



Policy Brief

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Cost Effectiveness Analysis of Family Planning Provision in Thika District, Kenya

By
Mercy Mugo

Context, problem and issues investigated

Millions of individuals and couples around the world are unable to plan their families as they wish. In Kenya total fertility rate (TFR) and the contraceptive prevalence rate (CPR) have shown marginal changes since the 1990s. The TFR stood at 4.9 children per woman in 2006 and this had remained almost constant since 1995, while the CPR has stalled at 39% since 1998. However, preliminary findings from the KDHS-2008 indicate that CPR has risen to 46% and TFR declined to 4.6 children in 2009, although unmet need in family planning (FP) remains high. Nationwide, only 40% of women give birth in a health care facility with maternal mortality standing at 414 maternal deaths per 100,000 live births. Maternal morbidity and mortality jeopardizes the health of the unborn and newborns. Reproductive health (RH) needs and rights of adolescents have received relatively little attention to date.

These trends together with under-achievements in other RH areas are worrying and raise pertinent questions about efficiency and effectiveness of provision of RHC. RH problems such as unwanted pregnancy and maternal morbidity and mortality are important problems in terms of magnitude and impact on health. These problems can be reduced significantly in a cost effective manner and with relatively few additional resources with available knowledge and technology. It is envisaged that good indicators on RH areas relate to how provision is organized, managed and delivered. Ideally, choice of organizational form, management system and delivery mode for the provision of RH services should be driven by the quest for technical and allocative efficiency. While the different provision models present different advantage and disadvantages, their efficiency and effectiveness in RH provision and uptake have received little attention especially in Sub-Saharan Africa (SSA). Resource constraints facing most health care systems call for efficiency and effectiveness in the use of the available resources. The broad aim of this study was to conduct a cost-

effectiveness analysis (CEA) of the FP provision models found in Thika district to gain insights into their efficiency in resource use and promotion of FP uptake.

Family planning is one of the RH services that has positive influence on the social welfare and health of the mothers and directly contributes to reduction of maternal morbidity and mortality. Family planning is an important component of women's health services. However, indicators of achievements of FP programs countrywide are wanting. Possible explanations may lie in lack of effectiveness and efficiency on part of the service provision models. Resource constraints facing most health care systems call for efficiency and effectiveness in the use of the available resources. However, there is paucity of studies attempting to evaluate the costs and effectiveness of the service delivery models in the SSA setting, thereby limiting these countries' leverage in evidence-based decision-making on resources use for FP. This study conducted a cost effectiveness analysis of provision of FP services under the selected reproductive health provision models and suggests policy recommendations on provision models that promote uptake and use of FP services.

Methods of analysis

This study used data collected from a sample of health facilities in Thika district, Central Kenya to conduct a CEA of the FP provision models found in the district. Thika is one of the seven districts in Central Province of Kenya. The district has 101 static health facilities with diverse ownership including the government (GOK, 40.5%), mission or faith-based (FBO, 6.8%) and private-for-profit (PFP, 42.6%). District specific reproductive health data are scanty as the Province is the lowest level of analysis in the KDHS. Central Province, the proxy for Thika district, was the best performing in contraceptive usage in the last two KDHS of 1998 and 2003, recording nearly a 10% increase in CPR while the national average stagnated. Choice of Thika district provides the possibility of encountering different FP provision models. It would also provide explanation for both the success and failure for RH provision since it is located in the best performing province in terms of CPR and fertility rate reduction in Kenya.

Through a combination of targeted interviews with service providers (facility and program managers), exit interviews with service users and record reviews, explanatory factors for accessibility, availability and utilization of FP services in Thika district were studied within the context of the comparative service provision model. Accessibility of family planning services was assessed from provider and client perspective. Accessibility was considered in terms of five dimensions namely geographic or physical, economic, administrative, cognitive and psycho-social. Evaluation of each dimension was based on a few selected indicators relevant to each.

Availability of FP services was also evaluated from the provider and client perspective. Facility and programme managers were asked to indicate whether various FP methods were provided regularly, on special arrangements or not at all. They were also asked to indicate the state of availability on the day of interview and in the last six months. Availability of guidelines and protocols and how often FP Information, Education and Communication (IEC) materials were used and shared with clients was also evaluated. Clients were asked to indicate their knowledge of availability of FP methods in their facilities of choice, reasons for choice of facility, whether preferred FP method was available and offered on the day of visit. Quality of service was evaluated through client's perception of treatment by staff, whether staff sufficiently provided required information as well as IEC to guide FP method choice.

To determine utilization of FP methods, facility and program managers provided service utilization statistics for the year 2006 and 2007. In addition, clients were asked to indicate which FP methods they received on the day of interview as well as one used in the last one year. Factors such as residence, socio-economic and demographic characteristics, level of education, occupation and knowledge about specific FP services were interacted with accessibility and availability to identify which ones encourage or discourage FP use within the comparative provision models.

Cost-effectiveness analysis informs resource allocation decisions in health and medicine. It is a method designed to assess the comparative impacts of expenditures on different health interventions (Gold et al. 1996). It is based on the premise that *“for any given level of resources available, society.....wishes to maximize the total aggregate health benefits conferred”* (Weinstein and Stason, 1977 in Gold et al. 1996). CEA is one form of full economic evaluation where both the costs and consequences of different health programs are examined (Drummond et al. 1997). In CEA, health outcomes are expressed in physical units. It seeks to answer the question, *“given that it has been decided that a certain goal is to be achieved, which is the least cost way of doing so?”* (Donaldson, 1998). Therefore, CEA always involves comparison of at least two options with the same goal (or the same budget). In it, the alternative with the lowest cost-effectiveness (CE) ratio is best. CEA therefore deals with issues of technical efficiency although theoretical arguments exist that it can also address allocative efficiency through cost utility analysis (CUA) (Birch and Gafni, 1992; Donaldson, 1998), a special case of CEA. CEA of FP provision models followed the methodologies in Drummond et al (1997), Gold et al, (1996) and Garber (2002).

There are two main types of service providers in Thika district, namely the government (GOK) through the Ministry of Health (MOH) and non-governmental organizations (NGOs) comprising of PFP) and FBO This study conducted a CEA of the two alternative programmes of providing FP services using a purposively selected sample of health facilities from each provider type. Three questionnaires were

constructed to facilitate data collection. The first questionnaire administered to 25 purposively selected health facility managers was designed to capture information on utilization patterns of FP services from the providers' perspective. The second was an exit interview schedule, administered to 200 opportunistically selected FP clients. This questionnaire captured information on the client's socio-demographic characteristics, accessibility, availability and utilization of family planning services as well as the risk factors for family planning outcomes. The third questionnaire captured information on inputs and outputs of providing family planning services. This questionnaire was administered to health facility managers to facilitate quantification and costing of fixed and recurrent inputs in the two programs. Nine facilities representing the two provision models comprised the sample.

Data on prices and physical quantities of inputs were used to compute the costs of running each facility within the provider type. Standard costing procedures (Drummond et al. 1997, Gold et al. 1996 and Garber, 2002) were employed to cater for discounting, annualization, allocation of shared costs and uncertainty. Using information on the utilization or volumes of the different FP services used, (CYP) were computed for each facility within the provider programme. Costs and consequences or effects of the two programmes were evaluated and CE ratios computed by dividing the total costs by the effects .i.e. number of FP contraceptive users and CYPs. CE ratios were computed and a sensitivity analysis conducted to cater for uncertainty (Garber, 2002) and determine the robustness of the CEA ratios.

Key findings

The findings show that availability of FP methods was good in Thika district for the commonly used FP methods such as oral contraceptives, male condoms, injectables, intra-uterine devices (IUDs) and implants. Emergency contraception was mostly available in PFP providers. Foaming tablets and female condoms were hardly available. Both male and female sterilization were available on special arrangements in GOK and FBO facilities, an indication of poor availability amongst the three providers. The general observation is that there is higher availability of FP services in GOK and PFP compared to FBO providers, an indication that GOK facilities can be used to deliver RH services to the poor. However, findings suggest that methods such as emergency contraception and long-term FP methods were not adequately available, limiting access to some population groups.

Accessibility was considered good based on five selected dimensions namely; geographic or physical, administrative, economic, cognitive and psychosocial accessibility. About 53% and 47% of FP clients walked and used public transport reach facilities respectively. Among those using public transport 77% paid less than Kshs.20 in fare, an indication of short distances to facility. The mean distance to a facility within the district was 3.98 Kms. About 91% of clients took less than 30 minutes to

reach the facility irrespective of means of transport, with the overall mean time to reach facility being about 18 minutes. All the three providers were accessible for FP provision all day for five days a week, with an average duration of 9.22 hours open time. About 96% of the clients across the three providers indicated that they could obtain FP services any time of the day, all days of the week. In general NGO facilities are more accessible compared to GOK.

All clients visiting PFP and FBO providers were required to pay some fees for FP services, compared to 90% in GOK facilities. The FP service components commonly paid for were FP commodities, consultation and registration card and this constituted roughly 2% of their earnings. Results showed that the proportion of clients seeking FP services from GOK program declined with rising incomes while use of either the FBO or PFP increased with rising income, implying that choice of provider was influenced by ability to pay. Since majority of clients indicated ability to pay, economic accessibility was not considered a limiting factor to FP use. Cognitive accessibility, assessed in terms of client awareness of FP method availability in their facility of choice was at about 94%.

Aspects of psychosocial nature such as privacy, discrimination, client-provider interaction and use of IEC during such interaction and clients' psychological fears related to use of method were evaluated amongst clients and providers. Psychosocial accessibility was deemed good for the majority of clients and providers. Some psychosocial issues included side effects, convenience in use, issues of affordability (especially for IUDs and implants) and social cultural perceptions or myths associated with particular FP methods, which could act as barriers utilization.

Most FP users were young (mean age=28.6, SD=4.8 and range=19-42 years), married (86%), with both secondary (47%) and primary (41%) education. It was observed that the proportion of clients who visited GOK decreased as education level rose while the proportion visiting FBO and PFP increased with increasing education level. Income levels low (69% had monthly incomes of up to Kshs.5000). Utilization of FP services decreased with increasing incomes among GOK providers, while it increased with increasing incomes among the FBO and PFP providers. About 83% of clients resided in rural villages and rural towns and tended to seek FP services from GOK. Results revealed that age and marital status had no statistically significant influence on provider choice. However, level of education, incomes and place of residence were statistically significant in influencing the choice of provider. Those with higher incomes and education and resided in urban towns were more likely to seek services from PFP providers as opposed to GOK and FBO providers.

The total cost structures among the GOK facilities fits in with the expectation that higher level facilities have higher cost experiences. However, this expectation was not observed for the NGO facilities. This draws the conclusion that NGO providers have unique cost experiences and this appears to be driven by the relative resources

allocated to FP activities. Recurrent costs dominate the cost structures of all the facilities with personnel and FP commodities costs dominating the cost structures for both GOK and NGO providers. However, the combined share of personnel and FP commodities cost was lower in NGO compared to GOK providers. That the proportions of the dominant inputs varied widely across facilities and bears little relation to the output leads to the conclusion that there exists areas where costs can be saved and thereby enhance efficiency in FP provision. For example, Boore's clinic has the highest output, but its personnel cost contribution total compares with some of the facilities with the lowest output. On the other hand, Munyu HC whose personnel cost contributes to 80% of the total has very low output. Such cost savings could be deployed in increasing provision of FP services thereby improving RH health of the population or they can be deployed in wealth generating activities that could contribute to poverty reduction.

The proportion of FP output relative to total facility output was relatively low in GOK facilities in comparison with the NGO medical clinic and dispensary. With exception of Boore's MC that had the highest volume of clients, other NGO facilities served fewer clients compared to the GOK facilities. The same pattern obtained in respect of CYP output. Also, NGO facilities mostly provided long-term FP methods (Jadelle implant and IUD) that contribute to more CYPs as opposed to GOK providers where contribution from the long-term methods was limited and rather erratic. However, Depo-Provera emerges as a popular method of choice across both providers, judged by its high contribution to CYP.

Costs per CYP varied widely across facilities within GOK and NGO providers, and were relatively higher compared to cost per client (Tables 1 and 2). Cost per CYP also appeared slightly higher amongst the GOK facilities, suggesting that they were relatively less efficient compared to NGO facilities. Relatively, the most efficient facilities in providing CYP were dispensaries and a medical clinic for both GOK and NGO providers. This calls for strengthening of capacities of lower level facilities to enhance FP provision efficiency. For example, long-term FP methods could be made available in lower level facilities, most of which are located in rural settings, thereby improving geographical access to the rural poor.

Tables 1: Cost Per Client by Facility: 2006 & 2007

Provider Type	Facility Name	2006	2007
GOK	Gatundu DH	782	742
	Munyu HC	804	985
	Igegania HC	700	772
	Kiunyu D	306	340
	Gatunyu D	329	260
NGO	Mt. Sinai H	1,497	1,941
	Plainsview H	1,459	962
	Boore's MC	251	234
	PCEA Kimunyu D	537	213

Tables 2: Cost Per CYP by Facility: 2006 & 2007

Provider Type	Facility Name	2006	2007
GOK	Gatundu DH	1,911	1,581
	Munyu HC	3,638	4,233
	Igegania HC	1,753	1,923
	Kiunyu D	768	906
	Gatunyu D	1,235	924
NGO	Mt. Sinai H	3,409	3,293
	Plainsview H	2,052	1,814
	Boore's MC	861	795
	PCEA Kimunyu D	1,930	690

Given that provision of reproductive health services in Thika district is highly integrated with substantial decentralization of differing degrees and considering the cost per CYP across providers, the findings seem to suggest slightly higher level of efficiency amongst the NGO providers, especially where the proportion of FP activity in relation to total facility output was high. There appears to be some negative relationship between the proportion of volume of FP output and the cost per CYP as illustrated by Boore's MC.

Sensitivity analysis showed that the CEA ratios were most sensitive to exclusion of FP commodities costs. This underscores the importance of this cost item in FP programs especially in consideration of sustainability of the programs in the face of declining donor support. It also implies that making FP commodities widely and freely available

by the government would substantially reduce the costs of FP provision by both GOK and NGO providers and possibly enhance more provision and use.

That sensitivity to both discount rates was minimal, suggests that CEA ratios were robust irrespective of the discount rate used. However, further analysis may be required to establish sensitivity to zero discount rate. It would appear that the extent of sensitivity of the ratios was also related to the magnitude of the proportion of the fixed inputs cost to the total cost. As such, when there is sufficient evidence to suggest that the proportion of fixed costs to total costs is negligible, fixed costs can be omitted from the CEA analysis.

Thika was chosen for study as one of the best performing districts in Central province in terms of CPR levels and improvements of the same between 1998 and 2003. The study found that the RH provision model in Thika tends more towards integration and decentralization, though to differing degrees among GOK and NGO. It can therefore be argued that the FP provision model existing in Thika is efficient. However, there is always room for improvement.

Policy recommendations

Socio-economic characteristics such as incomes, education and place of residence influence provider choice. A large proportion of the population resides in the rural areas, has lower incomes and education levels. To the extent that this population group largely utilizes GOK as a provider of FP services, presents a case for search for more innovative methods to reach them. This could be through a revival of the long-dead, but effective Provide in full (CBD) mode of delivery as well as encouragement of use of long-term FP methods. Inadequate availability of long-term FP methods, emergency contraception and stock-outs of some FP methods calls for strengthening procurement and supplies of FP commodities especially among GOK facilities as they also cater for the majority most of whom are vulnerable groups.

That the proportions of the dominant inputs varied widely across facilities and bears little relation to the output leads to the conclusion that there exists areas where costs can be saved and thereby enhance efficiency in FP provision. While strengthening the lower level facilities, program managers should strive to identify areas of cost savings in their facilities and rationalize the costs. Such cost savings could be deployed in increasing provision of FP services thereby improving RH health of the population or they can be deployed in wealth generating activities that could contribute to poverty reduction.

To the extent that CE ratios were sensitive to costs of FP commodities, which are largely donor financed, draws the recommendation that the government needs to rethink financing of these commodities to ensure sustainability and stability of FP

programs and keep in line with its population policies in the event of declining donor support or withdrawal.

The observed negative relationship between the proportion of volume of FP output and the cost per CYP as illustrated by one private clinic draws some curious policy implication regarding the relative importance accorded FP in the integrated model and the consequent efficiency in resource use. This private clinic, exhibiting vertical organization (derived from proportion of FP to total output (>50%)) and largely decentralized in management and decision-making has the lowest CER. The policy implication from this finding is that FP provision would appear more cost effective in a vertical decentralized setting and therefore calls for government rethinking FP provision model in Kenya. However, that this is only one facility may not be basis for generalization, but it raises important policy questions regarding provision of FP in an integrated setting.

The study concludes that the FP provision models found in Thika are efficient given that the district is one of the best performing, but calls for strengthening of lower level facilities, which were relatively more cost effective and largely serve the poor rural populations.