

Facility-Level Reproductive Health Interventions and Contraceptive Use in Uganda

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CONTEXT: In Uganda, modern contraceptive use has recently increased in areas served by the Delivery of Improved Services for Health (DISH) project. Whether these increases are associated with facility-level factors is unknown, however.

METHODS: Data from the 1999 DISH Evaluation Surveys were used in multivariate logistic regressions to assess the independent relationships of five indicators of the family planning service environment with individual-level use of a modern contraceptive in rural and urban areas. The surveys consisted of a household questionnaire of 1,766 women of reproductive age and a facility module implemented in all health facilities that serve the sampled population.

RESULTS: After women's social and demographic characteristics were controlled for, none of the service environment factors was independently associated with current use of a modern method in rural areas. By contrast, in urban areas, the proximity of a private health facility (which likely reflects an increased availability of methods) was positively associated with current use (odds ratio, 2.1), as was the presence of a higher number (three or more) of DISH-trained service providers (1.7).

CONCLUSIONS: The presence of private health facilities was the factor most strongly associated with contraceptive use in urban areas, perhaps because they improved the availability of methods. Few other facility-level program inputs had significant effects.

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Personal characteristics, attitudes and beliefs, which are conditioned by socioeconomic circumstances, are known to shape individuals' behavior in reproductive matters. Less clear is whether governments can further influence behavior through the implementation of family planning and reproductive health programs. Such programs are designed to provide information, supplies and services for voluntary fertility control—mainly modern methods of contraception—through various delivery systems. Although these efforts have generally been conducted through public facilities, many countries are now placing a significant and growing emphasis on private channels of delivery.

The role of family planning program effort in influencing individual behaviors remains a point of debate. One side argues that such programs can legitimize preferences for smaller families and help meet latent demand for fertility regulation in high-fertility societies.¹ The diffusion of contraception through family planning programs thus helps reduce some of the costs of obtaining services by lowering both monetary and psychosocial costs (which are alleviated as imagined risks of use are gradually replaced by more objective assessments). For example, according to an analysis of family planning use in Sub-Saharan Africa, improved availability of services (as evaluated by distance to sources and availability of specific services) was generally associated with higher levels of current method use.²

On the other side of the debate is the idea that a country's socioeconomic development will be the ultimate fac-

tor in fertility decline and contraceptive prevalence. The case of Brazil is often cited as an example in this argument; that country experienced rapid fertility decline over the last three decades in the absence of a national family planning program, but in the presence of rapid urbanization and industrialization.³

Uganda, located in the Great Lakes region of Sub-Saharan Africa, remains a society marked by high fertility and low levels of family planning use. In the mid-1990s, the total fertility rate was 6.9 lifetime births per woman, and only 7% of women of reproductive age were using a modern contraceptive method at the time of the survey.⁴ To address population and health issues, the Ugandan government commissioned numerous family planning and reproductive health projects. Most of these projects, which are administered by various organizations, have adopted the recommendation of the 1994 International Conference on Population and Development to provide integrated reproductive health services. One such project is the Delivery of Improved Services for Health (DISH) Project, which was initiated in 1994 in 12 of Uganda's 56 districts, which are home to 30% of the country's 21 million inhabitants.

This article assesses the impact of reproductive health efforts on contraceptive prevalence in the project's target areas. Our data source is the 1999 DISH Evaluation Surveys, which collected information on individual-level family planning knowledge, attitudes and practices, as well as on facility-level measures of program inputs. The study con-

siders whether women's use of modern contraceptives primarily reflects the characteristics of the service delivery environment in intervention districts or the population's structural characteristics.

THE DISH PROJECT

One of the largest reproductive health programs in Uganda, the DISH project is funded by the U.S. Agency for International Development through a bilateral agreement with the Ugandan Ministry of Health.* One of the main aims of the project's first phase was to change reproduction-related behaviors by improving the availability and quality of integrated reproductive health services.

Project activities were undertaken in collaboration with the Ministry of Health between 1994 and 1999 and included training of nurses and midwives in some 600 government units and facilities run by nongovernmental organizations (NGOs)† to provide integrated reproductive health services and improve standards of care; capacity building in health management information systems and strengthening support systems for the procurement, distribution and storage of contraceptives and other commodities; and distribution of educational materials and logos to facilities, with initiatives to encourage couples to visit facilities displaying the logos for information and services. As part of a national campaign, social marketing of oral and injectable contraceptives‡ and the promotion and marketing of condoms (for HIV prevention and, to a lesser extent, for pregnancy prevention) also took place in the intervention districts.

Surveys were conducted in 1997 and 1999 as part of the project's monitoring and evaluation component. Service delivery data from these surveys showed large increases in the use of modern contraceptive methods among women living in the target areas.⁵ For example, according to the 1999 project evaluation data, 20% of women aged 15–49 in the intervention districts were using a modern method, a sharp jump from the prevalence of 13% in the same districts recorded in the 1995 DHS, and a slight increase from the 19% prevalence recorded in the 1997 project evaluation data. Even when the highly urbanized district containing the capital, Kampala, is excluded, the prevalence of modern method use in other DISH districts rose from 8% in 1995 to 12% in 1997, and to 16% in 1999.

The injectable was the most commonly used modern method in DISH districts in 1999, followed by the condom and the pill. Condom use had increased greatly since 1995; however, some of the respondents who reported condom use might have been using them primarily to prevent sexually transmitted infections (STIs), including HIV. The use of long-term methods (i.e., the IUD, the implant and male or female sterilization) remained low, and reliance on vaginal methods was negligible.

Service delivery data from the 1999 facility survey revealed that not all facilities serving the sampled population provided the full range of reproductive health services. Whereas almost all government health facilities offered family planning, approximately one-fifth of those operated by

NGOs or private agencies did not. In addition, the availability and quality of family planning services varied among facilities.

Our analysis assesses the association between the health service delivery environment and contraceptive practice among women in the DISH project areas. We link independent data on facility-level program inputs, such as availability of family planning services and supplies, with population-level data to elucidate the possible effects of program efforts on contraceptive outcomes.

FRAMEWORK FOR ASSESSING PROGRAM EFFORT

In many parts of the world, patterns of contraceptive use may be a reflection, at least in part, of differential access to family planning programs. Access can most easily be measured by physical proximity (in time and distance) to services. In this respect, cross-national DHS data on service availability reveal that women in Sub-Saharan Africa generally have the least access to family planning facilities (weakest service environments), whereas those in Asia, North Africa and Latin America have relatively greater access. Whereas proximity may be the easiest measure to quantify, many other features can be employed to evaluate family planning services, such as convenience of access, availability of method choice, cost, quality and skills of staff, extent of outreach to different groups, logistic support and follow-up care.⁶

Using previous models for fertility regulation, including Bongaarts' model of the proximate determinants of fertility⁷ and Easterlin's supply-demand theory of fertility regulation,⁸ Lapham and Mauldin developed a framework for evaluating the effort of family planning programs.⁹ Their framework considered three components of program activities: policies, resources and stage-setting activities; service and related activities; and recordkeeping and evaluation. The authors' empirical applications seemed to point to a positive correlation between national program effort and overall contraceptive use.

Another framework, conceived by Bruce and Jain, sought to refine the definition of "quality" of family planning programs by using elements identified as critical to client satisfaction.¹⁰ They aimed to link the relationships between program effort, quality of the service experience and population-level impacts, and emphasized six key elements to assess quality: choice of contraceptive methods, information given to users, technical competence of service

*Pathfinder International was the primary contractor for the first phase of the DISH project (1994–1999); the Johns Hopkins University Center for Communication Programs (JHUCCP), University of North Carolina Program for International Training in Health (INTRAH) and E. Petrich and Associates acted as collaborating partners. For the project's second phase (1999–2002), JHUCCP was the primary contractor, and INTRAH and Management Sciences for Health were implementing partners.

†Whereas the DISH project did not work directly with private for-profit facilities, many project interventions likely spilled over into the private sector, as many private health units are staffed by health workers who also work at government facilities.

‡The social marketing programs were conducted under arrangements with two USAID-supported projects, Social Marketing for Change (1994–1998) and Commercial Market Strategies (1998–2004).

providers, interpersonal relations, mechanisms to encourage continuity, and appropriate constellation of services. These elements were not necessarily discrete, but could be interrelated by common background factors and program policies.

We draw on these frameworks to build a model for assessing the relationship between reproductive health efforts and family planning practice in the project districts. Although DISH was the main reproductive health project in these districts, there were a few other interventions in operation whose effects cannot be separated from those of DISH. (For example, the nationwide social marketing campaign, which promoted methods and made them available, worked collaboratively with DISH in the project districts.)

We consider five indicators of the service delivery environment in our empirical analysis: the geographic location and type of facility, the range of contraceptive options available, dissemination of information about the availability of family planning, staff training and follow-up mechanisms. We assess which of these service elements are associated with women's use of modern contraceptives once background characteristics are controlled for. Further investigation of the linkages between program effort and other reproductive health outcomes is certainly a worthwhile pursuit, but beyond the scope of this article.

DATA AND METHODS

As part of the 1999 project evaluation survey, a household questionnaire was administered to a representative sample of 1,766 women aged 15–49, and a general facility survey was conducted in 292 facilities that served the sampled population.¹¹ The household module used a two-stage sampling procedure. At the first stage, census enumeration clusters were randomly sampled in proportion to each district's population; overall, a total of 73 clusters were sampled. At the second stage, households were randomly selected within each cluster and interviews were conducted among all women of eligible age.

The facility module was designed to describe the service delivery environment of the women who were surveyed in the household module. All health facilities located in each selected cluster were included, as were all facilities in the two concentric rings of clusters surrounding the index cluster. The census covered hospitals, health centers, dispensaries, clinics and other facilities, and included facilities operated by the three main authorities in the DISH districts: the government, NGOs and the private sector. The final sam-

*The household module was fielded in September and early October of 1999, and the facility module was conducted in late October and November of the same year. The timing of the facility survey immediately after the household survey should assure that minimal changes in the characteristics of facilities occurred.

†The general estimating equation is used to control for intracluster correlation in population-averaged models. Standard regression models assume that individual observations are independent. However, in two-stage sample surveys, such as the DES, individuals from the same cluster or community are more likely than those selected from different clusters to exhibit similar demographic and behavioral characteristics (because of a variety of unmeasured factors). The general estimating equation allows the specification of such assumed within-group correlations.

ple represented all health facilities that were geographically accessible—defined as located within the sampling cluster or surrounding rings of clusters—to the residents of the clusters included in the household survey.

The availability of these data offered a valuable opportunity to link population- and facility-based data that represent the same geographic areas and time frame.* We pooled the data sets and used multivariate regression models to assess the independent effects of the health service environment on modern method use (defined here as use of the pill, injectable, condom, IUD, implant, vaginal foam or jelly, tubal ligation or vasectomy). Our service-related indicators were based on the characteristics of those facilities that were accessible to the sampled population. Women are the unit of analysis.

We employed statistical tests to determine whether contraceptive use was significantly associated with program inputs or simply reflected other individual characteristics or sampling variability. In addition to the health services indicators, several social, demographic and cultural variables were included as potential confounding factors, such as the respondent's age, marital status, parity, ethnicity, place of residence and educational attainment.

Given the differing levels of aggregation of the data (individual and cluster), the multilevel nature of the regression's error structure must be taken into account. We therefore used a generalized estimating equation to evaluate the independent effects of the explanatory variables for hierarchically nested data.[†] The models were assigned a logistic link function for binary dependent variables, using the Stata statistical software package.¹² We present separate models for rural and urban women because access to family planning services and the determinants of contraceptive use differ greatly by area of residence.

We converted the coefficients to odds ratios to facilitate interpretation of the results. An odds ratio greater than one implies that an individual in the given category has higher odds of using a modern method than a counterpart in the reference category, other factors remaining the same. An odds ratio lower than one suggests reduced odds, and a ratio equal to one implies similar odds.

Service Delivery Variables

Five explanatory variables related to the reproductive health service environment were considered in the multivariate models.

- *Geographic accessibility of health facilities.* Our measure of access combines the number and type of health facilities offering family planning services and considers women who have access to at least two such government health facilities to be living in areas with ready access. Similarly, we assume that women who live close to one or more private-sector facilities that offer these services, or to one or more similar NGO facilities, have good access.

- *Contraceptive choice.* The range of method choice was assessed by the availability in the community of short- and long-term methods—i.e., the number of facilities that gen-

erally offered all three of the dominant supply methods (the pill, injectable and condom) and those offering at least one long-term method (the IUD, implant and tubal ligation or vasectomy). Women who live in a community that has at least two facilities providing the full range of short-term methods, and any facility offering a long-term method, were considered to have access to a wide choice of contraceptive methods.

- **Dissemination of information.** We considered a facility to have disseminated information on the availability of family planning services if any signposts advertising services (i.e., the national yellow flower family planning logo or the rainbow over the yellow flower reproductive health logo) were visible from the road, or if any family planning flipcharts or posters were displayed in the interior of the facility.

- **Impact of staff training.** We used the total number of staff at accessible facilities who had been trained with the DISH curriculum as the indicator of the effect of such training. We considered areas served by three or more DISH-trained staff to have received greater program intervention than other areas.*

- **Follow-up mechanisms.** We measured recordkeeping or mechanisms for follow-up by the number of local facilities that maintained a register for family planning clients or issued cards for these clients.

RESULTS

Descriptive Data

The population targeted by the DISH project was predominantly rural; 70% of the 1999 survey respondents lived in rural areas. (The urban population was heavily concentrated in Kampala, the most urbanized district.) Two-thirds of women were married at the time of the survey, and 77% had ever given birth. The most frequently spoken language was Luganda (43%), followed by Runyankole-Rukiga (23%). About one woman in four (22%) had had no formal education.

Overall, 20% of women (38% of urban women and 13% of rural women) were currently using a modern method—primarily the injectable (7%), the condom (6%) or the pill (4%). Although 87% of pill users and 93% of injectable users had obtained their most recent supply from a health facility or other formal-sector source, only one-quarter of condom users had done so.

The vast majority of rural women (89%) lived in a community that had at least one government-run source of family planning, 62% lived in a community with at least one private-sector source and 21% had access to an NGO-operated source (Table 1). The pattern in urban communities was quite different: Fewer than one-half of urban women (45%) lived in a community with a government facility that offered family planning, whereas most (85%) lived in communities with one or more private-sector health facilities. Finally, one-third of urban women lived in a community with an NGO source.

Most women (89–98%) resided in communities where

TABLE 1. Percentage distribution of rural and urban women, by number of health facilities in their community with selected characteristics, DISH districts, 1999

Characteristic	Rural (N=1,233)	Urban (N=531)
Government		
0	11.3	54.6
1	63.4	36.2
≥2	25.3	9.2
Private		
0	37.8	15.4
1	42.5	16.5
≥2	19.7	68.1
NGO		
0	79.0	66.9
≥1	21.0	33.1
Offer all 3 main supply methods†		
0	11.1	2.2
1	37.0	17.8
≥2	51.9	80.0
Offer ≥1 long-term method‡		
0	82.7	49.3
≥1	17.3	50.7
Display signposts/posters/flipcharts		
0	10.7	3.0
1	50.5	18.6
≥2	38.8	78.4
Have DISH-trained staff		
0	16.3	11.4
1–2	50.7	47.6
≥3	33.0	41.0
Have family planning register/client cards		
0	11.4	3.0
1–2	48.7	23.6
≥3	39.9	73.4
Total	100.0	100.0

†The pill, injectable and male condom. ‡The IUD, implant, tubal ligation and vasectomy. Notes: Two women were dropped from the original sample because of missing data on urban or rural residence. Ns are weighted.

at least one health facility (regardless of operating authority) offered the three dominant short-term supply methods. Among rural women, 52% resided in areas with two or more such facilities, 37% lived in a community having only one and 11% had no such facility in their community. Urban women had greater access to these three methods, as 80% lived in a community having two or more health facilities that offered all three, 18% lived in a community with one such facility and only 2% lived in a community without one.

Ugandan women overall had less access to long-term (the implant, the IUD or sterilization) than short-term methods. Only one rural woman in six lived in a community that had a source of long-term methods, compared with one urban woman in two.

*The number of DISH-trained staff in the community may also reflect the total number of facilities. Although we conducted exploratory analyses to ascertain whether a relationship existed between the number of DISH-trained staff and the number of facilities, we found few consistent patterns. For example, in urban Kampala, communities with the largest number of facilities were no more likely to have three or more DISH-trained staff than to have fewer such staff.

TABLE 2. Odds ratios from multivariate logistic regressions assessing the association of local service environment and women's characteristics with current contraceptive use, by area of residence, DISH districts, 1999

Characteristic	Rural (N=1,053)	Urban (N=650)
LOCAL SERVICE ENVIRONMENT		
No. and type of facilities offering family planning services		
≥2 government	1.25	0.97
≥1 private	0.84	2.08*
≥1 NGO	1.18	0.96
No. of facilities and contraceptive choice		
≥2 facilities offering all 3 supply methods†	1.70	1.22
≥1 facility offering ≥1 long-term method‡	0.95	0.59*
No. of facilities with family planning signposts/posters/flipcharts		
≥1	0.77	0.54
0	1.00	1.00
No. of DISH-trained staff in local facilities		
≥3	0.78	1.68*
<3	1.00	1.00
INDIVIDUAL		
Age-group		
15–19	1.00	1.00
20–29	1.53	3.54***
30–39	2.86*	2.44*
40–49	2.02	3.21*
Marital status		
Never-married	1.00	1.00
Currently in union	0.57	1.09
Formerly in union	0.30*	0.68
Parity		
0	1.00	1.00
1–3	2.57*	2.18*
≥4	3.37*	3.37*
Ethnicity		
Luganda	0.71	1.41*
Runyankole	0.54*	0.98
Other	1.00	1.00
Education		
None	1.00	1.00
Primary	4.64***	1.37
≥secondary	9.91***	2.85*

*p<.05, ***p<.001. †The pill, injectable and male condom. ‡The IUD, the implant, tubal ligation and vasectomy. Note: For the dichotomous variables measuring the number and type of local facilities offering family planning in general, and of supply and long-term methods in particular, the respective reference categories are fewer such facilities, and thus more limited access. Sixty-one women were dropped from the analysis because data were missing on one or more variables.

Behavior change communication materials, including signposts with the family planning logo, and posters and flipcharts in the facility, were found in most communities, although 11% of rural women lived in one in which no health facility displayed such materials, as did 3% of urban women. The relatively high proportions of women living in communities where at least two facilities displayed these materials—39% in rural areas and 78% in urban areas—were primarily attributable to posters and flipcharts rather than to displays of family planning logos.

Most women lived in communities where DISH-trained staff provided family planning services. Among rural

women, 51% had access to 1–2 DISH-trained providers, and 33% had access to three or more. Among urban women, these proportions were 48% and 41%, respectively. (Although the DISH project works primarily with staff at government-run health facilities, data from the survey of all facilities operating in the DISH districts indicated that, in 1999, a DISH-trained staff member provided family planning services at 52% of the NGO facilities sampled and 20% of private-sector sources.) Almost all women (89–97%) had access to a facility that maintained family planning registers or client cards; 40% of rural women and 73% of urban women lived in communities that had three or more such facilities.

Multivariate Analyses

After controlling for the effects of social and demographic variables (and for intracluster correlations), none of the measures of service delivery was significantly associated with modern method use among women living in the rural areas of DISH districts (Table 2). The lack of a significant association with the availability of a long-term method was unsurprising, given that fewer than 3% of rural women use such methods. Other facility characteristics, such as the presence of DISH-trained staff, family planning signposts and posters, and a register for family planning clients were also not associated with contraceptive use. However, living in a community in which at least two health facilities offered pills, injectables and condoms was marginally associated with increased odds of current modern method use among rural women (odds ratio, 1.7; p<.08).

By contrast, the presence of one or more private-sector facilities offering family planning services in the community was associated with contraceptive use among urban women: Those who lived in a community in which a private-sector facility offered family planning had independently elevated odds of using a modern method (2.1). The availability of the three main supply methods in at least two facilities did not significantly affect the odds of current use in urban areas, however. Further analyses of the data using models that did not contain a variable for the local presence of private-sector facilities showed that the availability of all three methods at two or more facilities was significantly associated with current use (not shown). This indicates that these two factors are highly correlated and the availability of methods is closely linked to the presence of private-sector facilities.

Surprisingly, having a facility in the community that offered a long-term method was associated with reduced odds of modern contraceptive use in urban areas (0.6). This may be attributable to women's willingness to travel outside their community for a long-term method. Thus, availability in the immediate vicinity of home may not be important in urban areas.

The presence of at least three DISH-trained staff was positively associated with current contraceptive use in urban areas (1.7). Unexpectedly, the presence of family planning logos and signposts was marginally associated

with decreased odds of modern method use. One possible explanation for this puzzling finding is that facilities in areas where prevalence is low may be more likely than others to use these materials to promote family planning services.

As expected, several social and demographic factors were independently associated with the odds of current use, and these associations differed somewhat by urban or rural residence. For example, older women had higher odds of current use than adolescents (odds ratios, 2.4–3.5), particularly in urban areas. Ugandan adolescents are much less likely than older women to be married or sexually active; moreover, married adolescents may desire pregnancy.

Marital status overall was significantly associated with modern contraceptive use in rural areas, but not in urban areas. In rural areas, formerly married women had significantly lower odds than never-married women of using a modern method (0.3), once parity and other characteristics were controlled for. Among both urban and rural women, the odds of contraceptive use increased with parity, underlining high-parity women's motivation to limit family size. Women with 1–3 children had significantly higher odds of reporting current contraceptive use than childless women (2.2–2.6), as did those with four or more children (3.4 in both urban and rural areas). Anecdotal evidence strongly points to the high costs of raising children, especially education costs, as a factor behind the preference for smaller families among some women in Uganda.

Not surprisingly, modern contraceptive use was independently and positively associated with formal education. In urban areas, women with at least a secondary education had significantly higher odds of contraceptive use than did noneducated women (2.9). The effect of education on use was even more striking in rural areas: Compared with women with no education, those with at least some primary schooling had nearly five times the odds of contraceptive use (4.6), and those with secondary or higher schooling had almost 10 times the odds (9.9). Educated women may appreciate the health and economic advantages of smaller families more than noneducated women, and also be more likely to use a method to protect themselves from unplanned pregnancy (as well as from HIV and other STIs). In addition, in rural areas, Runyankole women were less likely than women of other ethnic groups to use modern contraceptives, whereas in urban areas, Lugandan women were more likely to use them.

DISCUSSION AND CONCLUSIONS

No service delivery factors tested in this study had a significant effect on contraceptive use in rural areas. In urban areas, however, three significant factors emerged. The presence of one or more private facilities that offer family planning was the most important service environment feature associated with use. Having a private-sector source in the community appears to increase access to available supply methods, even in urban environments where pills, and injectables to a lesser extent, are generally also available with-

out a prescription from informal sources such as pharmacies, drug stores and retail shops. Although contraceptive use is higher in urban communities that are served by both private-sector and informal sources of contraceptive methods, whether these facilities are creating demand for family planning or simply responding to existing demand is unknown.

Some evidence suggests that the private and informal sectors are playing a growing role in family planning provision in Uganda. According to a preliminary analysis of project evaluation data, the proportion of women receiving family planning services from a private-sector facility increased from 31% in 1997 to 35% in 1999, whereas there was a decline in the proportion who received their method from a government facility (from 39% to 34%) or an NGO facility (from 9% to 7%).¹³ Moreover, the proportion of women who obtained their method from a pharmacy or other informal source increased over the period (from 21% to 24%). In particular, the socially marketed methods were widely available across privately run drug stores and pharmacies at the time of the later survey.¹⁴ Further, a study that focused on the use of reproductive health services in two urban districts, Kampala and Jinja, found that reliance on private-sector facilities for family planning services increased between 1997 and 2000.¹⁵ Meanwhile, the proportion of women citing government facilities as their family planning source remained flat or declined, which suggests that clients may be switching from the public to the private and informal sectors.

In urban areas, two other service environment characteristics were associated with contraceptive use. The significant effect of having three or more DISH-trained staff may be associated with higher quality of services, which leads to higher rates of contraceptive adoption and lower rates of discontinuation. Exterior displays of family planning logos and interior use of posters had no discernible effect on women's use in rural areas, and only a marginally significant effect in urban areas; more surprising, this effect was in the opposite direction than expected. Facilities located in areas where relatively few women practice contraception may be more likely to display these materials to increase awareness of, and demand for, family planning services. Further, the number of community facilities that maintained client records for follow-up was not associated with contraceptive use. This finding is unsurprising, because such facility-based systems are more common in the public sector, and the methods that predominate in Uganda—the pill, the injectable and the condom—are widely available from private and informal sources.

Our analysis considered whether the number of facilities offering the three main supply methods independently affected women's use of a modern method. This variable approached significance in rural areas, which suggests that maintaining regular contraceptive supplies may be important in promoting and sustaining the use of modern family planning. Several stock-outs of these three methods occurred over the survey period, and the association likely

would have been stronger if they had not occurred.* According to the 1999 project evaluation data, almost one in four government health facilities experienced a stock-out of the pill in the month preceding the survey, one in five were out of the injectable and more than half lacked supplies of the condom.¹⁶

Recent evidence suggests the private and informal sectors are playing an increasing role in overall provision of family planning services. This is particularly true for the condom, which is being promoted in response to the HIV pandemic. Given this scenario, it is unsurprising that few program inputs were associated with contraceptive use, particularly in urban areas. Program efforts to increase contraceptive use should consider involving the emerging private and informal sectors.

Data beyond the facility-based information presented here must be considered when assessing the influence of project activities on contraceptive use. Changes in family planning behaviors over the project's first phase may have been partly attributable to other DISH programmatic interventions and to broader societal changes occurring in Uganda that have positively affected women's reproductive health knowledge and practices.[†] (For example, a companion analysis that used population-based data found that individuals who were exposed to behavior change messages about family planning in the mass media were more likely than others to use a modern method or to intend to use one in the near future.¹⁷) Although certain project interventions may have contributed to creating a demand for family planning services, the subsequent use of these services was not closely tied to facility-based efforts.

*Although we also ran a model that included a variable for stock-outs of contraceptive supplies, we exclude such a variable from our analysis because the direction of causality is unclear. For example, stock-outs at a community's health facility may have resulted in fewer women being able to obtain a method (association with low prevalence) or stock-outs may have been caused by greater demand for contraceptive supplies (association with high prevalence).

[†]In 1995, the prevalence of modern method use was appreciably higher in the DISH districts than in the country as a whole (13% versus 7%). Evidence from the most recent Uganda DHS reveals that modern method use has also been rising nationally, from just 7% in 1989 to 14% in 2000–2001 (17% with the inclusion of the lactational amenorrhea method). (Source: Uganda Bureau of Statistics and ORC Macro, *Uganda Demographic and Health Survey, 2000–2001*, Entebbe, Uganda: Uganda Bureau of Statistics; and Calverton, MD, USA: ORC Macro, 2001.)

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RESUMEN

Contexto: En Uganda, recientemente ha aumentado el uso de anticonceptivos modernos en las zonas que reciben servicios del proyecto *Delivery of Improved Services for Health (DISH, Distribución de Servicios de Salud Mejorados)*. No obstante, no se sabe si este aumento está relacionado con factores a nivel de clínica. **Métodos:** Se utilizaron datos recopilados en las Encuestas de Evaluación DISH de 1999, mediante análisis multivariado de regresión logística para evaluar los efectos independientes de

cinco indicadores del ambiente de servicios de planificación familiar en el uso de un método moderno a nivel individual. Las encuestas utilizaron un cuestionario suministrado en los hogares de 1.766 mujeres en edad reproductiva y un módulo de clínicas implementado en todas las clínicas de salud que prestaban servicios a la población encuestada.

Resultados: Luego de haber controlado las características sociales y demográficas de las mujeres, ninguno de los factores de servicio estuvo relacionado con el uso actual de un método anticonceptivo moderno en las zonas rurales. En forma inversa, en las zonas urbanas, la proximidad de una clínica de salud privada (lo cual probablemente refleja un aumento de la disponibilidad de métodos anticonceptivos) estuvo positivamente relacionada con el uso actual (razón de momios de 2,1); de la misma forma resultó positiva la presencia de un número más elevado (tres o más) de proveedores de servicio adiestrados por el proyecto DISH (1,7).

Conclusiones: La presencia de clínicas de salud privadas en las zonas urbanas fue el factor más sólidamente relacionado con el uso de anticonceptivos modernos, probablemente porque mejoró la disponibilidad de los mismos. Pocos componentes del programa a nivel de clínica surtieron efectos significativos.

RÉSUMÉ

Contexte: En Ouganda, la pratique contraceptive moderne s'est récemment accrue dans les régions desservies par le projet de promotion sanitaire DISH (Delivery of Improved Services for Health). Le lien entre les améliorations enregistrées et les facteurs d'environnement n'a cependant pas été établi.

Méthodes: Les données des enquêtes d'évaluation du projet DISH de 1999 ont servi à la réalisation d'analyses de régression logistique multivariée destinées à évaluer les effets indé-

pendants de cinq indicateurs d'environnement des prestations du planning familial sur la pratique individuelle de la contraception moderne en milieu rural et urbain. Les enquêtes reposaient sur un questionnaire de ménage soumis à 1.766 femmes en âge de procréer et sur un module d'établissement mis en œuvre dans tous les établissements de santé au service de la population échantillonnée.

Résultats: Sous contrôle des caractéristiques socio-démographiques des femmes, aucun des facteurs d'environnement de service n'a présenté de lien indépendant avec l'usage courant d'une méthode moderne dans les milieux ruraux. En milieu urbain, par contre, la proximité d'un établissement de santé privé (reflétant vraisemblablement une disponibilité accrue de méthodes) s'est avérée positivement associée à la pratique courante (rapport de probabilités de 2,1), de même que la présence d'un plus grand nombre (au moins trois) prestataires formés à l'approche DISH (1,7).

Conclusions: La présence d'établissements de santé privés en milieu urbain s'est révélée le facteur le plus étroitement lié à la pratique contraceptive, en raison, peut-être, d'un accès amélioré aux méthodes. Peu d'autres apports programmatiques au niveau de l'établissement n'ont présenté d'effets significatifs.

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