Cost Efficiency Analysis

Distributing Family Planning Materials

Allowing women and their partners to choose the size of their families and the timing of births is critical to reducing maternal and child mortality rates in humanitarian contexts. Research indicates that short birth spacing is associated not only with elevated risk of maternal death, but also increased neonatal, infant and under-five mortality, and child malnutrition. Family planning (FP) is an effective strategy for addressing these public health issues. The IRC makes a wide range of family planning methods available to clients, including short-acting methods, such as oral contraceptive pills and injectables, long-acting methods, like implants and IUDs and permanent methods, such as tubal ligation and vasectomy.

This analysis examines four family planning programs in the Democratic Republic of the Congo (DRC), Kenya, Liberia, and Myanmar, and considers the cost efficiency of delivering family planning services in each case. Rather than looking at the cost per person served, the analysis focuses on the cost per couple-year of protection (CYP), reflecting variations in length of efficacy and continuation of use of different FP methods. The analysis examines the ingredients necessary to implement such programs, establishes how much those programs cost per couple-year of protection provided, and considers the causes for differences in the cost-efficiency of such programs across these four countries.

- **The cost efficiency of these four programs averaged $47 per couple-year of protection, which given fertility estimates suggests that it costs around $188 for every unintended pregnancy prevented.**[1] These costs can be thought of relative to the costs they help to avoid, particularly the high maternal and child mortality that are associated with unintended pregnancies in humanitarian settings.

- **The majority of resources for these family planning programs go into the community engagement, training of health care workers to provide services, and ensuring the infrastructure is in place in health systems to facilitate distribution.** In many contexts the cost of the actual family planning method is provided in-kind or can be procured through government health operations. But despite theoretical availability of family planning services, take-up remains low in many humanitarian and development contexts. Thus, FP programming must address not only the provision of FP commodities, but the knowledge gaps about the value of using family planning, and the ability of health workers to deliver high quality services.

- **The cost efficiency of family planning distributions depends heavily on the mode of family planning services provided.** The amount of staff time and resources spent in community engagement, training of health workers, and support to health facilities varies for different contraception methods. For example, a surgical procedure such as a tubal ligation will require more highly trained staff and specialized equipment than the simple distribution of oral contraceptive pills. Additionally, some methods are more effective at preventing pregnancy than others and can prevent pregnancy for different lengths of time.

- **The cost structure of these programs suggests that interruptions in funding—which require new investments in building up infrastructure and establishing trust with communities when programming restarts—will dramatically lower the cost efficiency of family planning programs.** Ensuring good value for money in reproductive health programs happens not only in the design of individual programs, but also in the design of funding mechanisms and timelines.

[1] Darroch, Jacqueline and Susheela Singh. 2011. "Estimated the Unintended Pregnancies Averted from Couple-Years of Protection (CYP)". The Guttmacher Institute.

Providing Family Planning Methods

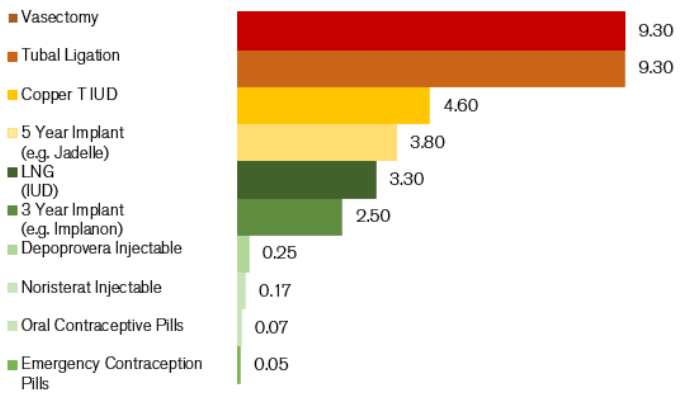
This analysis covers four grants that funded family planning programs in four countries. Each of these grants funded short-acting, long-acting and permanent family planning methods for clients, including: Oral Contraceptive Pills, Injections, Implants, Intra-uterine devices (IUDs), Tubal Ligation, Vasectomy, Emergency Contraception Pills, and Female and Male Condoms. The mix of FP methods chosen by clients will vary by context, based on the baseline competency of health system, policies that either prevent or promote the widespread availability of the full range of FP methods and the beneficiaries' familiarity with and preference for particular methods.

For each program in the analysis, IRC staff collected data from narrative documents, log frames, and expense reports to identify all necessary 'ingredients' of family planning provision. Resources that were not used to support FP distributions were taken out, and for each remaining ingredient staff recorded the unit cost and the number of units needed. For programs that produced multiple outputs—for instance, the program in Myanmar also provided post-abortion care—staff estimated the proportion of each resource that was relevant for the family planning distribution, rather than the other activities under that program.

Across the four IRC programs studied, there is a wide range in the number and types of FP methods distributed, versus the couple years of protection provided. For instance, by increasing the number of FP methods by around 8,000 in DRC compared to Myanmar, CYP increases of more than 300% going from 11,973 to 49,445.This reflects the fact that long-acting methods were taken up at a higher rate in DRC, relative to Myanmar (see Table 1).

One of the primary reason for the difference in methods used between the two countries is that the government in Myanmar restricts who can provide implants, so these

Figure 1. Couple-Years Protection by Method



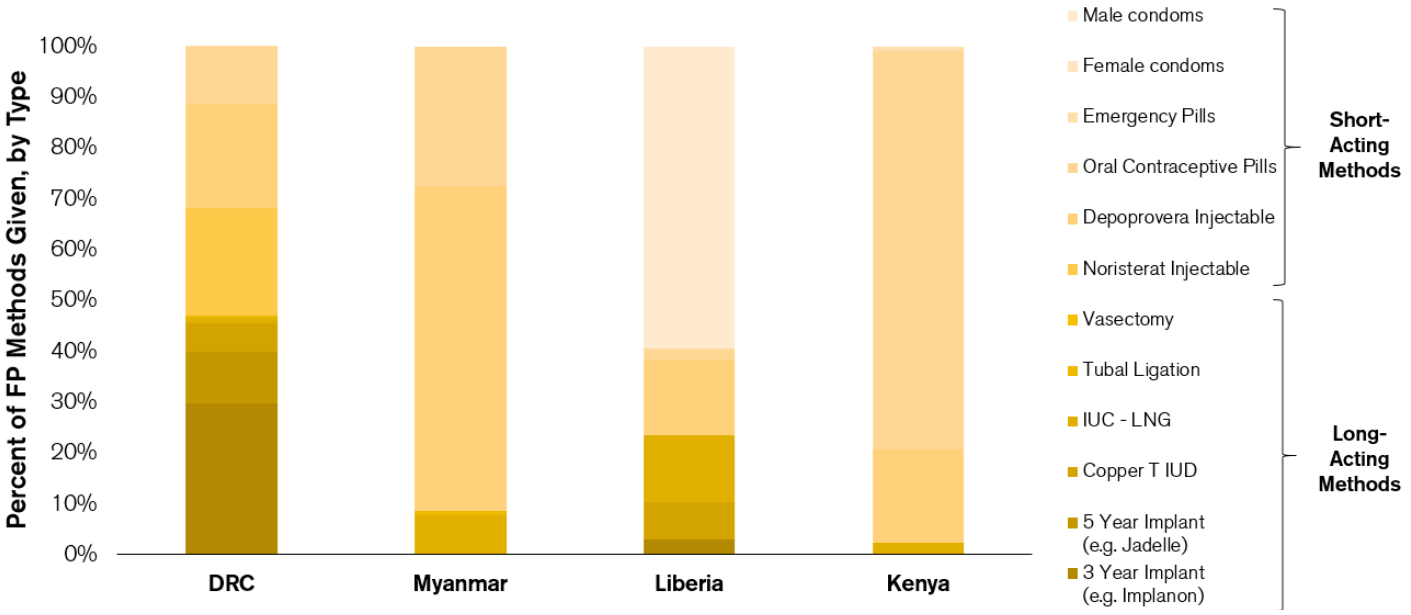
weren't available in the program during the assessed period. IUDs were the only long-acting method available at the time, and more clients opted for injectables. In Kenya, most of the FP methods provided were short acting. Aside from the preference for short acting methods, the number of FP methods distributed was half of DRC reflecting a difference in program quality and size. It's interesting to note that clients are required to visit health facilities both to start and to continue short-acting methods (typically every three months), so distance to the nearest facility could affect method choice in favor of long-acting methods because these do not require quarterly visits.

There are several benchmarks by which family planning services are measured. The number of new acceptors of family planning tells us the number of clients who *start* family planning methods in IRC-supported health facilities. However, since family planning services provide varied lengths of protection and continuation of use varies across methods, public health experts have developed a conversion method based on the number of methods distributed and the amount of time that each method prevents pregnancy, which takes the number of acceptors and converts to the "couple years of protection" achieved.

Table 1. Programs Included in the Analysis

Program	Start Date	End Date	Number of FP Method Provided	Couple-Years of Protection Provided
DRC	January 2015	December 2015	31,125	49,445
Myanmar	January 2015	December 2015	22,814	11,973
Liberia	July 2014	June 2015	118,191	16,479
Kenya	January 2015	December 2015	14,957	1,567

Figure 2. Mix of Family Planning Methods Distributed, by Program



Among programs in the analysis, there was variation in the proportion of costs dedicated to support vs. program functions. Beyond the health staff or facilities required by a family planning program, such operations also require general support staff in order to work: finance managers, grant administrators, procurement coordinators, etc. The proportion of costs dedicated to support costs, versus program costs, ranged from 25 percent in Myanmar to almost 50 percent in the Liberia program. More than 40 percent of support costs in Liberia were dedicated to International Staff, who are more expensive than National Staff, explaining why support costs were higher in dollar value and proportion for this country.

Figure 3. Support vs. Program Costs of FP Programs

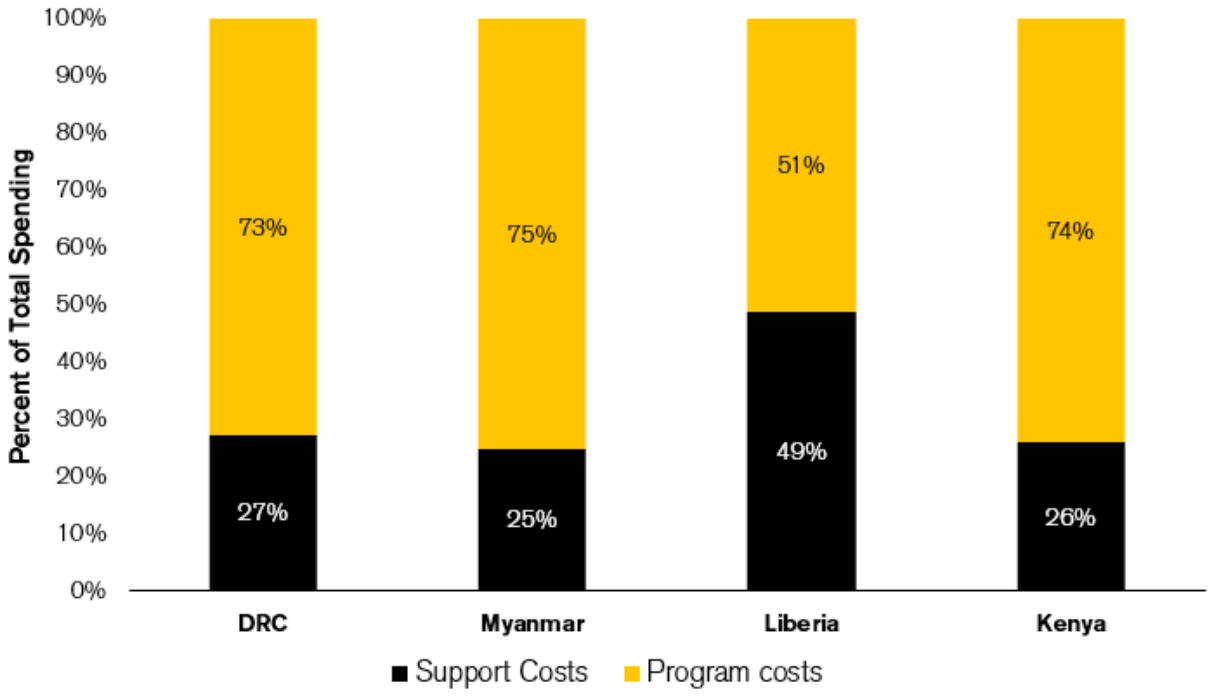
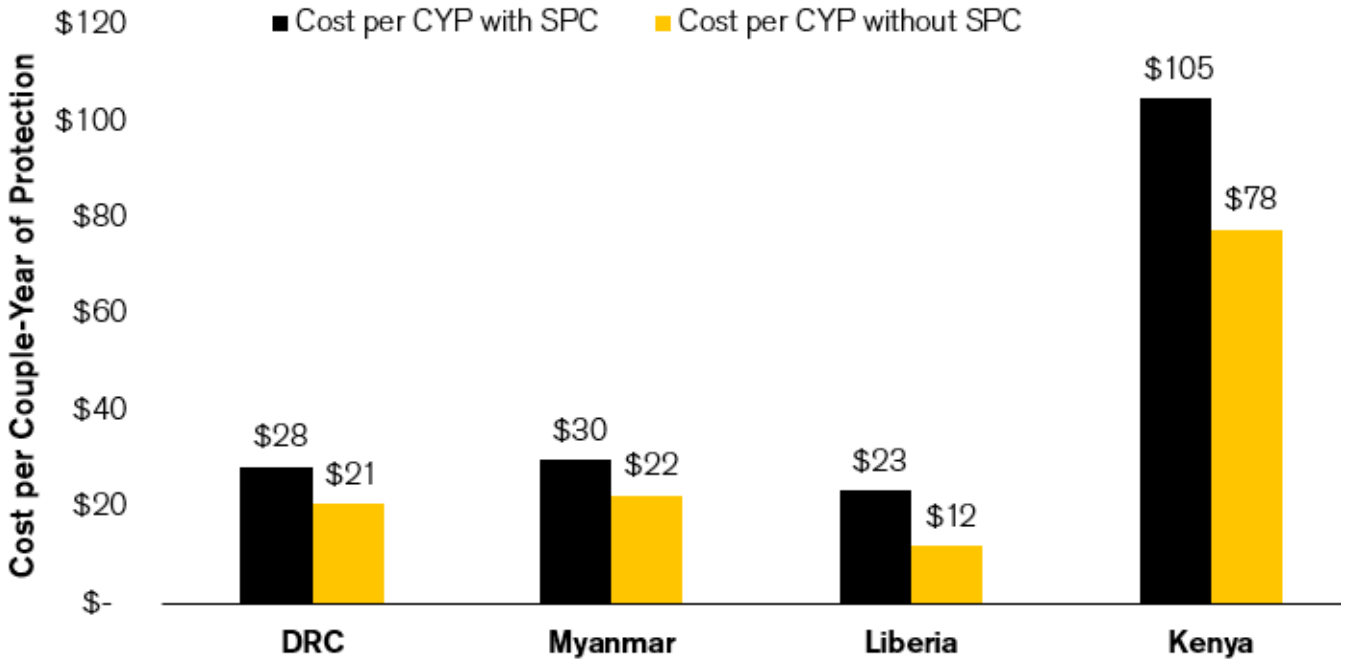


Figure 4. Cost per Couple-Year of Protection from Family Planning Programs



Comparing costs to the number of years of contraception coverage they created, these four programs ranged between $12 and $78 per couple-year of protection, when support costs were excluded. With support costs included, the cost per CYP ranged from $23 to $105 per CYP. These figures can be thought of in relation to the costs of the unintended pregnancies that family planning helps to prevent. Experts estimate that one out of every four years of unprotected sex will result in an unintended pregnancy in the developing world , this suggests that it cost the IRC only $188 on average per unintended pregnancy averted.[2]

Past tudies have shown that different family planning methods can achieve quite varied cost efficiency, because they provide protection for different periods of time and require different resources to administer . This helps to explain some of the variation in cost efficiency across the four countries examined—in refugee camps in Kenya, acceptance of contraceptives was low and those FP methods that were distributed tended to be short-acting methods. Low acceptance of contraception means that the IRC was able to distribute fewer FP methods through the health infrastructure—driving down the ratio of outputs to costs. And the skew toward short-acting methods means that even when women received contraception, fewer couple years' protection were gained.

Basic principles of cost efficiency suggest that the average cost of couple-year of protection falls as the number of couples served rises. Cost efficiency calculates the total costs of distributing family planning services, compared to the number of program outputs (in this case, the couple-years of protection provided). If the program reaches more people, or those people select longer-acting FP methods, then "fixed costs" of support functions like HR and procurement will be spread across more outputs.

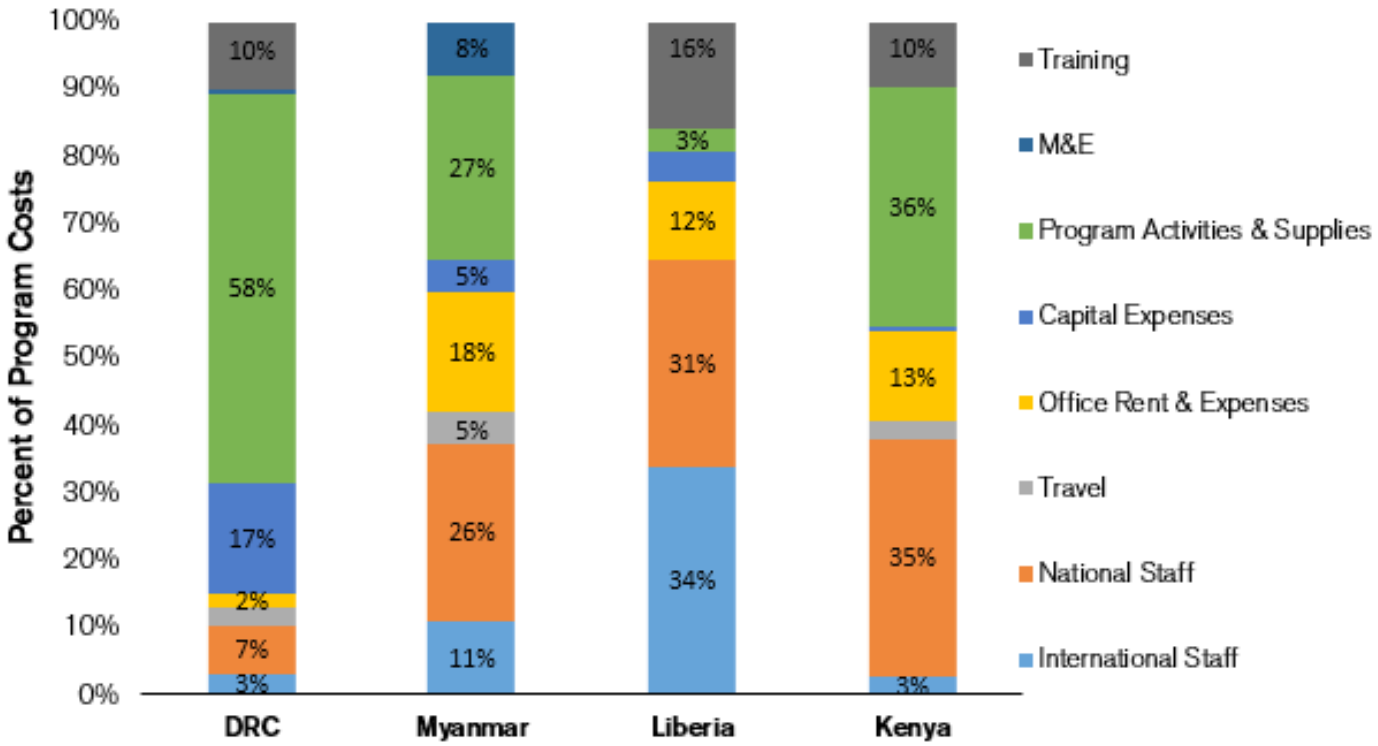
For family planning programs, "scale" can mean both the number of people served as well as the number of couple-years of protection provided to them. This means that scale can be achieved in two ways—both in serving more individuals, and in providing longer lasting contraception to the individuals who are served. Permanent family planning methods require specialized staff or facilities to administer, and in some of the contexts in which the IRC works such staff and facilities are simply not available. As such, the IRC may face higher-than-average costs to distribute permanent family planning methods, because implementing such programs also requires the IRC to provide addition equipment and training in humanitarian contexts. However, as noted above, permanent methods produce more CYPs, decreasing the cost per output.

[2] Graph reference: because of marked differences in CYP for sterilization by country and by region (based on differences in median age at sterilization), countries should use the median value for their region (assuming their data on age at sterilization conform to those of the region). In this case, CYP for vasectomy was 9.3.

In order to achieve the maximum possible scale, and the corresponding increase in efficiency, family planning programs need to fund more than staff and medical supplies. The DRC program provided the highest number of CYP of all of the programs in this brief, and in order to achieve such large scale the program funded not only medical and outreach staff, but also rehabilitation of health facilities' rooms and extensive staff training. Additionally, the majority of clients in the DRC accepted long-acting methods, the provision of which requires more training and support than short-acting methods, which were included in the program activities cost category.

Thus, while the costs of training and facilities rehabilitation were high, they were outweighed by the large scale that these investments allowed the IRC to reach. Not only were many individuals reached, but these individuals were able to choose long-acting methods of contraception because of the available facilities and staff.

Figure 5. Breakdown of Program Costs



Cost Analysis at the IRC

The IRC is committed to maximizing the impact of each dollar spent to improve our clients' lives. As the IRC's CEO wrote in a 2015 article in *Foreign Affairs*, "Donors need to not just double the amount of aid directed to the places of greatest need but also undertake reforms that seek to double the productivity of aid spending." The Best Use of Resource initiative is focused on improving the reach and impact of the IRC by using internally available data to better understand the cost of delivering key IRC interventions. Generating evidence about cost efficiency and cost effectiveness will enable the IRC to cost and compare different approaches and their related impact, ultimately allowing decisions that achieve the best use of resources.

"Cost efficiency analysis" compares the costs of a program to the outputs it achieved (e.g. cost per latrine constructed, or cost per family provided with parental coaching), while "cost effectiveness analysis" compares the costs of a program to the outcomes it achieved (e.g. cost per diarrheal incident avoided, cost per reduction in intra-family violence). Conducting cost analysis of a program requires two types of information:

1) Data on what a program achieved, in terms of outputs or outcomes, and
2) Data on how much it cost to produce that output or outcome.

Asking Ourselves "What Did a Program Produce?"

Units across the IRC produce a wide range of outputs, from obvious items like nutrition treatment or shelter kits to more intangible things like protection monitoring or case management. Cost analysis requires us to focus in on one output (for cost efficiency) or outcome (for cost effectiveness), such as the number of items produced or the number of people provided with a service. Such outputs will not necessarily encompass all the work that a program has done. For example, a WASH program may build water pipelines, latrines, and solid waste disposal pits; each of which could be defined as a single output. The Best Use of Resources initiative focuses on analyzing the IRC's key outputs, such as access to sanitation in refugee camps, malnutrition treatment, and case management services. The focus is not to dismiss other dimensions of our program's work, but to concentrate on one output, allowing for comparison of cost efficiency across programs and contexts in ways not possible if budget data at the program level was the only factor considered. The Best Use of Resources initiative team works together with IRC's Program Quality Unit to identify the most important outputs and understand how to quantify these outputs to improve the accuracy and efficacy of the results of analyses and use these improved results in programming decisions.

Asking Ourselves "How Much Did It Cost?"

After defining the output of interest, staff builds out a list of inputs that are necessary for producing that particular output. If one thinks of a program as a recipe, the inputs are all of the 'ingredients' necessary to make that dish. Budgets contain a great deal of information about the ingredients used and in what quantities, but a single grant budget will frequently cover several types of outputs, or program activities across multiple sectors. Therefore, not all line items in a program budget will be relevant to a particular output; to get an accurate sense of the costs of producing a particular output, staff categorize costs by the output they contributed to and count only those that are relevant to that particular output. Many of the line items in grant budgets are shared costs, such as finance staff or office rent, which contribute to an entire program's outputs. When costs are shared across multiple outputs, it is necessary to further specify what proportion of the input was used for the particular output. Specifying such costs in detail, while time-consuming, is important because it provides lessons about the structure of a program's inputs. We can divide costs into categories and determine whether resources are being allocated to the most important functions of program management, and enable us to model alternative program structures and quantify the cost implications of different decisions.

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