

Family Planning Program Structure and Performance In West Africa

By John F. Stewart, Guy Stecklov and Alfred Adewuyi

Context: *The long-standing debate over the relative merits of vertical and integrated organizational structure for the delivery of family planning services has taken on added significance, particularly in poorer regions such as West Africa, given increasing emphasis on reproductive health services as a whole.*

Methods: *Case studies from Côte d'Ivoire, Nigeria, Benin, Ghana and Guinea, as well as large-scale facility surveys using multiple measures of staff utilization in Côte d'Ivoire and Nigeria, are used to examine the efficiency of different organizational structures for delivering family planning services.*

Results: *Vertical programs operated by nongovernmental organizations provided close to half (44%) of all couple-years of contraceptive protection in Côte d'Ivoire and about one quarter in Benin and Guinea. When social marketing efforts are considered as well, sectors other than governmental, integrated programs were responsible for a majority of the couple-years of protection. Only in Nigeria did integrated programs provide the bulk of couple-years of protection in 1994. Facility surveys conducted in Côte d'Ivoire and Nigeria suggest that vertical family planning service structures have staff capacity utilization rates at or above 100%, and thus appear to use their labor resources more efficiently than do the integrated sites. Staff utilization rates are somewhat higher in the privately operated vertical programs in Côte d'Ivoire than in the government integrated programs; in Nigeria, vertical programs also had somewhat higher staff utilization rates, even within government-operated programs.*

Conclusions: *Where both vertical and integrated programs exist, integrated programs may not necessarily be superior. The relative merits of the two approaches almost surely depend on the socioeconomic and political environments in which they operate; thus, optimal program structures may depend on the local situation.*

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The Programme of Action adopted at the 1994 International Conference on Population and Development (ICPD) extended the international community's scope of interest beyond family planning to other components of reproductive health, such as maternal and child health, sexually transmitted diseases (STDs), HIV and AIDS and other areas related to the status of women in developing countries.

The Programme of Action calls for substantial resources to be mobilized to address reproductive health needs—estimated at \$17 billion for the year 2000. Sixty percent of these costs are to be distributed to family planning activities, with the remainder divided between basic reproductive health care (29%), prevention of STDs, HIV and AIDS (8%), and basic research and policy (3%).¹ By way of contrast, the \$1.5 billion in population assistance provided by external governments and private foundations in 1996 was less than 15% of the total projected need for family planning activities for the year 2000.²

Given the goals of the Programme of

Action, the need to organize available resources as efficiently as possible must be a key consideration in program design and implementation. One of the greatest challenges will be to minimize service delivery costs, which are expected to account for more than 65% of resources. Given limited and competing resources, particularly in sub-Saharan Africa, it becomes increasingly important to identify efficient organizational forms for service delivery.

Vertical and Integrated Structures

Over the years, two types of organizational and administrative structures have arisen for delivering family planning and related services: integrated programs and vertical programs. Integrated program structures refer to organizations that perform combinations of various functions or tasks. Such systems are politically appealing, and are widely accepted as the desired service structure for family planning. In the context of family planning, vertical program structures refer to organizations or programs with the single purpose of providing family planning services. Howev-

er, while integrating programs is a popular concept, the empirical evidence on the superiority of integrated family planning programs over vertical programs is mixed.³

While the terms "integrated" and "vertical" suggest a clear dichotomy, the line of separation is often ambiguous. Most programs have a hierarchical structure, with policy-making and administrative functions at the top and service delivery at the bottom. Each level of the program may be vertical or integrated in structure. At the administrative or management level, managerial responsibility may be exclusively for family planning or may cover a variety of services. At the bottom level, services may be delivered at single-purpose sites or by single-purpose providers. In multipurpose sites, services may be delivered by separate service staff or by regular health staff that have separate hours and areas designated for family planning activities.

Any number of combinations of vertical and integrated organizational structures are possible at the various levels of programs. For example, a program that has a vertical management structure could be integrated at the service delivery level, or vice versa.⁴

A final form of integration occurs across the various types of organizations involved in family planning activities within a country, and typically includes governmental and nongovernmental organizations. Such horizontal, cross-agency integration has received little attention in the literature, but cross-agency cooperation in planning and implementing programs is an important part of rationalizing service provision in many countries.⁵

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The Merits of Integrated Approaches

The debate on the relative advantages of alternative organizational forms of family planning services is based on presumed links between organizational structure and performance. Good performance, in turn, is thought to be achieved when large quantities of high-quality services are provided at low cost. However, all of these dimensions of performance are interrelated: the quantity of services provided will depend to a certain extent on an organization's ability to respond to existing demand or to generate new demand; demand may be related to the quality of services provided; and cost is affected by both the quantity and the quality of services provided.⁶

Demand-side arguments favoring the integration of programs claim that reproduction cannot be isolated from other facets of human existence. Fertility is related to income, educational status, agricultural production and health status. The complex relationships between these sectors make it logical for family planning to be integrated with other health and development activities.

Further, advocates of integration argue that family planning may be more acceptable to communities when it is offered in concert with other services.⁷ This is particularly true in societies where demand for family planning is low due to the traditional value placed on having large families. By making family planning available in the context of other valued services, such as maternal and child health care, providers may gain credibility.⁸ Integrated services are also thought to be more efficient for clients, who can receive multiple services at one site or from one provider, thus reducing their transportation, time and other costs.

Supply-side arguments in favor of integration are based on the relative cost-effectiveness of integrated family planning from the provider's perspective. The cost advantages of integrated programs include economies of scope,* shared fixed costs and the potential ability of such programs to achieve higher rates of resource utilization. For example, utilizing existing infrastructure and personnel uses resources more fully than constructing a parallel system.⁹

Integration may also avoid duplication of effort in both administration and service delivery. Existing structures have already organized management systems, trained personnel and established contacts with people in communities that are useful for family planning and other health programs. A further advantage of integrating family planning with other health services is that

certain contraceptive methods, such as the IUD or sterilization, require the involvement of medical personnel who might not be available in a vertical community-distribution program. Similarly, family planning clients are often clients of maternal and child health services. Under integration, these women may be targeted for family planning through the health care system.¹⁰

The Merits of Vertical Approaches

The arguments for vertical structures are largely based on economies of specialization. Where health care has not been firmly institutionalized, vertical programs for family planning are often considered advantageous, since integrated approaches could overburden fragile delivery systems and reduce their ability to penetrate large regions.¹¹

Single-purpose programs may be more effective than integrated ones simply because it is easier to do one thing well. One analyst has argued that "a specialized program highlights a particular problem and makes it easier to promptly amass the expertise and resources required to confront the problem in a timely fashion."¹²

The final fundamental argument for vertical systems concerns the relative simplicity of monitoring systems with one primary output. Historically, international donors and lending agencies have given funding priority to population activities, and large amounts of financial assistance have been earmarked for family planning. Thus, many developing countries have had substantial funding for family planning programs in an environment where other health-related activities have been neglected. Vertical programs were therefore considered necessary to ensure that family planning funds were not diverted into other programs. Given the Programme of Action's call for spending more than \$10 billion on family planning by the year 2000, the monitoring advantages inherent in vertical programming remain highly relevant.

It is important to emphasize that the performance of a particular organizational form depends on the environment in which it operates. While vertical programs may be cost-effective in a densely populated area with high demand, integration may be a more cost-effective structure in areas with a more dispersed population and with less demand for contraceptive methods.¹³ Integration may work well in a strong, efficiently managed health care system that has a strong commitment to family planning, but integration may work poorly in a weak, badly managed system with little organizational commitment to the objectives of family planning.

The West African Evaluation

In 1994, the EVALUATION Project undertook a detailed study of service structure in West Africa in order to examine the historical evolution of family planning service delivery, describe the degree to which services and support are integrated and compare the effectiveness and efficiency of current means of family planning service delivery in West Africa. A primary focus of this work was to compare vertical and integrated approaches to family planning service provision.

The West African study has two components. The first is based on a series of country studies commissioned in five nations in West Africa (Côte d'Ivoire, Nigeria, Benin, Guinea and Ghana) to provide a descriptive analysis of the existing structure of family planning service provision in each country, with particular emphasis on local experiences with integrated family planning services. The country studies rely on existing available data, including family planning program publications and reports; Ministry of Health statistics; situation analyses and Demographic and Health Survey results, where available; and interviews with local experts.

The second part is based on facility-level surveys undertaken in two of the countries (Côte d'Ivoire and Nigeria) to gather more detailed data on resource use among family planning service providers. This article summarizes these studies and highlights those results on vertical and integrated family planning structures that are relevant to the implementation of the Programme of Action.

The Country Case Studies

Methods

For each of five countries—Côte d'Ivoire, Nigeria, Benin, Guinea, and Ghana—a case study was prepared by individuals and agencies familiar with the history, funding and organization of family planning activities there.[†] The case studies were designed to generate a top-down description of the structure of family planning service

*The total cost of producing a bundle of different outputs by a single entity (firm) is lower than if each component of the bundle was produced by a separate entity.

†The following individuals or organizations prepared case studies: Côte d'Ivoire—John F. Stewart (University of North Carolina) and Koume Koffi (Association Ivoirienne pour le Bien-Entre Familial); Nigeria—Alfred Adewuyi (Obafemi Awolowo University) and Dominic Mancini (Carolina Population Center); Benin—Aristide Aplogan (Operations Research Consultant); Ghana—Population Impact Project (University of Ghana); and Guinea—Amadou Lamarana Diallo (Association Guineenne pour le Bien-Entre Familial) and Boubacar Toure (Guinea Ministry of Health).

provision in each of the study countries.

The major international donor agencies participating in family planning activities in each country were identified and their activities were followed to the intermediate agencies—both governmental and nongovernmental organizations—that implemented family planning programs. An attempt was made to describe the organizational form at each level of the family planning system and to gather statistics on service provision.

Where much of the research on service provision is based on experiments that alter the structure of services, our analysis is based on direct observation of the organizational structures that exist in the countries studied. The variation in organizational structure we observe is the result of each country's specific history of uncoordinated (or coordinated) decisions regarding funding, policy and resource allocation. We are therefore limited to a descriptive assessment of what was actually done in each country.

Historical Perspective on Family Planning

The five West African nations examined in this article share many demographic and socioeconomic characteristics. These include high fertility rates: In the late 1980s and early 1990s, these ranged from 5.1 lifetime births per woman in Côte d'Ivoire to slightly more than 6.6 per woman in Guinea. Infant mortality rates ranged from a high of 124 deaths per 1,000 live births in Guinea to a low of 73 per 1,000 in Ghana. These countries suffer from severe poverty, short life expectancy, high rates of maternal mortality, rudimentary levels of primary medical care, cultural norms that place high value on the bearing of children and low contraceptive prevalence rates.

The introduction of family planning in any form and the adoption of national population policies by the government are at least partly due to efforts of nongovernmental organizations. In each of the country studies, the impetus was provided by a nongovernmental organization that either was, or became, an affiliate of the International Planned Parenthood Federation (IPPF).

Structure of Family Planning Services

Although there are substantial differences in the service provision structures of the five countries, there are also a number of similarities.

•Integration in public-sector service provision.

*Family planning services were not available in the remaining six regions of the country.

In all cases, public-sector provision of family planning services is currently integrated into the system for providing primary health care services, although the availability of services varies substantially.

Côte d'Ivoire is at one extreme. Until 1991, the government tolerated family planning activities but made no concerted effort to integrate family planning into the health care system. By 1994, only 70 of the 206 government facilities in four regions* offered family planning services, and most of those were affiliated with an external program: Seventeen were part of a United Nations Population Fund (UNFPA) Risk-Free Motherhood Program (which provided fully integrated maternal and child health services, including family planning), and about 37 were operated with some form of assistance from the Association Ivoirienne pour le Bien-Etre Familial (AIBEF), an IPPF affiliate.

The experiences of Guinea and Benin roughly parallel those of Côte d'Ivoire. Guinea did not adopt a national population policy or begin integrating family planning services into the public health care sector until 1992. By 1994, roughly two-thirds of public-sector facilities offered family planning. A large number of the facilities offering family planning services work in conjunction with the Guinean Association for Family Well-Being (GAFWB), the local IPPF affiliate.

As in the case of Côte d'Ivoire, there is a distinction in Guinea between purely public-sector facilities and public-sector facilities operated in conjunction with nongovernmental or other external organizations. As of 1994, out of more than 300 health centers, there were 95 GAFWB-government "pilot" clinics offering integrated family planning services and only 28 government clinics without GAFWB input offering these services.

Ghana was the first of the five study countries to accord any official recognition to family planning activities. A National Population Policy was adopted in 1969, and the Ghana National Family Planning Program was formed to implement the policy in 1970. As of 1989, 473 public facilities provided family planning in an integrated service environment covering all regions of the country, though coverage was more complete in urban areas than in rural areas.

Nigeria is a peculiar case, in that the public health services are provided under federal, state and local levels of government. Public-sector facilities in Nigeria generally provide family planning services in an integrated environment. According to a 1994 facility survey of 251 public-sector

facilities in five of Nigeria's 30 states, roughly 80% of public facilities at each level of government offered family planning services.¹⁴ A minority of government facilities employed a vertical service delivery system: Seven government facilities in Nigeria provided only family planning, and 16 provided family planning in a separate unit or department that had exclusive responsibility for family planning.

•*Vertical service provision and participation of nongovernmental organizations.* While the arrangements vary considerably, each country has a nongovernmental family planning service structure that runs parallel to the public system and that is more or less vertical in structure.

Planned Parenthood Association of Ghana (PPAG) operated 43 clinics in Ghana in 1989. Many of these clinics provided a variety of maternal and child health services in addition to family planning. Vertically structured family planning clinics are operated by the Planned Parenthood Federation of Nigeria (PPFN), but are relatively less significant in Nigeria than in the other study countries.

In the remaining three countries, these "family planning" nongovernmental organizations are not only involved in service provision, but also directly support family planning service provision within government facilities. This support varies across countries, but includes supplying contraceptives for government facilities, as well as providing management, supervision and technical assistance.

In Côte d'Ivoire, AIBEF directly manages family planning service provision in a number of government facilities and provides technical assistance in others. With the exception of the 17 government facilities assisted by the UNFPA Risk-Free Motherhood Program, almost no family planning provision occurs at government facilities where AIBEF is not involved. In addition, AIBEF operates seven of its own vertically structured clinics and assists in the distribution of contraceptives to these clinics and to most government clinics providing family planning services.

In Guinea, over three-quarters of the "public" clinics offering family planning services are operated by GAFWB, and much of the funding for these operations originates with IPPF. Over the period 1987–1994, 48% of total funding for Guinea's family health program originated with IPPF and 38% with the U.S. Agency for International Development (USAID). The IPPF affiliate in Benin, the Beninese Association for the Promotion of the Family (ABPF), operates three clinics

that are primarily vertical family planning facilities, although they offer prenatal and postnatal consultations. In addition, the ABPF provides contraceptive supplies and equipment to 80 public-sector clinics.

A final similarity is that most of the countries have a third system for family planning service delivery. This is a social marketing or community-based distribution program that utilizes private market mechanisms to distribute contraceptive supplies. These programs are also largely vertical in their organization. Social marketing and community-based distribution programs play an important role in service provision in several of the countries.

Distribution of Family Planning Output

Each facility within the various countries provides a different mix of family planning services, and the data are not always strictly comparable. However, we used couple-years of protection as a rough measure of the importance of each type of service structure within the various countries.

We constructed estimates of the total number of couple-years of protection provided in Benin, Côte d'Ivoire and Guinea at the national level.* For Nigeria, the data are based on survey results from 1995, and therefore cover only the surveyed facilities and are not nationally representative. Comparable calculations for Ghana are not possible, due to the limited data available.

The distribution and total number of couple-years of protection are presented in Table 1 by program type within each of the case study countries. The results emphasize the central role of vertically structured family planning service programs for these countries. With the exception of Nigeria, where a clear majority of family planning visits occur in government-run, largely integrated facilities, either a majority or a very large proportion of total family planning couple-years of protection are provided by the nongovernmental organizations or through social marketing or community-based distribution systems.

In Côte d'Ivoire, more than half of family planning visits that took place in a clinical setting were at the seven vertical AIBEF clinics, while only 3% of visits took place at government clinics not supported by AIBEF. For 1994, we estimate that more than 80% of couple-years of protection in Côte d'Ivoire were derived from AIBEF clinics and through the social marketing system, another 17% were provided by government clinics receiving AIBEF technical support and only 3% came from the fully integrated government clinics operating independently of AIBEF.

Table 1. Number and percentage distribution of couple-years of protection, by program source, according to country and type of method

Country and method	Vertical nongovernmental organization		Integrated governmental program		Social marketing/ other*		Total	
	N	%	N	%	N	%	N	%
Benin								
Clinical only	10,227	44.9	12,540	55.1	na	na	22,767	100.0
All methods	10,227	24.5	12,540	30.0	18,990	45.5	41,757	100.0
Côte d'Ivoire								
Clinical only	38,391	69.4	16,934	30.6	na	na	55,325	100.0
All methods	38,391	43.8	16,934	19.3	32,283	36.8	87,608	100.0
Guinea								
Clinical only	5,212	75.8	1,664	24.2	na	na	6,876	100.0
All methods	5,212	24.5	1,664	7.8	14,413	67.7	21,289	100.0
Nigeria								
Clinical only	26,019	18.0	101,297	70.0	17,272	11.9	144,588	100.0

*Includes community-based distribution. Note: na=not applicable.

In Guinea, roughly 24% of couple-years of protection were generated through GAFWB clinics, 68% were provided through the social marketing program and the remainder were provided through other government facilities. We estimate that 45% of the couple-years of protection from clinical methods in Benin were generated by the three ABFP clinics, while the other 55% came from approximately 400 government facilities.

The situation in Nigeria differs considerably from the other West African countries examined here. More than 70% of the couple-years of protection were generated at government facilities; however, as noted earlier, some of these facilities are actually vertical rather than integrated structures.

Facility Surveys

Proponents of integration argue that the combination of family planning activities with other services will increase the efficiency with which resources are used. To explore this issue, we examined staff utilization in a sample of facilities in Côte d'Ivoire and Nigeria. (This analysis was not based on an experimental design.†) In Côte d'Ivoire, we compared vertical facilities with integrated facilities operated by the government.

Methods

A series of survey instruments were used to collect information. Data on basic facility organization, including the availability of services, hours of operation, and management and organizational structure, were collected using a questionnaire given to facility managers. A facility inventory questionnaire was used to gather information on resources at the facility, including staffing, equipment and supplies, and physical space. Output sta-

tistics for both family planning and other activities were obtained directly from the facility records as part of the facility inventory. The facility managers were also asked how staff, space and equipment are allocated to family planning relative to the other activities at the clinic. Limited data were also obtained on service adequacy, including staff training, adequacy of equipment and infrastructure, and other data related to quality of care.

The last part of the survey included a detailed scenario analysis intended to collect information on how resources were

*In Benin, the data are based on contraceptive distribution of IUDs (assuming 3.36 couple-years of protection per IUD inserted) and total number of users for pills and injections (assuming one couple-year of protection for each user of a renewable method). ABPF provided data on condom and foaming tablet users, but the government facilities did not, so these methods are not included in the calculations of clinically produced couple-years of protection. The social marketing output is based on the distribution of condoms by the Benin Association for Social Marketing. All data are for 1994. The data for Côte d'Ivoire are based on contraceptive distribution in 1994 and the results of the facility survey undertaken in 1995. Government facilities assisted by AIBEF are included as government facilities. The Guinea data are based on an annual average for contraceptive distribution from 1987–1992 for government (integrated) and GAFWB (vertical) facilities. For both Côte d'Ivoire and Guinea, social marketing data are based on figures for contraceptive distribution from Population Services International.

†The facilities did not develop their delivery systems randomly; they are a result of the past history of policy, funding and operating decisions of the organizations involved. In the case of Côte d'Ivoire, this history includes the decisions of major donors (USAID and IPPF) to put their resources into expanding the vertical service delivery system through AIBEF; the decision of UNFPA to introduce their Risk Free Motherhood Program in a series of relatively small government clinics serving largely rural populations; and the decision of the government to largely leave family planning in government facilities to another organization. The situation in Nigeria is quite different. Within each operating authority, there are some facilities that are structured vertically and some that are integrated. Again, the systems observed are the result of the organizations' choices.

allocated to different services.* In this module, either the manager or the staff member most directly responsible for family planning service provision (and most familiar with procedures within the facility) was asked to describe the procedures and average duration of services of each type that were provided to various types of clients. These questions were asked separately for new and continuing clients and followed a hypothetical patient from initial registration through to final method acceptance. The total staff time required is based on the sum of time spent on patient registration, counseling, medical examination and family planning procedure or contraceptive distribution.

The sampling strategy varied by country. In Nigeria, five states (Anambra, Kebbi, Lagos, Osun and Plateau) were included in the survey. Four of the states were selected randomly from USAID focus-states, while the fifth was chosen from nonfocus states.†

Within each state, selection of facilities was based on sampling clusters used in the latest Demographic and Health Survey (DHS). A random DHS cluster was selected and all facilities listed in the health facility census for the local government authority that contained that cluster were included in the sample. Additional DHS clusters were randomly selected and the process repeated until we reached the target number of health facilities in each

*Scenario analysis is one of many possible approaches for estimating staff time. While other methods, such as observation-based approaches, may be more accurate, they are prohibitively more expensive when it comes to a large number of facilities. Further, there is a statistical cost in imputing the results of more accurate estimates from a small number of facilities to a larger population of facilities.

†Focus states are defined by USAID as states where USAID has invested resources. Their decision to invest resources is often a complex mix of coordination with other donor agencies and local government policies.

‡Additional details on the sampling procedures in the Nigeria and Côte d'Ivoire surveys may be found elsewhere (source: EVALUATION Project, 1997, reference 3).

§For example, if a nurse works 40 hours a week and requires 30 minutes to perform all tasks associated with an IUD insertion, the nurse may perform a theoretical maximum of 80 IUD insertions per week. If this nurse actually performs 60 IUD insertions in a week, the calculated staff utilization rate would be 75%. It is important to note that while the theoretical maximum staff utilization rate is 100%, there are any number of reasons for variation. First, no one in any organization spends 100% of their time performing their assigned tasks. There may be times when there are no clients waiting for services. There are procedures in which staff must work sequentially, and if a prior procedure (e.g. counseling or registration) has not been completed, a staff member may have to wait for the client. Finally, time requirements are not a fixed parameter; sometimes there will be complications, and a procedure will require more time.

state. Thus, the Nigerian sample can be considered a random sample of only the five states included in the study and not of the entire country.

In Côte d'Ivoire, family planning services were reported to exist in only four of the 10 regions of the country, and the survey was therefore limited to these four, relatively richer regions (South, North Central, West Central and North). A procedure similar to the one used in Nigeria was followed in Côte d'Ivoire, with the subprefecture being the local level of government employed to define the geographic region around the DHS cluster. Due to our interest in the vertical clinics, the DHS clusters closest to the seven clinics of AIBEF were automatically selected. The remainder of the facilities were chosen through a random sampling process. Clusters were randomly selected, and then we included all facilities in the subprefecture that contained the randomly selected cluster.‡

The facility surveys were conducted in Côte d'Ivoire and Nigeria in the late spring and early summer of 1995. A total of 100 facilities were surveyed in Côte d'Ivoire and 463 in Nigeria. However, only facilities that offered family planning services and that provided enough data to construct the variables needed for the analysis are included. This reduced the number of facilities in Côte d'Ivoire to 32, seven of which are AIBEF vertical clinics and 25 of which are government clinics providing family planning services in an integrated environment. For Nigeria, 209 facilities were included, 25 of which used a vertical structure of service provision. Of these, 162 were public-sector facilities—the majority (130) operated by local governments—41 were private and three were PPFN clinics.

Staff Utilization Measures

Staff costs represent a major portion of total family planning service costs. Three studies of total expenditures on family planning activities in Tanzania, Ghana and Côte d'Ivoire estimate that staff costs account for 30–45% of the direct costs of service provision.¹⁵ Further, of the inputs required to produce family planning, the efficient management and utilization of staff is likely to be most closely related to the average cost of providing output: An IUD that was paid for but not used this week can be used next week; however, 40 hours of medical staff time that are paid for this week but not used to any productive end are 40 hours of medical staff time that are lost forever.

Finally, in many poor countries, medical staff time is a binding constraint. The number of trained medical professionals is very limited, and increasing their number is much more difficult than obtaining additional supplies, equipment or even space. Thus, the efficient use of existing medical personnel is of critical concern in these areas.

For these reasons, we use staff utilization rates to measure the efficiency of service provision. We assumed that a particular procedure requires a certain average amount of staff time. The total available staff time is defined as the total number of hours the staff were employed by the facility. The total amount of staff time available over a specified period of time, such as a week, divided by the staff time required for a procedure represents the maximum number of procedures per week that the staff could perform if they devoted every minute of their time to that task.

The actual amount of output produced during the week divided by the maximum amount that could have been produced is the measure of staff utilization.[§] The concept becomes a little more complicated when there are multiple outputs that have different time requirements. Then, staff utilization rates can be calculated under the assumption that the mix of outputs produced remains constant.

Units of Analysis

The facility survey data from Côte d'Ivoire and Nigeria were used to construct four separate variables for analysis:

- *Family planning visit duration.* This was based on the facility manager's responses to the family planning scenario part of the survey. For each type of family planning visit, we cumulated the reported time requirements for all types of staff involved and all procedures performed (including registration, counseling sessions with the client, physical exams and provision of a contraceptive method). A weighted average of the time required for each type of visit was constructed, with the weights based on the actual composition of types of family planning visits at the facility. This variable can be interpreted as the average amount of staff time that would be spent by facility staff per family planning visit, given the current method mix of visits at the facility and the typical procedures used at the facility as described by the manager.

- *Family planning staff utilization rate.* We divided the actual number of family planning visits recorded at a facility by the maximum number of visits that could have been handled by the facility if all staff time were al-

located to family planning. The result can be interpreted as the ratio of visits the facility actually produces relative to the number of visits it could produce if all staff time were fully employed (given the time requirements for family planning visits and the composition of family planning visit types). This variable cannot, in and of itself, be interpreted as an efficiency measure for integrated clinics, since by definition it will decline as facilities provide more services to non-family planning clients. Rather, it is better interpreted as a facility-level family planning "effort" measure.

• *Total staff utilization rate.* We then divided the total number of visits (both family planning and non-family planning) by the maximum number of family planning visits that could be produced using all staff time. If the average time required for family planning and other types of visits were equal, this measure would provide an indication of the overall staff utilization.

• *Exclusively family planning staff utilization rate.* Finally, we divided the actual number of family planning visits by the amount of staff time devoted to family planning. (The denominator is derived from the ratio of the total hours of staff time devoted to family planning or related services to the estimated facility-specific average time per visit.) This measure may be the most accurate, but it can only be calculated in facilities where some staff are entirely devoted to family planning; thus, a large number of facilities had to be excluded from these calculations.

Results

The calculated values of staff utilization for the different types of facilities in Côte d'Ivoire and Nigeria are presented in Table 2. The Côte d'Ivoire facilities are divided into vertically organized AIBEF facilities and the integrated, multiple-service non-AIBEF facilities.* In Nigeria, many more facilities were included, and the table includes results on several different types of organizations: government facilities, PPFN clinics, and private providers. This allows us to compare the results for integrated and vertical service delivery structures across several types of organizations.

In Nigeria, government services are the largest category. However, this category is actually an aggregation of three distinct levels of government facilities. When we analyzed the three government levels as separate categories, we found no major differences in performance; thus, we have aggregated the categories here into a single government level.

Based on the procedures reported by

Table 2. Mean value of selected staff utilization measures, by program type, Côte d'Ivoire and Nigeria, 1995

Measure	Côte d'Ivoire		Nigeria				
	Integrated*	Vertical†	Government		PPFN‡	Private	
			Integrated	Vertical		Integrated	Vertical
Family planning visit duration							
Mean	19.73	14.98	31.58	35.33	28.45	12.07	15.88
Standard deviation	9.40	4.46	28.80	35.35	24.53	23.04	17.81
N	25	7	209	23	3	41	3
Family planning facility staff utilization rate							
Mean	0.07	0.97	0.05	0.07	1.20	0.04	0.13
Standard deviation	0.12	0.75	0.13	0.10	1.81	0.10	0.10
N	25	7	143	19	3	41	3
Total staff utilization rate							
Mean	0.53	1.00	0.70	0.82	1.29	0.19	0.17
Standard deviation	1.20	0.71	1.49	1.37	1.98	0.20	0.11
N	25	7	143	19	3	41	3
Exclusively family planning staff utilization rate							
Mean	0.28	1.29	0.11	0.21	1.20	0.14	0.15
Standard deviation	0.37	0.50	0.20	0.23	1.81	0.35	na
N	16	6	89	17	3	13	1

*Integrated facilities are those not affiliated with the Association Ivoirienne pour le Bien-Etre Familial (AIBEF). †Vertical facilities are those associated with the AIBEF. ‡PPFN operated only vertical programs. Note: na=not applicable.

the managers, the typical family planning visit required 15–30 minutes of staff time. In Nigeria, vertical facilities spent somewhat more staff time for a family planning visit than did integrated facilities under the same operating authority, although the differences were not statistically significant. In Côte d'Ivoire, this pattern was reversed, and the difference was marginally significant (at $p < .10$).

Overall, the Côte d'Ivoire scenario analysis suggests that the average amount of time required for the typical family planning service is 16.5 minutes. This figure is reasonably close to the 15 minutes estimated through observation methods in the Côte d'Ivoire situation analysis¹⁶ and provides some support for the data from our scenario analysis.

The Nigerian situation analysis suggests that the average duration for a family planning visit there is longer than in Côte d'Ivoire. The average unweighted duration of services across all program types in Nigeria was found to be 22 minutes in both the situation analysis and in our scenario approach. While there are clear differences between our results and those of the situation analyses in both countries, the differences are not unreasonably large. Thus, our scenario analysis numbers are reasonably consistent with estimates obtained from situation analyses conducted in Côte d'Ivoire and Nigeria.

The family planning staff utilization rate also shows a fairly consistent picture across the two countries and across operating authorities. About 4–7% of staff capacity is used for family planning service

provision at integrated facilities. (However, for Côte d'Ivoire, this applies only to government facilities that offer family planning; in the majority of government facilities in Côte d'Ivoire, no staff capacity was used for family planning.)

The data for Nigeria require some additional interpretation. The "vertical" facilities in Nigeria are primarily facilities that offer a variety of health services but have chosen to offer family planning services through a separate unit or department at the facility. The family planning staff utilization rates for the Nigerian facilities reflect the entire staff of the facility and not just the staff of the family planning unit.

The completely vertical facilities in the sample—the AIBEF facilities in Côte d'Ivoire and the PPFN facilities in Nigeria—both have staff capacity utilization rates at or above 100% for all measures. This means that the staff must be spending less time per patient than the amount reported as typically required for seeing a family planning patient. Thus, output could be increased at these facilities only by expanding the staff or by reducing the amount of time per visit.

The total staff utilization rates suggest that vertical facilities perform better than

*In Côte d'Ivoire, 29 government facilities did not provide family planning, but complete staff and visit data were collected. The average number of patients seen at these clinics per staff hour did not differ significantly from the average number of patients seen per staff hour at government clinics that provided family planning, offering some evidence that there are not large differences in the staff time required for family planning and non-family planning visits.

integrated facilities. In Côte d'Ivoire, if 20 minutes of staff time are devoted on average to a patient visit, there is enough staff time to see almost twice as many patients as are currently being seen. The large standard deviations indicate that many facilities have even greater excess staff capacity, while others are at their limits. This finding is not new, and is supported by situation analyses from both countries. (In Nigeria, for example, 19% of facilities served 75% of all clients in the sample.¹⁷)

In Côte d'Ivoire, the three measures we use to compare resource utilization consistently show that the AIBEF facilities (which are vertically structured) use their labor resources more fully than do the integrated programs. These differences are marginally significant ($p < .10$) and are seen regardless of whether we assume that all staff time is devoted to family planning (the family planning utilization rate measure) or whether we only consider staff time that is reported to be devoted to family planning (the exclusively family planning staff utilization rate). Even when the measure is combined to include family planning and non-family planning visits, the vertical facilities still appear to use their labor resources nearly twice as much as the integrated facilities, although, again, this difference is not statistically significant.

The results for Nigeria are more ambiguous, but generally support the conclusion that vertical family planning service structures use their labor resources more capably than do the integrated sites. (The only example of an opposite result is the total staff utilization rate for private facilities in Nigeria.) While five out of six measures suggest that the mean values are higher in the vertical facilities within each program type, the differences are mostly nonsignificant. (In most cases, the standard deviations are more than five times larger than the difference in the mean utilization estimates.)

In Côte d'Ivoire, it could be argued that the AIBEF facilities use their labor more efficiently because they are a nongovernmental organization, not because of the service structure. However, in Nigeria, the results indicate that vertical structures are more efficient in many of the government-run facilities. On the other hand, facilities may be targeted to particular populations in ways that would distort our findings. Clearly, further analyses of demand factors are needed.

The situation analyses also indicate that higher-volume facilities in both Côte d'Ivoire and Nigeria appear to be more efficient at handling their client loads. Thus, our staff utilization measures may overem-

phasize the impact of structure because they do not account for the client volume. When we examined the relationship between client volume and staff utilization rates in our data, we found some indication of a positive relationship, but it appears to make a difference only in the public-sector facilities of Côte d'Ivoire. Nevertheless, the importance of economies of scale deserves further analysis.

Finally, where integrated facilities employ a partial vertical structure in the form of assigning some staff exclusive responsibilities for family planning activities, the level of staff utilization appears to be quite low. This is true both in Côte d'Ivoire and in Nigeria.

Conclusion

Implementing the Cairo Programme of Action presents many challenges, given the magnitude of the resources needed to meet the objectives and the likely limitations of the available funds. Because a significant portion of the resources are expected to be generated locally, this challenge is greatest in the poorest nations, where the need is great and the capacity for self-financing is limited. Though the spirit of Cairo revolves around integrating family planning and other reproductive health services, our work suggests that vertical programs should not be automatically rejected.

In many cases, vertical service provision by a nongovernmental organization was a major (if not the dominant) source of family planning services, usually achieving this position with relatively few facilities. This was particularly the case in countries where the overall national family planning program was weak (Côte d'Ivoire, Benin and Guinea). In these same countries, social marketing programs also played an integral role in family planning provision.

If vertical programs generate more demand than integrated government facilities, it is unclear whether this results from higher quality services, greater organizational dedication or the weakness of the government service system. However, descriptive evidence from our studies suggest that all of these factors may be present.

A related issue is the allocation of resources among elements of the Programme of Action. The facility study suggests that rather than being less efficient, the vertical service providers (particularly the nongovernmental organizations) operated at equal or higher levels of efficiency than their integrated counterparts.

Finally, while a major advantage of integrating service provision is thought to be the elimination of duplicate adminis-

trative and overhead infrastructure, many of the study countries seem to be evolving in a reverse direction. Rather than having the government policy and administrative structure incorporate family planning into the existing bureaucracy, the vertical nongovernmental organizations seem to be expanding their administrative, logistical and technical support roles into the government facilities. In addition—and likely as a response to Cairo—IPPF affiliates appear to have begun to include non-family planning services, such as prenatal care, in their own clinics.

Our research has several limitations. First, the results pertain to a set of countries where contraceptive prevalence remains very low and where health conditions are very poor. Second, our study is a descriptive examination of family planning service delivery systems in five countries where family planning does not appear to be a strong priority for the governments and major portions of aid for family planning in these countries have originated from organizations with strong, specific interest in family planning. That much of this aid has gone into supporting programs that are, to a large degree, vertical in organization is not surprising.

Thus, while vertical family planning service structures appear to use their labor resources to greater capacity than do the integrated sites, the relative merits of different organizational forms almost certainly depend on the economic, social and political environment in which they are applied. Program structures need to be adapted to the local situation if the most is to be made of limited resources.

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Resumen

Contexto: El prolongado debate sobre los méritos relativos de la estructura operativa vertical o integrada para el suministro de los servicios de planificación familiar, ha adquirido una importancia renovada, particularmente en las regiones más carenciadas del África Occidental, debido al

mayor énfasis que se le asigna a los servicios de salud reproductiva en general.

Métodos: Se han utilizado estudios de caso (realizados en Benín, Côte d'Ivoire, Ghana, Guinea y Nigeria), así como encuestas de gran escala de instalaciones con medidas múltiples de la utilización de personal (en Côte d'Ivoire y Nigeria) para examinar la eficacia de las diferentes estructuras para la prestación de servicios de planificación familiar.

Resultados: Los programas verticales manejados por organizaciones no gubernamentales suministraron casi la mitad (44%) de los años-protección pareja en Côte d'Ivoire y cerca de la cuarta parte en Benín y Guinea. Cuando también se consideran los empeños de mercadeo social, los sectores no gubernamentales fueron responsables por la mayoría de los años-protección pareja. Sólo en Nigeria, los programas integrados ofrecieron la mayoría de los años-protección pareja de 1994. Las encuestas realizadas en las instalaciones de Côte d'Ivoire y Nigeria sugieren que las estructuras verticales de servicios de planificación familiar tienen una tasa de utilización del personal que alcanzan el 100% o más, y por lo tanto, utilizan sus recursos de trabajo en forma más eficaz que los lugares que cuentan con servicios integrados. En Côte d'Ivoire, por ejemplo, las tasas de utilización del personal son un poco más elevadas en los programas que funcionan en forma vertical que en los programas gubernamentales integrados; en Nigeria, los programas verticales también presentan tasas más elevadas de uso del personal, aún en los programas patrocinados y dirigidos por el gobierno.

Conclusiones: En los casos en que se dispone de ambas estructuras operativas, verticales e integradas, los programas integrados no son necesariamente mejores. Los méritos relativos de los dos enfoques dependen del entorno socioeconómico y político en que operan; por lo tanto, las estructuras óptimas de los programas pueden depender de la situación local.

Résumé

Contexte: Le débat de longue date sur les avantages relatifs d'une structure verticale ou intégrée des prestations de services de planning familial

revêt aujourd'hui une nouvelle importance, dans les régions pauvres d'Afrique occidentale, notamment, face à l'accentuation générale des prestations relatives à l'hygiène de la procréation.

Méthodes: Des études de cas menées en Côte d'Ivoire, au Nigéria, au Bénin, au Ghana et en Guinée, ainsi que de vastes études d'installations soumises à plusieurs mesures d'utilisation des effectifs, en Côte d'Ivoire et au Nigéria, servent à examiner l'efficacité de différentes structures organisationnelles de prestation de services de planning familial.

Résultats: Les programmes verticaux gérés par des organisations non gouvernementales assuraient près de la moitié (44%) de l'ensemble des années-couple de protection contraceptive en Côte d'Ivoire, et environ un quart au Bénin et en Guinée. Compte tenu des efforts de marketing social, les secteurs autres que les programmes intégrés du secteur public assuraient la majorité des années-couple de protection. Le Nigéria s'est avéré le seul pays où les programmes intégrés assuraient la plus grosse partie des années-couple de protection en 1994. Les études d'installations menées en Côte d'Ivoire et au Nigéria semblent indiquer des taux d'utilisation de capacité d'effectifs égaux ou supérieurs à 100% dans les structures de prestations de planning familial verticales, qui semblent ainsi exploiter plus efficacement leurs ressources de main-d'œuvre que les sites intégrés: les taux d'utilisation du personnel sont un peu plus élevés dans les programmes verticaux privés de la Côte d'Ivoire que dans les programmes intégrés du secteur public. Au Nigéria, les programmes verticaux présentent également des taux d'utilisation un peu plus élevés, même dans les programmes du secteur public.

Conclusions: Dans les pays disposant de programmes verticaux et intégrés, les programmes intégrés ne sont pas nécessairement supérieurs. Les mérites relatifs des deux approches dépendent presque certainement du contexte socio-économique et politique de leur application. Ainsi, les structures de programme optimales pourraient bien dépendre de la situation locale.