Kanke and Burmu providers who did not give pills to the simulated clients of our study. The percentage was even greater in Ormanjhi. If providers did not have pill supplies, they may have cut short the consultation as soon as they learned about the client's interest in pills or emphasized other methods. Consequently, the opportunity to implement pill guidelines was partially lost, causing diminished guideline utilization averages and limiting learning opportunities for clients. This would imply that the figures presented for India, and to a lesser extent for Peru, were underestimates of the amount of information exchanged by providers if an adequate supply of pills had been available. For example, the percentage for the item "provider told me that I would need to take the pill every day" that did not surpass 80 in India could be expected to approach 100 under conditions of perfect pill supply. Nonetheless, even if 30 percentage points were added to each of the percentages observed in India to compensate for the possible method shortages, the overall result would continue to indicate an important underutilization of contraception

guidelines. Moreover, Rwandan providers, who did not have shortage problems and dispensed pills in 95% of consultations, also failed to use the majority of evidence-based practice guidelines.

This suggests that providers in three widely different settings do not have effective mental access to the full set of guidelines during consultations. Rather, they retrieve from their memory only a selected subset. Although a systematic trend cutting across countries did indicate that providers focused on certain essential items, the results suggest a lack of consensus among providers concerning what guidelines should be implemented. Each provider selected an idiosyncratic combination of essential and less important items. This should not be surprising. Why should we expect a different outcome, given that guideline setters do not establish priorities? The WHO and MOHs only set priorities for contraindications, but our checklist only included absolute contraindications. Providers lack criteria for prioritizing guidelines in other areas. Therefore, they are generally left on their own when it comes to selecting guidelines for implementation in consultations with clients. Thus, they use idiosyncratic selections of a small number of guidelines.

For this situation to change, wider utilization of an innovation is required. Providers need the help of job aids to more effectively apply the set of guidelines. In an earlier study, León, Ríos, et al. (2005) gave Peruvian providers exhaustive method pamphlets and instructed them to select the pamphlet corresponding to the method chosen by the client and describe to her all the chosen method's guidelines using the pamphlet as a job aid. To reduce knowledge decay, the client took the pamphlet home with her. Providers under the experimental condition addressed substantially more guidelines during counseling sessions than did control providers—a significant difference amounting to 2.65 standard deviations—and 1 year later their clients showed a greater knowledge of their method than clients of control providers did (León, Roca, Ríos, & Feijoo, 2004). Kim et al. (2005) in Mexico and León, Brambila, et al. (2005) in Guatemala have also shown gains in the exchange of information with clients that are attributable to the use of job aids.

The prediction that guidelines concerning use instructions would be implemented more frequently than guidelines of other types was consistently supported only in India. It seemed as if Indian providers attempted to make the most out of their limited session lengths (less than 9 minutes on average) by concentrating on method use instructions. The study results suggest that as session length increases, other guideline types are increasingly attended. Peruvian providers, who invested 17 minutes per client, presented smaller differences between use instructions and other guideline types.

Rwandan providers, who used 29-minute consultations, overwhelmingly emphasized screening clients for contraindications. This concentration on eligibility criteria might also have reflected the medical orientation of the Rwanda MOH quality of care campaign that was carried out at the time of the research.

Striking national differences were observed in number of guidelines addressed and duration of the consultation. A perfect rank correlation between these variables was obtained over countries: on both variables, Rwanda ranked first, Peru second, and India third. The ranking was inverted in regard to the efficiency index. Indian providers worked more efficiently than Peruvian providers, and the latter worked more efficiently than Rwandan providers. This is a valid observation despite the fact that the efficiency index systematically underestimates the number of guidelines addressed per minute. Whereas the numerator of the efficiency index only entails guidelines pertaining to the method chosen by the simulated client, the denominator encompasses the time for the whole consultation, in which a number of other contraceptive options also are addressed by the provider. The index does not discount the time providers spend assisting clients to choose a method among various methods. Nonetheless, the efficiency index is useful for comparative purposes and suggested that Indian providers worked at a more rapid pace than either Peruvian or Rwandan providers.

The data strongly suggest that Indian providers were pressed for time to a greater extent than their Peruvian or Rwandan counterparts. Their short average session length cannot be entirely attributed to early termination of a number of consultations due to method shortage (see Table 3). The median and maximum session lengths were also substantially more limited in India than in Peru or Rwanda (see Table 4). Method shortages are not expected to affect maximum durations. It rather appears that Indian providers worked under severe time constraints. Time limitations impair the use of best practices (Cornuz, Ghali, Di Carantonio, Pecoud, & Paccard, 2000; Wender, 1993). Thus, the Indian extreme case of guideline underutilization can be attributed to time limitations in addition to any effect of method shortages. The fact that Peruvian providers invested considerably less time per client than Rwandan providers (a 10-minute difference) and, however, the number of guidelines addressed in Peru and Rwanda was not greatly different (only a 1-point difference) can be understood considering the curvilinear relationship that exists between session length and exchange of relevant information: As session length increases, the number of items exchanged also increases, but after the 14th minute of the client-provider interaction, the increase rate importantly diminishes and nearly disappears (León et al., 2001).

Then, our recommendation of job aid use must be reconsidered. Job aid use may have a limited application in the case of providers pressed for time, who might be unable to go over all the details of the method pamphlet. In their case, selection of essential guidelines for application in the consultation makes sense. Therefore, for situations of constrained session lengths, essential guidelines could be singled out within exhaustive method pamphlets. This way, providers could address in the consultation only essential items and ask clients to study the remainder of the guidelines in the take home pamphlet. In India, 48.3% of females can read and write; in Rwanda, the figure is 64.7%; in Peru, 82.1% (Central Intelligence Agency, 2007). Illiterate clients could recur to literate family members and acquaintances for assistance using the pamphlet.

The set of essential guidelines used in this study was meaningful—providers paid more attention to them than to less important items—but it was, nonetheless, an arbitrary selection. Evidence-based essential items originating in Type 1 translation (Sussman, Valente, Rohrbach, Skara, & Pentz, 2006) are needed. That is, rather than generating a flat array of scientific findings, researchers conducting efficacy studies would have to report which findings are fundamental and which ones are less important considering clients' short- and long-term health outcomes. Provider job aids and client materials could be based on these priorities. This would allow providers pressed for time to select, for implementation in the consultation, the items that maximize positive health outcomes for clients. In contrast with the dominant trend to generate evidence-based practice, this would represent generation of practice-based evidence.

Appendix

Essential and Less Important Items, per Guideline Category

	Essential Item	Less Important Item
Use instructions	Provider told me to initiate use of the pill on days 1–5 of menstruation That I would need to take the pill every day That I should start a new package the day after finishing the previous one	To stop taking pills if I forget to take two or more white pills and use alternative protection until 7th day of new package To do nothing special if I forget to take brown pills To stop use 2 weeks before/after major surgical event

(continued)

Appendix (continued)

	Essential Item	Less Important Item
	To take one pill as soon as I remember if I forget one	To use alternative protection for 7 days if I have diarrhea and/or vomiting during 2 days
Contraindications	Asked whether I could be pregnant (menstruation)	Asked if I had severe headaches with blurry vision
	About my blood pressure or measured it (or someone else did it)	If I had ever had liver disease (or yellow skin, eyes)
	If I had any heart problems	If I have diabetes
	About breast cancer/breast lumps	About venous thrombosis or family history of it
Action mechanisms, advantages, and disadvantages	Explained how the pill functions	Said that the pill reduces menstrual cramps
	Said that the pill does not interfere with intercourse	That the pill prevents pelvic inflammation
	That the pill helps regulate menstruation	That the pill may reduce anemia
	That the condom is the only method that prevents sexually transmitted infections	That the pill does not cause cancer
Side effects/ warning signs	That I could experience nausea or feel dizzy	That I could experience breast tenderness
	That I could experience headaches	That these side effects are not dangerous and usually disappear
	To return to the clinic right away if I have severe headaches and/or blurry vision	To return to the clinic right away if the side effects do not disappear in next 3 months
	If I have severe breast pain or severe respiratory problems	If my skin or eyes turn yellow

References

- Arévalo, M., Jennings, V., & Sinai, I. (2002). Efficacy of a new method of family planning: The Standard Days Method. *Contraception, 65*, 333–338.
- Arévalo, M., Sinai, I., & Jennings, V. (1999). A fixed formula to define the fertile window of the menstrual cycle as a basis of a simple method of natural family planning. *Contraception, 60*, 357–360.
- Bausell, R. B. (2006). Translation research: Introduction to the special issue. *Evaluation & the Health Professions, 29*, 3–6.
- Bessinger, R. E., & Bertrand, J. T. (2001). Monitoring quality of care in family planning programs: A comparison of observations and client exit interviews. *International Family Planning Perspectives, 27*, 63–70.
- Brown, L., Tyane, M., Bertrand, J., Lauro, D., Abou-ouakil, M., & De Maria, L. (1995). Quality of care in family planning services in Morocco. *Studies in Family Planning, 25*, 154–168.

- Bruce, J. (1990). Fundamental elements of the quality of care: A simple framework. *Studies in Family Planning*, 21, 61–91.
- Central Intelligence Agency. (2007). *The world factbook*. Retrieved May 7, 2007, from <https://www.cia.gov/cia/publications/factbook/index.html>
- Cornuz, J., Ghali, W. A., Di Carantonio, D., Pecoud, A., & Paccaud, F. (2000). Physicians' attitudes towards prevention: Importance of intervention-specific barriers and physicians' health habits. *Family Practice*, 17, 535–540.
- Hatcher, R. A., Kowal, D., Guest, F., Trussell, J., Stewart, F., Stewart, G. K., et al. (1989). *Contraceptive technology: International edition*. Atlanta, GA: Printed Matter, Inc.
- Instituto Nacional de Estadística e Informática. (2001). *Peru: Encuesta demográfica y de salud familiar 2000* [Peru: Demographic and family health survey 2000]. Lima, Peru: Author.
- International Institute for Population Sciences and ORC Macro. (2006). *National Family Health Survey (NFHS-3), India, 2005–2006: Jharkand*. Mumbai, India: Author.
- Johns Hopkins Population Information Program. (1997). *The essentials of contraceptive technology: A handbook for clinical staff*. Baltimore, MD: The Johns Hopkins School of Public Health, Center for Communication Programs.
- Kahn, M. E., Gupta, R. B., & Patel, B. C. (1999). The quality and coverage of family planning services in Uttar Pradesh: Client perspectives. In M. E. Koenig & M. E. Kahn (Eds.), *Quality of care within the Indian family planning program: The challenge ahead* (pp. 49–69). New York: Population Council.
- Kim, Y. M., Kols, A., Martin, A., Silva, D., Rinehart, W., Prammawat, S., et al. (2005). Promoting informed choice: Evaluating a decision-making tool for family planning clients and providers in Mexico. *International Family Planning Perspectives*, 31, 162–171.
- Kim, Y. M., Kols, A., & Muecheke, S. (1998). Informed choice and decision-making in family planning counseling in Kenya. *International Family Planning Perspectives*, 24, 4–11.
- León, F. R. (2001). The job aids-assisted Balanced Counseling Strategy causes positive effects on essential providers' service behaviors. *Peru Provider-Client Interaction Quality of Care Project Bulletin No. 8*. Lima, Peru: Population Council.
- León, F. R., Arévalo, M., Lundgren, R., Jennings, V., Huapaya, A., & Panfichi, R. (2007). Four criteria to evaluate providers' service-delivery response to new contraceptive introduction. *Evaluation Review*, 31, 364–390.
- León, F. R., Blair, C., Huapaya, A., Lundgren, R., Mukabatsinda, M., Muramutsa, F., et al. (2006). Quality of delivery of the Standard Days Method as compared with contraceptive pills in Rwanda. *Journal of Family Planning and Reproductive Health Care*, 32, 231–233.
- León, F. R., Brambila, C., De la Cruz, M., García Colindres, J., Morales, C., & Vásquez, B. (2005). Providers' compliance with the Balanced Counseling Strategy in Guatemala. *Studies in Family Planning*, 36, 117–126.
- León, F. R., Lundgren, R., Huapaya, A., Jha, P., Sinha, R., & Jennings, V. (2007). Pressed for time: Providing the Standard Days Method and oral contraceptives in India. *Journal of Family Planning and Reproductive Health Care*, 33, 133.
- León, F. R., Lundgren, R., Huapaya, A., Sinai, I., & Jennings, V. (2007). Challenging the courtesy bias interpretation of clients' favorable perceptions of family planning delivery. *Evaluation Review*, 31, 24–42.
- León, F. R., Monge, R., Zumarán, A., García, I., & Ríos, A. (2001). Length of counseling sessions and amount of relevant information exchanged: A study in Peruvian clinics. *International Family Planning Perspectives*, 27, 28–33, 46.
- León, F. R., Ríos, A., & Zumarán, A. (2005). Training X trainee interactions in a family planning intervention. *Evaluation Review*, 29, 576–590.

- León, F. R., Roca, S., Ríos, A., Feijoo, A. R. (2004). *One-year client impacts of quality of care improvements achieved in Peru*. Frontiers in Reproductive Health Program final project report. Lima, Peru: Population Council.
- Luck, J., & Peabody, J. W. (2002). Using standardized patients to measure physicians' practice: Validation study using audio recorders. *British Medical Journal*, *325*, 679.
- Madden, J. M., Quick, J. D., Ross-Degnan, D., & Kafle, K. K. (1997). Undercover careseekers: simulated clients in the study of health provider behavior in developing countries. *Social Science and Medicine*, *45*, 1465-1482.
- Mensch, B. S., Miller, R. A., Fisher, A. A., Mwita, J., Keyonzo, N, Ali, F. Y., et al. (1994). Family planning in Nairobi: A situation analysis of the city commission clinics. *International Family Planning Perspectives*, *20*, 48-54.
- Miller, K., Miller, R. A., Askew, I., Horn, M. C., & Ndhlovu, L. (1998). *Clinic-based family planning and reproductive health services in Africa: Findings from Situation Analysis studies*. New York: Population Council.
- Ministerio de Salud del Perú [Peru's Ministry of Health]. (2005). *Norma técnica de planificación familiar* [Family planning technical norms]. Lima, Peru: Author.
- Ngoc, N. T. N., Ellerton, C., Surasrang, Y., & Loc, L. T. (1997). Knowledge and attitudes about emergency contraception in Ho Chi Minh City, Vietnam. *International Family Planning Perspectives*, *23*, 68-72.
- Rwanda National Census Service. (2003). *3rd general census of population and housing: Report on the preliminary results*. Kigali, Rwanda: Author.
- Schwartz, J. L., & Gabelnick, H. L. (2002). Current contraceptive research. *Perspectives on Sexual and Reproductive Health*, *34*, 310-316.
- Siegel, S. (1956). *Nonparametric statistics for the behavioral sciences*. New York: McGraw-Hill.
- Stamback, J., Griffey, S., Lynam, P., Ruto, C., & Cummings, S. (2007). Improving adherence to family planning guidelines in Kenya: an experiment. *International Journal for Quality in Health Care*, *19*, 68-73.
- Sussman, S., Valente, T. W., Rohrbach, L. A., Skara, S., & Pentz, M. A. (2006). Translation in the health professions: Converting science into action. *Evaluation & the Health Professions*, *29*, 7-32.
- Viberga, I., Odland, V., & Zodzika, J. (2006). Practices and perceptions on intrauterine contraception among Latvian obstetrician-gynecologists. *Acta Obstetrica et Gynecologica Scandinavica*, *85*, 583-588.
- Visaria, L. (1999). The quality of reproductive health care in Gujarat: Perspectives of female health workers and their clients. In M. A. Koenig & M. E. Khan (Eds.), *Improving quality of care in India's family welfare programme*. New York: Population Council.
- Wender, R. C. (1993). Cancer screening and prevention in primary care: Obstacles for physicians. *Cancer Supplement*, *72*, 3.
- Williams, T, Schutt-Ainé, J., & Cuca, I. (2000). Measuring family planning service quality through client satisfaction exit interviews. *International Family Planning Perspectives*, *26*, 63-71.
- World Health Organization. (2004). *Medical eligibility criteria for contraceptive use* (3rd ed.). Geneva, Switzerland: Author.
- World Health Organization. (2005). *Selected practice recommendations for contraceptive use* (2nd ed.). Geneva, Switzerland: Author.
- World Health Organization. (2006). *Turning research into practice: Suggested actions from case-studies of sexual and reproductive health research*. Geneva, Switzerland: Author.