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Four Criteria to Evaluate Providers' Service-Delivery Response to New Contraceptive Introduction

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This article presents an evaluation framework developed to assess the first-level effects of introducing the Standard Days Method (SDM) in Peru Ministry of Health clinics. Four questions are asked: 1) To what extent do providers routinely achieve SDM service delivery standards? 2) Is the time invested in SDM delivery consistent with program norms? 3) How does SDM delivery compare with delivery of established methods? and 4) How does SDM introduction affect delivery of established methods? A study at 62 clinics demonstrated the framework's usefulness. The Standard Days Method introduction had positive overall effects on the quality of care but provider training needed adjustments.

Keywords: *evaluation framework; contraceptive introduction; provider service delivery; Standard Days Method*

New contraceptive methods are developed and introduced into family planning delivery systems to broaden contraceptive choices for clients (Bruce 1990; Simmons et al. 1997; RamaRao and Mohanam 2003). However, as noted by Simmons et al. (1997), the availability of new contraceptives alone will not broaden client's choice. The failure of the intrauterine device (IUD) in India illustrates the need for contraceptive introduction to be framed in a quality-of-care approach: To actually have an expanded choice, clients must receive adequate information concerning the new method within a supporting

service environment. Consequently, after the safety and effectiveness of the new method have been established, the focus of introductory trials should shift to evaluating the quality of providers' care. Yet, explicit frameworks to evaluate providers' service-delivery response to new contraceptive introduction (PSDRNCI) are not available in the literature. However, a number of empirical efforts that are available can serve as points of departure in the development of such a framework.

Evaluation Framework

The usual question formulated by PSDRNCI evaluators is the extent to which providers comply with the new method's delivery standards. Whereas this is an essential topic, the methodology employed to address it has been weak. For example, Affandi et al. (1987) tested at a teaching clinic in Indonesia whether physicians and nonphysicians could meet certain quality of care standards as they delivered Norplant. To this end, after training physicians, nurses, and midwives in Norplant provision, they assessed whether providers shared with clients what to expect of the method, its risks, and its benefits; paid attention to aseptic technique; made an insertion incision no longer than two millimeters; etc. In this type of study, providers know that they are part of an experiment and observers closely watch service delivery. The problem is that providers show compliance with service norms when they are under observation but return to lower levels of quality of care when observation ceases (Miller et al. 1991; Ndhlovu 1999; León et al. 2003). Hence, PSDRNCI evaluation generally taps providers' maximal rather than typical performance. To avoid such Hawthorne effects, the evaluation would have to be conducted without the stimulus of direct observers. That is, a framework for evaluating PSDRNCI should target providers' *routine* compliance with service provision standards and include the following questions:

To what extent do providers attain the new method's provision standard under routine service delivery conditions? Which aspects of the new method's delivery need correction? Which aspects need reinforcement?

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A virtue of the Affandi et al. (1987) study was the attention it paid to the behavioral cost of providing the new method. They found that the average Norplant insertion time did not differ between physicians and nonphysicians. How providers use their time has important cost implications for family planning programs (Janowitz et al. 1997). If the new method comes with high quality of care standards, this may bring increased costs to the program, for there is a close relationship between the quality of care level and the amount of time providers dedicate to each client. León et al. (2001) found in Peru that improved information exchange with clients was associated with monotonic increases in counseling session length, although the number of items exchanged per minute decreased in the longer consultations. The curvilinear relationship was confirmed in a study in India, Peru, and Rwanda (León, Lundgren, and Huapaya 2006). This implies that a new method with high quality of care standards may increase the costs of a program's service delivery at a greater rate than it improves its quality of care. Moreover, it may enter into conflict with the program's service delivery norms. For example, at Peru Ministry of Health (MOH) clinics, providers are expected to see five clients per hour. What if counseling on the new method requires more than 12 minutes? These problems can be anticipated if the evaluation of PSDRNCI includes the adequate questions:

What is the average session length for routine delivery of the new method? Is this average consistent with program requirements? Should session length be increased? Should it be reduced?

In their discussion of the decision-making process that must underlie method introduction, Simmons et al. (1997) noted the importance of considering the method-mix. This context is ignored if evaluation of PSDRNCI remains limited to a comparison of the new method's actual provision with its delivery standards or program's norms. A more realistic evaluation can be attained if delivery of the new method is compared with the provision of established methods. For example, the findings may reveal that the new method's standards are unrealistically high for the service environment under consideration, or vice versa. Moreover, the introduction of a new method may create biases in the choices offered to clients. For example, the novelty of the new method may cause providers to pay greater attention to it than to established methods. Hence, the following questions are relevant:

How does delivery of the new method compare with that of established methods in terms of provision proficiency and behavioral costs? Are the new method standards realistic? Does routine provision of the new method introduce biases? How can these biases be overcome?

Simmons et al. (1997) proposed that the decision to introduce a new method be based on the extent to which it enhances overall quality of care.

The relevant question in the context of PSDRNCI evaluation is whether method introduction adds to or subtracts from the overall quality of care offered by a program. The new method may detract from the overall quality of care if its introduction has a negative impact on delivery of other methods. For example, if the new method requires long consultations with clients, providers may need to reduce the time dedicated to delivery of established methods, some of which may be more effective than the new method. Hence, a fourth group of questions pertains to the impact of the Standard Days Method (SDM) introduction on delivery of established methods:

Does introduction of the new method have negative (positive) effects on routine delivery of established methods? How can these effects be averted (reinforced)? What is the overall quality-of-care impact of method introduction?

The Standard Days Method

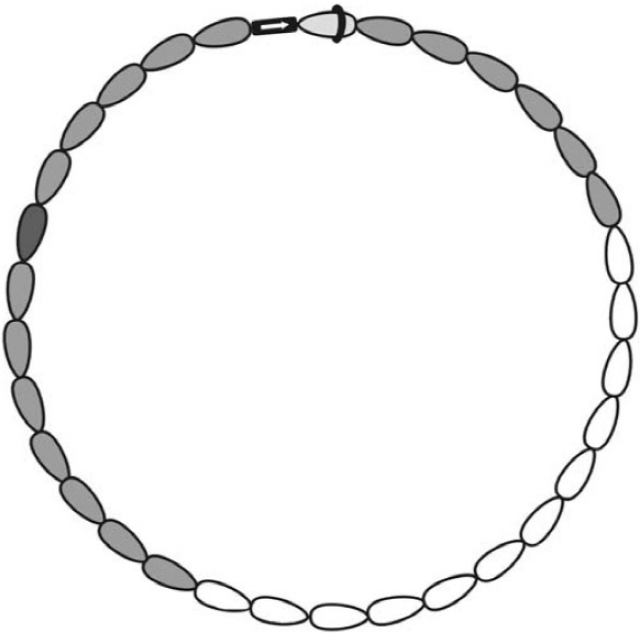
This evaluation framework was developed in the context of a project that assessed the first-level effects of introducing the Standard Days Method (SDM) at Peru Ministry of Health (MOH) clinics. The SDM is appropriate for women with menstrual cycles between 26 and 32 days long. It identifies days 8 to 19 of the menstrual cycle as the fertile window, i.e., the days when pregnancy is very likely. To prevent pregnancy, the couple avoids unprotected intercourse during the 12-day fertile window. The SDM includes a color-coded string of beads, CycleBeads, representing the menstrual cycle (see Figure 1). This visual aid helps the woman know which day of her cycle she is on, and identify whether she is on a day when she is likely to get pregnant.

The 8-19 formula was derived from a study of more than 7,500 ovulation cycles (Arévalo, Sinai, and Jennings 1999). The formula takes into account the life span of the woman's egg, viable life of sperm, and variation in actual timing of ovulation from one cycle to the next. The SDM efficacy rates, established in a clinical trial, are comparable to those of male condoms; the failure rate is less than 4 per 100 women years of correct use (Arévalo, Jennings, and Sinai 2002).

Programmatic Context

The SDM has been incorporated into the reproductive health guidelines and contraceptive norms of the Peru MOH (2004 and 2005), the main source of family planning services in Peru. This incorporation is especially relevant

Figure 1
CycleBeads



given the popularity in this country of the rhythm method, a practice defined by a vague rule rooted in oral tradition: abstain when you are about the middle of your menstrual cycle. The Demographic and Health Surveys (DHS) demonstrated that this was the most widely used family planning option among married women of reproductive age in 1991 (20.7 rate) and 1996 (18.0). In 2000, rhythm (14.4) became second to depot medroxy-progesterone acetate (DMPA, or Depo-Provera, 14.8), but in 2004, it recovered first place (17.5), seemingly because of shortages of the injectable (11.2) at MOH clinics (Peru DHS 1992, 1997, 2001, and 2005).

Rhythm presents a high risk of pregnancy. Not only are there no precise indications for using it, but the crude rule actually employed by users is often erroneous, for only 62% of rhythm users know that the likelihood of getting pregnant is at its peak by mid-menstrual cycle; other users are uncertain or

even believe that these are the days in which unprotected intercourse does not lead to pregnancy (Peru DHS 2001). By incorporating the SDM into its method-mix the MOH will offer an effective, scientifically tested option that improves the ability of couples, especially those using rhythm, to avoid unwanted pregnancies. Also, the SDM may satisfy the needs of other subpopulations, such as men who do not like to use condoms for each intercourse or women who do not tolerate hormonal methods.

The Peru MOH offers DMPA, combined oral contraceptives (28-day pill package), intrauterine device (IUD), and condoms on a regular basis at the national level. It also provides female and male sterilization, the lactational amenorrhea method, Ogino-Knaus, and emergency contraception in some facilities less regularly or frequently. The Ogino-Knaus method offered by the Peruvian MOH (2005) under the names rhythm, Ogino-Knaus, rule, and calendar should be distinguished from the periodic abstinence traditionally used by Peruvian women. To provide Ogino-Knaus, the MOH (2005) protocol requires a 6- to 12-month study of the duration of the client's menstrual cycles, which serves to determine whether the method is appropriate for her and to calculate an idiosyncratic fertile window considering her longest and shortest cycles. The Ogino-Knaus method is not a popular option at MOH facilities. The SDM is expected to represent an advantageous alternative, for it does not require a long-term study of the menstrual cycle. Providers need only determine that the client has her periods when she expects them and that they come about a month apart to qualify her as an SDM user.

Hypotheses

Pilot studies conducted by Georgetown University Institute for Reproductive Health in 10 countries have shown adequate provider management of the SDM. However, providers were under observation. Hence, there is a need to determine whether providers working without the stimulus of an observer offer adequate SDM counseling. Hypothesis 1 states that, under routine delivery conditions, providers will achieve on average less than 80% of the SDM standard. Therefore, the results are expected to lead to identification of problem areas and generate useful feedback to the program.

The Standard Days Method session length has not been measured under routine delivery conditions. The pilot studies, that included visible observers, demonstrated that most clients can learn the SDM in 20 to 30 minutes. This may represent a problem for routine method provision since MOH providers in Peru tend to comply with the norm to attend five clients per hour: Empirical

studies have found actual session lengths for delivery of hormonal methods lasting 15 minutes on average (León et al. 2001 and 2003). Will Peruvian providers working under routine service delivery conditions invest in clients all the time needed for adequate SDM counseling? Hypothesis 2 states that session length will be less than the time providers invested on SDM clients when they were under observation.

In this study, we chose provision of two hormonal methods for comparison with SDM delivery. One, DMPA, is the leading method delivered by the MOH. The other, the pill, requires as much or more detailed counseling than SDM does, given the complexity of its side effects, warning signs, and use instructions. Another reason for choosing these methods was the availability of detailed behavioral studies entailing them (León et al. 2001; León, Ríos, and Zumarán 2005). Hypothesis 3 states that session length and the quality of care will be similar for the new and established methods.

As for the effects of SDM introduction on delivery of established methods, we do not expect SDM to impair delivery of other contraceptives. Given Hypothesis 2, it is unlikely that the providers' time needed to deliver SDM counseling will detract from the time invested in counseling clients who choose other methods (Hypothesis 4).

Method

Pilot Study

In 2002-2003, a pilot SDM study was conducted in the Tarapoto and Lamas provinces of the San Martín department (64% urban). San Martín is one of the 34 health directorates of the Peru MOH. Formative research was carried out to guide the adaptation of Institute for Reproductive Health SDM training, as well as provider and client materials. Health personnel from urban and rural facilities were then trained to provide the SDM. The pilot study produced useful information concerning service delivery and training. Client response was positive.

Research Design

Another San Martín province, Moyobamba, was chosen as the experimental site for the present study. Training was given to providers from 35 Moyobamba clinics and Hypotheses 1 and 2 were tested by means of unobtrusive observations of their service delivery. Hypothesis 3 was tested by means of a repeated measurements experiment in which three types of clients

(SDM choice, pill choice, DMPA choice) were the treatments. For testing Hypothesis 4, a comparable province, also in the low eastern slopes of the northern Andean mountains of Peru, Jaén, in the Cajamarca department (58% urban), was selected as the control site. Modern contraceptive prevalence in Cajamarca is 41.1 and in San Martín, 57.5 (Peru DHS 2001). Moyobamba and Jaén are very similar to each other in geography, culture, and socioeconomic structure. Nonetheless, since the individual clinics were not randomly assigned to the treatments, this study assumes nonequivalence at the baseline and uses a nonequivalent control group quasiexperiment with pretest (Cook and Campbell 1979). Thirty-two Jaén clinics served as controls.

Contraceptive Update

Providers from both experimental and control clinics participated in a contraceptive update workshop two to five weeks before the pretest. The workshop, designed to further equalize the groups in contraceptive knowledge, was structured around the standard learning objectives of the Peru MOH's family planning program and based on the recently published national reproductive health care guidelines (Peru MOH 2004). The training addressed action mechanisms, use instructions, contraindications, side effects, and warning signs of the methods provided by the MOH. The Standard Days Method was not yet available to providers at this time. The workshop lasted two days and involved staff from all the clinics of this study in Jaén (September 2004) and Moyobamba (October 2004). At the end of training the trainees, provided their consent to receive visits by simulated clients.

Measurement Tool

Routine service delivery was assessed by means of the *Service Test*, in which a trained simulated client requests services and the provider believes he or she is attending a real client. The *Service Test* consists of a client script that depicts a contraceptive history, method preferences, etc.; a simulated client who enacts the script as she requests services and responds to questions from a provider; and an observation checklist that the simulated client completes on exiting the clinic (see León et al. 2001, 2005, 2006, and 2007; León, Ríos, and Zumarán 2005). In a related field, Luck and Peabody (2002) showed that the reports supplied by trained simulated clients who follow a script are consistent with audiotapes of health consultations. Simulated clients have been used to obtain unbiased observations of human behavior in

diverse areas, from homosexuality (Bolton 1992) to housing (Wright and Devine 1992). Madden et al. (1997) provide a comprehensive literature review in health services research and evaluation. More generally, the use of deception and unobtrusive research in social science has been discussed by Punch (1994).

The following script entailing choice of SDM 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 pills (frequent headaches), abandoned use of pill three months ago, knows little or nothing about other methods, does not have a specific method in mind, afraid of side effects of hormonal methods, afraid of inserting anything into uterus, will choose SDM if given the option, on day 4 of her menstrual cycle, will reject pelvic exam (ashamed), would practice abstinence or use condoms on her fertile days, sure that husband would be able to abstain from sex or use condoms on her fertile days, her period comes every month about the same time (approximately every four weeks), her period rarely comes before or after she expects it, she is able to provide the date of her last menstruation." A second client script referred to a similar woman whose husband was using condoms inadequately and needed a different method because he disliked using this barrier method. The woman did not have negative attitudes toward pills; if given the option, she would choose them. A third script entailed the choice of DMPA. An important difference with respect to the SDM and pill scripts pertained to the client's menstrual status; whereas these scripts indicated the 4th day of the cycle, the DMPA script indicated the 20th day. The client had abandoned use of the pill because she did not trust her memory to take it every day and was using condoms inconsistently.

Recruitment and Training of Simulated Clients

To assure adequate cognitive abilities in data collectors, we recruited personnel with high school education and pre-selected a group on the basis of interviews and psychological tests. 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 the typical client.

Training of simulated clients lasted five days. The first three days were dedicated to introductory presentations and role-playing exercises in the classroom using the client scripts and checklists. Each candidate was trained

on only one script/checklist. The simulated clients were to approach the clinics asking for family planning services; they were instructed to avoid volunteering information and just respond to the provider's questions. The role-playing exercises followed a planned pattern. Written instructions to trainers who played the role of providers specified various levels of interpersonal relations and information exchange, and each candidate to client conducted role plays at each level and received feedback. The exercises were repeated until the simulated clients showed no errors filling out the *Service Test* checklists. The other two days were spent in visits to facilities outside the study, so that the simulated clients could gain confidence enacting their role. At the end of training, the highest ranked candidates were selected.

Data Collection

Two simulated clients were selected (one per province) to enact the SDM script. Similar numbers were involved in the implementation of the pill and DMPA scripts. Two supervised three-person teams (one simulated client per script) operated, starting one in each province. Each clinic received the successive visit of an SDM client, a pill client, and a DMPA client in random order. Observer bias was controlled within each province by having one of the teams first visit half the facilities in the province and then cross to the other province to visit the half that had not been covered by the parallel team. The simulated clients visited whichever person provided family planning services at each facility. In most cases, the clinic had only one provider that received the three visits. In a number of instances, the simulated clients encountered clinics that could not attend them: The provider was absent because he or she was visiting communities as part of a health campaign or because of personal or other reasons. In these cases, the simulated client returned to the clinic until she received the services.

Comments from providers suggested that a few of them discovered the simulated clients in rural areas, which did not prevent the latter from receiving services. Most providers refused to provide the injection to the DMPA client and asked her to return at the onset of her menses: The national norm requires that she is in her first days of menstruation. In these cases, a consultation took place and the simulated clients completed the *Service Test*.

Pill and DMPA clients collected pretest observations in late October and November 2004. Once the SDM was introduced in Moyobamba (early April 2005), new cohorts of simulated clients were recruited, trained for the posttest, and sent to the experimental and control clinics (July-August 2005). The three types of clients (SDM, pill, DMPA) participated in the posttest.

Measurement of Session Length and Interpersonal Relations

The simulated clients used a watch to provide data concerning the duration of the consultation. They registered the time at which the consultation started and the time at which it ended. Five minute rounding was observed: Five, 10, 15, 20, and 25 minutes prevailed among their time reports.

The checklists that were used with the SDM, pill, and DMPA scripts included the following nine items regarding providers' interpersonal relations with clients: Counseling was individual; The counseling session was interrupted; There were strangers hearing what I said; The provider treated me amiably; I felt he/she cared for my health; He/she looked annoyed; Treated me respectfully; Asked me if I had any questions; and Responded to my questions. The items were scored 1 (Yes, or observed) or 0 (No, or not observed). Then, three items (The counseling session was interrupted, There were strangers hearing what I said, and He/she looked annoyed) were recoded (1 = 0, 0 = 1) so that the 1s corresponded to good interpersonal relations in the nine items. The sum of the item scores generated a summary interpersonal relations score.

Measurement of Information Exchange

Whereas interpersonal relations were measured by a standard set of items, the measurement of providers' information exchange with clients varied according to the nature of each script. In the construction of the pill and DMPA checklists, the items were formulated considering World Health Organization's guidelines (WHO 2004 and 2005). The criteria for constructing the SDM checklist were derived from *The Standard Days Method: Reference Guide for Counseling Clients* (Georgetown University Institute for Reproductive Health 2002). Table 1 presents the main expected behaviors of a provider interacting with an SDM client.

The checklist used with the SDM script contained 56 information-exchange items and tapped six areas: needs assessment, relevant method options offered, information exchanged on contraindications to method use, use instructions, mechanisms/advantages/disadvantages, and follow-up indications. The pill checklist had an additional section, encompassing side effects/warning signs, and included 64 items. The DMPA checklist also had a section on side effects/warning signs but, given the simplicity of its use instructions, only had 55 items. Each checklist generated a summary information-exchange score that was the sum of the item scores. Previously, one item common to the three checklists (Tried to convince me to use a specific method) was recoded (1 = 0,

Table 1
Main Expected Information Exchange between Provider and Client in an SDM Consultation.[1] (From Georgetown University Institute for Reproductive Health 2002)

Contraindications
1. Do your periods usually come when you expect them? 2. Do your periods come about a month apart? If client answers Yes to both questions, her cycles are between 26 and 32 days long. She can start using CycleBeads the day she gets her next period. 3. Are you willing to abstain or use protection days 8-19 of your cycle? 4. Is your partner willing to abstain or use protection those days? If client answers Yes to both questions, she can start using CycleBeads.
Nature of CycleBeads
CycleBeads are a string of 32 beads, a rubber ring, and a cylinder with an arrow. The arrow shows the direction to move the rubber ring. The red bead marks the first day of your period. All white beads mark the days when you can get pregnant. All brown beads mark the days when you are not likely to get pregnant. The dark brown bead helps you know if your cycle is shorter than 26 days.
Use of CycleBeads
1. The day you get your period move the ring to the red bead. 2. Also, mark that day on your calendar. 3. Move the ring one bead each day. Move it even on the days when you have your period. 4. Avoid sex or use a condom when the ring is on any white bead. You can get pregnant on those days. 5. You can have sex when the ring is on any brown bead. You are not likely to get pregnant on those days. 6. Move the ring to the red bead again when your next period starts. Skip over any beads that are left.
When to Contact the Health Care Provider
If you had sex without a condom on a white bead day. If you think you might be pregnant because you have not gotten your period. If you get your period before you reach the dark brown bead; this means that your cycle is shorter than 26 days. If your period does not start by the day after you reach the last brown bead; this means your cycle is longer than 32 days. If your cycle is shorter than 26 days or longer than 32 days, more than once in a year, CycleBeads will not work for you.

(continued)

Table 1 (continued)

What to Do If You Forget to Move the Ring
1. Check on your calendar the day you got your last period.
2. Starting with that day, count the number of days that have passed including today.
3. Then starting with the red bead, count the same number of beads and place the ring on the bead for today.

[1] At the beginning of the consultation, providers are expected to engage in needs assessment and offer diverse method options. If needed, they should explore special client circumstances which may affect cycle length, such as breastfeeding and recent use of hormonal methods. Providers are also trained to support the client in developing a plan to avoid unprotected intercourse during the fertile days.

0 = 1). To control for checklist length in comparisons between client types, the summary scores were converted into percentages of the total number of items in each scale. When checklists are not compared, we use raw scores.

Standard Days Method Intervention

Project staff and trained MOH personnel conducted a 2-day SDM workshop for providers from the experimental clinics in early April 2005. The agenda covered the scientific basis of SDM, management of SDM clients including the use of aids, and registration of SDM clients in service statistics databases. The providers received the counseling manual (Georgetown University Institute for Reproductive Health 2002) and the experimental clinics were provided with SDM brochures for clients, CycleBeads, and user cards. Activities were conducted to raise awareness of the SDM in the community.

Results

Compliance with SDM Standards

The data collected in July-August 2005, i.e., after SDM introduction in Moyobamba, showed that interpersonal relations with SDM clients were not perfect but fell within acceptable levels. Experimental group providers achieved on average 7.63 points on a scale of 9 points and the standard deviation of the summary score was 1.35. This represents attainment of 82% of the standard.

With respect to information exchange, providers attained, on average, only 53% of the SDM standard. The standard deviation was 19.54. Table 2 presents the specific items that were addressed by 80% or more of the trained providers. It can be seen that this overwhelming majority of providers addressed 16 topics that included essential questions and giving clients essential information on the SDM. However, a number of important items are lacking: Asked about partner's willingness to abstain or use protection on fertile days (63%), Told me to always move the black band in the same direction (74%), Emphasized that if I have unprotected sex on the white bead days I am likely to get pregnant (46%), Told me to check with calendar if I forget to move the band (63%), To see the provider if period does not return the day after the band passes over the last bead (51%), See the provider if period returns before the day on which the band should reach the dark brown bead (60%), That condom must be placed on penis before entering vagina (17%), That penis must be withdrawn while still erect and holding the condom (9%), and That I should use a new condom in each coitus (23%).

Other results, not shown in the table, also need consideration. Whereas 89% of the providers told the SDM client that SDM requires abstaining from sex or using condoms days 8-19 of the menstrual cycle, only 54% gave the client CycleBeads and the user card, which is a surprising result given the amount of information exchanged. The simulated clients had been trained to register detailed comments. The comments concerning the Moyobamba providers who failed to deliver SDM aids to the clients revealed that one fourth of the total number of experimental providers advised the client to keep track of her menstrual cycle during the next 4 to 6 months and return when she is menstruating. In the meantime, she should use the condoms provided. In one case, the provider explicitly stated that he or she was following this procedure, "because the necklace method is just the rhythm method with a visual aid."

A smaller minority would not provide the SDM in the absence of the client's partner. In the meantime, she was advised to use the provided condoms. One of the providers stated that providers risked legal action if the partner did not give his consent at the consultation and, subsequently, the client became pregnant. About 10% of the experimental providers told the client that the SDM was unreliable and insisted that they use a hormonal method instead. Some said that the provider would be blamed for any unwanted pregnancy.

Standard Days Method Session Length

Moyobamba providers invested on average 23 minutes and 10 seconds with SDM clients, i.e., less than the 25-30 minutes invested in the pilot studies. The standard deviation was 13 minutes and 51 seconds.

Table 2
***Service Test* Items that Were Addressed by at Least 80% of Providers in Service Interactions with SDM Clients at Posttest.[1] Moyobamba, Peru, 2005.**

Needs Assessment
Provider asked whether I had children
About methods used in the past
If I already had a specific method in mind
Whether I could be pregnant (menstruation, others)
Method Options
Told me that SDM requires abstaining from sex/using condoms days 8-19 of the fertile cycle
That SDM users rely on a visual aid to identify their fertile days
Asked me to choose a method
Did not try to convince me to use a specific method
Contraindications
Asked whether my periods come more or less when I expect them
The date of my last period and when I expect my next one
Actions Mechanisms/Advantages/Disadvantages
Explained how the SDM functions
Use Instructions
Told me that the white beads represent days on which I should abstain or have protected sex
To move the black band to the red bead the day my menstruation starts
To mark the first day of menstruation on my card
That SDM users must move the black band every day
That the brown beads represent days in which I can have sex
Follow-Up

[1] $N = 35$.
Note: SDM = Standard Days Method

Comparison With Established Methods

Table 3 presents the specific items that were addressed by 80% or more of providers with the pill and DMPA clients in July-August 2005. In contrast with the 16 items that presented enough frequency to qualify to enter into Table 2, only 9 items of the pill checklist and 8 items of the DMPA checklist qualified for Table 3. As many as 77% of the providers gave pills to pill

Table 3
***Service Test* Items that Were Addressed by at Least 80% of Providers in Service Interactions with Pill and DMPA Clients at Posttest.[1] Moyobamba, Peru, 2005.**

Pill	DMPA
Needs Assessment	Needs Assessment
Provider asked whether I had children	Provider asked if I was using a contraceptive method
If I was using a contraceptive method	About methods used in the past
Whether I could be pregnant (menstruation, others)	Whether I could be pregnant (menstruation, others)
Method Options	Method Options
Told me that the pill is effective if taken every day	Told me that the injectable is effective if injected every 3 months
That the injectable is effective if injected every 3 months	That it may alter menstruation
Asked me to choose a method	
Did not try to convince me to use a specific method	
Contraindications	Contraindications
Actions Mechanisms/Advantages/ Disadvantages	Actions Mechanisms/Advantages/ Disadvantages
Use Instructions	Use Instructions
Told me that I would need to take the pill every day	That I had to wait until my next period to get my first injection
That taking the pill at a fixed hour is preferred	That I should use condoms until my first injection
Side Effects/Warning Signs	Side Effects/Warning Signs
	That I could have total or partial absence of menstruation
Follow-Up	Follow-Up

[1] $N = 35$.
Note: SDM = Standard Days Method; DMPA = Depo-Provera

clients or told them where to get them. (The comments from simulated clients reveal that supply problems at the facilities were responsible for the fact that less than 100% of the providers delivered pills to the clients instructed to choose this method.) In the case of potential DMPA clients, 100% of the providers asked them to return when they had their period to receive the injection and recommended condom use in the interim. In the pretest, the percentage had been 84. Condom instructions were addressed by less than 25% of the providers on average even though they expected most of the clients to use condoms at some time.

Table 4 presents the mean information-exchange, interpersonal relations, and session length scores attained on the *Service Test* by providers of the experimental clinics in July-August 2005, as well as their standard deviations. Results from the three checklists are depicted, and the SDM scores are compared with the pill and DMPA scores. To obtain a standardized measure of the amount of the differences that allowed a comparison between the results for the various dependent variables, we reverted to the effect size, which expresses the difference between means in pooled standard deviation units. In the calculation of effect sizes, we wanted to maintain the scale of the original scores and used the g for independent samples (Kline 2004). The scores did not importantly differ on interpersonal relations. However, the SDM percentage on information exchange was greater than the pill or DMPA percentages by more than one standard deviation. The average raw scores for the SDM, pill, and DMPA checklists (not shown) were 29.63, 20.31, and 18.97, respectively. Session length was importantly greater under the SDM script than under the pill script. However, the amount of the difference between SDM and hormonal-method session-length scores was below one standard deviation. That is, the greater information exchange was achieved at the expense of a less substantially increased duration of the consultation. Session length with the DMPA client was higher than expected.

Effects on Established Methods

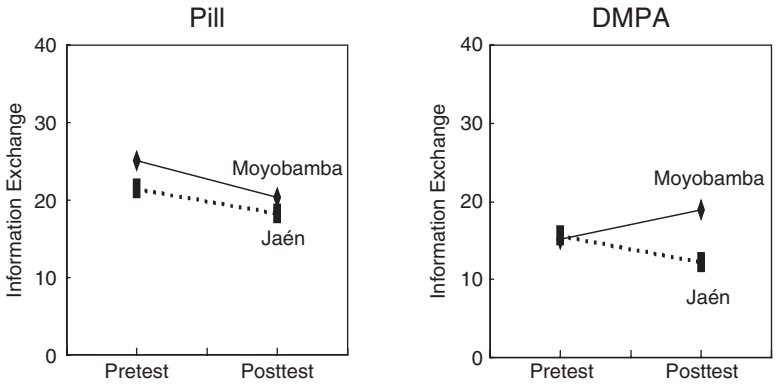
Figure 2 presents the pretest and posttest raw information exchange scores for the experimental and control groups. Five experimental clinics with intervention and posttest did not have pretest. Hence, the number of cases with pretest and posttest was 30 in the experimental group and 32 in the control group. With respect to the pill checklist, the groups showed parallel declining curves that demonstrate a lack of intervention effects.

Table 4
Experimental Group Posttest: Means and Standard Deviations (*SD*) for Service Test Scores, and Effect Size for the Comparison between SDM and Pill and DMPA Checklists Over Three Dependent Variables (*N* = 35). Moyobamba, Peru, 2005.

	SDM		Pill			DMPA		
Dependent Variable	Mean	*SD*	Mean	*SD*	Effect Size	Mean	*SD*	Effect Size
Information Exchange[a]	52.90	19.54	31.74	15.01	1.20	34.49	14.88	1.05
Interpersonal Relations	7.63	1.35	7.26	1.72	0.24	7.51	1.22	0.09
Session Length in Minutes	23m10s	13m56s	15m05s	10m11s	0.66	21m50s	11m50s	0.10

[a] Percentage of total number of items in scale.
Note: SDM = Standard Days Method; DMPA = Depo-Provera

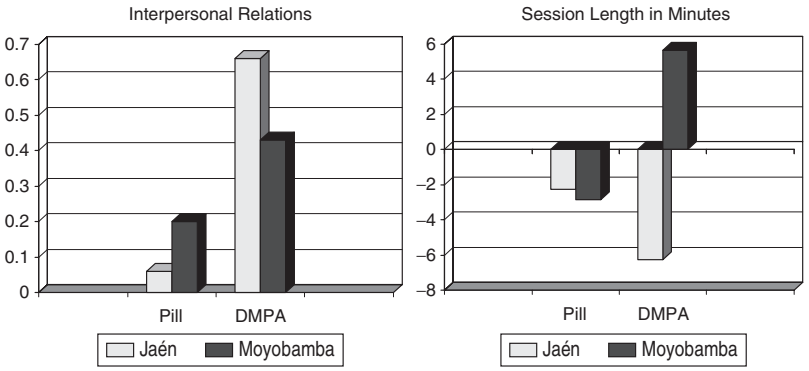
Figure 2
Mean Information Exchange Scores from Pill and DMPA Checklists for Moyobamba and Jaén, Per Measurement Occasion. Peru 2004-2005.



Unexpectedly, the quality of care given the DMPA client improved in the posttest in the experimental group in contrast with a decline observed in the control group. The increase is accounted for by a few items: offering SDM as an option, describing the method's advantages (does not interfere with intercourse, does not require daily action to be effective, does not cause cancer), and advising the client to use condoms until she can get the injection. The comparison of gain scores is the simplest analysis for a nonequivalent control group quasiexperiment with pretest (Reichardt 1979). A posttest minus pretest difference in information exchange was calculated for each clinic. The average gain score for the pill script was -3.34 in Jaén and -4.67 in Moyobamba (effect size = -.14). For DMPA, the averages were -3.44 and 3.63 (effect size = .79).

Figure 3 presents the average gain score per script and treatment group for the other dependent variables. Regarding interpersonal relations, the difference between treatment groups was trivial both for the pill (effect size = .06) and DMPA (effect size = -.11) scripts. Session length, however, presented an important contrast. The gain for the DMPA script was positive in Moyobamba and negative in Jaén, the difference amounting to one standard deviation (effect size = 1.02), while the pill script generated a trivial difference between treatment groups (effect size = -.05).

Figure 3
Gain Scores for Two Dependent Variables, Per Service Test Script and Treatment Group. Peru 2004-2005.



Discussion

This study used four criteria to evaluate providers' service-delivery response to new contraceptive introduction at Peru Ministry of Health clinics. With respect to whether family planning providers routinely offer clients the supportive and detailed counseling required by this fertility awareness-based option, the results were generally consistent with Hypothesis 1. Providers showed acceptable interpersonal relationships with SDM clients and the information exchanged with them reached 29.6 items on average, including most of the essentials of SDM counseling. However, this amount of information exchange represented attainment of only 53% of the standard. Moreover, only 16 relevant items were addressed by 80% or more of providers. A number of essential SDM items did not reach this cutoff criterion.

Exchanging 30 items with SDM clients could be regarded as an acceptable outcome if the topics addressed included all of the essential contents of SDM counseling. The problem with the observed provider performance is that the 30-item average tended to include the 16 essential items listed in Table 2 plus a personal selection of items that included less-essential items and in most cases excluded several fundamental ones. Hence, the SDM training system should be adjusted so that provider performance is improved and all SDM clients are asked the essential questions and receive the essential information.

Only 54% of the providers gave clients the tools (CycleBeads) to use the SDM. This is accounted for by two barriers to access that providers posed to clients. One was the requirement that the client keep track of her menstrual cycles for four to six months while she used condoms, to determine if she qualified as an SDM user. This reveals confusion with the Ogino-Knaus method. The long-term study of the menstrual pattern is not an SDM requirement for a client such as the simulated client, who played the role of a woman with cycles of the appropriate length. Hence, the study of the menstrual cycle functioned as a medical barrier to access (Shelton, Angle, and Jacobstein 1992). The demand for the husband to be present at the consultation and approve of SDM also functioned as a barrier to access, for Peruvian men dislike participating in reproductive health consultations (Cobián and Reyes 1998). The presence of the partner at the consultation is desirable but not mandatory. If the woman says that the partner will cooperate, she should be believed. Partner presence is not required by Peruvian MOH norms.

Both of these barriers to access were rooted in providers' concerns about the effectiveness of the SDM. Women using the SDM have a higher risk of pregnancy if their menstrual cycles are not within the 26-32 days range. A high risk also prevails if the partner does not cooperate in SDM use. These providers' concerns could be allayed by explaining that the contraceptive efficacy of the SDM was determined by a study in which providers accepted the word of the client in both respects (Arévalo, Jennings, and Sinai 2002). In addition to strengthened training, the experience of providing the SDM and finding that very few if any clients become pregnant should further enhance provider confidence in the method's effectiveness. This experience, however, will not be available to providers biased against natural family planning (Snowden et al. 1988). This bias may have receded in Peru over the past 20 years but clearly emerged in the behavior of a minority of providers.

Thus, the routine behavior of providers measured by the *Service Test* revealed the existence of more delivery problems than the pilot studies were able to detect by means of direct observers. A difference with the pilot studies was also evident in the duration of the consultations. The average session length, 23 minutes, was less than the time invested in the pilot studies. Nonetheless, the observed session length was greater than the average session length expected by the national program and suggests the willingness of providers to substantially depart from the norm. This finding may be explained by the fact that Moyobamba does not have the crowded clinics of big Peruvian cities and, thus, the providers can spend more time with each client. Future studies should establish whether providers at more crowded clinics maintain this session length and the associated level of quality of

care. We speculate that this is possible to the extent that providers expect that there will not be many SDM clients.

In the comparison with established methods, the importance of the differences between providers exposed to various client types was evaluated through an effort of abstraction, for the SDM, pill, and DMPA checklists had different contents. To use a common scale, we recurred to the percentage of the total number of items in the scale. This approach is not new in the literature (Peabody et al. 2000). Confirming the more rigorous SDM counseling as compared to pill or DMPA counseling, the number of expected information-exchange behaviors that were observed in 80% or more of the consultations with SDM clients was almost twice that of those observed with pill or DMPA clients. This is noteworthy, for the observations were attained four months after SDM introduction and the providers had received a contraceptive update that addressed hormonal methods. Therefore, comparison with established methods allowed us to detect a bias introduced into service delivery: Our intervention caused SDM clients to receive better quality of care than clients who selected hormonal methods, with the exception noted previously regarding providers' insistence on several months of cycle monitoring and partner presence before actually giving the method. A tangential but important implication of the study results is that providers can improve their counseling concerning established contraceptives. They should be able to address up to 30 topics with new users of hormonal methods (as they did with SDM clients) rather than the 20 topics currently addressed, although new counseling approaches (e.g., León et al. 2005) may be needed to cause improvements; standard contraceptive updates like the one used in this study cannot be expected to suffice. On the other hand, the MOH should determine whether it can absorb the possible effects of the expected improvements on session length.

The comparison with established methods also allowed us to better judge provider performance involving the SDM. Although the 30 items exchanged with SDM clients only represent 53% of the ideal information-exchange behaviors, this outcome can be regarded as a relatively satisfactory achievement considering that the information that providers exchanged with pill and DMPA clients was significantly less extensive. Given the routine level of information exchange concerning established methods that was observed in this study, it would be unrealistic to expect that providers surpass the observed amount of information exchanged with SDM clients. Therefore, the recommendation from this study is not to increase the amount of SDM information exchange but to improve the mix of items so that the essential ones are included and the less fundamental ones are excluded.

The results concerning effects on established methods can be synthesized in the conclusion that there was no negative effect of the intervention on the delivery of hormonal methods. The quality of the counseling provided to pill clients was clearly not affected. What needs explanation is the moderate increase in information exchange with clients instructed to choose DMPA that was observed at the posttest in Moyobamba in contrast with the decline observed in Jaén. The decline was part of a general trend in information exchange from pretest to posttest that can be attributed to a discrete Hawthorne effect that may have taken place in the pretest, i.e., an artificial inflation of job performance because the providers suspected they were being observed. While they had been asked their consent to receive visits by simulated clients several weeks before the pretest, by the time of the posttest, providers should have been less aware of possible visits. Alternatively, the better scores at the pretest could have been because of the recent contraceptive update, while the posttest reflected a decrease in knowledge over time.

But why did the information exchanged with DMPA clients in the experimental group improve while the information exchanged with pill clients did not? The key to understanding this difference is that, at the posttest, 100% of the Moyobamba providers told the client that she would have to wait until her next period to receive her first injection. Only 84% of providers had done so in the pretest. An explanatory hypothesis can be formulated taking into account that the increase in information exchange was defined by a greater provider emphasis on the method's advantages and the indication to the client to use condoms until she returned with her period. It would appear as if the providers attempted to reinforce the client's choice and make sure that she was protected from an unwanted pregnancy until she returned for her injection. Supporting this interpretation is the parallel increase in session length, an indicator of job effort. Our explanation posits that the introduction of the SDM in Moyobamba strengthened providers' appreciation of DMPA, a method valued by them because of its contraceptive effectiveness and ease of administration. In contrast, providers showed a preoccupation with SDM effectiveness. That is, the introduction of the new method would have strengthened the providers' awareness of the advantages of DMPA, and this would have been reflected in the providers' efforts to reinforce the DMPA clients' choice. Since the introduction of SDM actually represented a new choice for many clients and method introduction caused positive effects on the delivery of DMPA, the overall effects on quality of care can be regarded as positive.

The evaluation framework that guided the research proved to be a valuable model in generating these results. By focusing on routine provider behavior,

the evaluation detected delivery problems not noticed in past studies. By considering session length, the study confirmed a deviation from service norms that may have consequences in other program settings. By comparing the new method with established methods, the research identified a bias that, to be corrected, will require strengthening delivery of established methods. By taking into account effects on established methods, we were able to detect a positive effect of method introduction on delivery of DMPA and conclude that the overall quality-of-care effects were positive. Given these results, we recommend evaluators of the effects of new contraceptive introduction to abandon the use of the prevailing single-criterion approach based on direct observation and use instead the four-criteria evaluation framework implemented through the *Service Test* that was employed in this study.

On the other hand, a fifth evaluation criterion may be needed. The proposed evaluation framework is limited to the assessment of expected provider service behavior, which is valued on the assumption that the quality of care leads to valuable client outcomes. Conventional wisdom tells us that the client may experience method failure if she has not been rigorously taught how to use her method. She may discontinue family planning use if she is not prepared to manage the method's side effects. Or her health may suffer if the provider does not screen her for contraindications to the use of her chosen method or does not provide information about warning signs. However, the empirical information concerning the relationships between the quality of care and such client outcomes as method failure, side-effects reported, discontinuation of family planning, or unwanted pregnancies averted is rather scarce. A recent literature review (RamaRao and Mohanam 2003) and a conference on the subject (Population Council and USAID 2004) showed that interventions designed to enhance information exchange during the family planning consultation can improve outcomes for clients, though not all do. Evaluation of new contraceptive introduction's impact on client outcomes may be an important fifth criterion.

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