

Evaluation of NGO participation in the delivery of government- financed primary health care: Two case studies

Ricardo Bitrán, PhD
Bitrán & Asociados

Daniel Maceira, PhD
CEDES

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ABSTRACT

Governments in the developing world increasingly rely on nongovernmental organizations (NGOs) either to deliver government-financed primary health care (PHC), or to support government delivery of PHC. This policy rests on the premise that the traditional organizational form of the public sector, with its hierarchical bureaucracy, has low and limited efficiency, and that the introduction of private management/support, with its greater flexibility, can enhance the efficiency of public spending on these services. There is limited evidence, however, on the impact of these arrangements on health service output and health outcomes. This is due, at least in part, to methodological problems found in the existing monitoring and evaluation (M&E) literature and also to the lack of studies in this area, particularly in the Latin America and Caribbean region. This paper discusses the results from case studies from this region (Nicaragua and El Salvador) applying a common M&E framework.

Empirical evidence from the two case studies does not support the premise that the strategy of NGO engagement in PHC provision is unambiguously superior to direct public provision. In Nicaragua, traditional public provision seems to provide better results than public provision receiving NGO support in the form of training of government health staff and promotion of community participation, although there are important caveats to that finding. In El Salvador, the NGO contracting-out model delivers better results than the public model, but at a much higher per capita cost. These findings are not conclusive, however, because the two initiatives are relatively new and greater long-term results may yet be realized. Still, the studies offer useful insights into the methods that may be used to carry out M&E of these common and developing initiatives in the health sector.

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ACRONYMS

ARI	Acute respiratory infection
ADD	Acute diarrheal disease
DIP	Detailed Implementation Plan
EMPs	Health enterprises contracted out by INSS in Nicaragua
FONASA	Chile's National Health Fund
HP	Health promoter
INSS	Social Security Institute of Nicaragua
M&E	Monitoring and evaluation
MHT	Mobile health team
MINSA	Nicaragua's Ministry of Health
MSPAS	El Salvador's Ministry of Public Health and Social Action
NGO	Non-governmental organization
PAMI	Argentina's Comprehensive Medical Care Program
PHC	Primary health care
PHR <i>plus</i>	Partners for Health Reform <i>plus</i>
PMU	Project management unit
SEI	Socioeconomic index
SILAIS	Regional health authority
URI	Upper respiratory infection

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1. INTRODUCTION

For years, nongovernmental organizations (NGOs) and international organizations have supported ministries of health in the provision of basic health services in developing countries, either by strengthening ministry of health (MOH) delivery or through direct NGO provision of government-financed services. A few of these initiatives have been evaluated and produced mixed results. Recently there has been growing interest in further promoting them. The rationale is that NGOs are often located in remote areas and capable of increasing access to and improving the quality of basic health services through their greater flexibility in management and their higher accountability. In this synthesis paper, two case studies are described, one that looks at the more traditional NGO support for government health service provision (Nicaragua), and a second that looks at contracting an NGO to provide basic health services that otherwise would be provided by the government (El Salvador).

Contracting-out of health services is an instrument by which governments can take advantage of private sector resources in the health sector. It refers to any public purchasing or donor financing of services from private providers, both for profit and non-profit, and encompasses a broad spectrum of services. These include, among others, the direct provision of health care, the training of health providers, and the education of communities and households.

In Latin America, government contracting-out of private health services has taken a variety of forms. Argentina's PAMI, the large public agency responsible for managing health services for the elderly and disabled, contracts private for-profit providers at the ambulatory and inpatient levels to obtain services for its beneficiaries. In Chile, the public insurer known as FONASA has been purchasing surgical services from private clinics since 2002, when capacity constraints in public hospitals resulted in long waiting for beneficiaries seeking admission for surgery. Nicaragua's social security institute, INSS, divested itself of its own health facilities in the late 1980s. Since 1994 it has been using capitation payment to purchase from private providers, known as EMPs, all of the services contained in INSS's basic benefits package. Most governments in Central America have chosen to contract out NGOs to expand coverage of primary health care (PHC) in rural areas where public providers are absent or where they are too remote for some population groups to have effective access to public services.

Despite the growing public reliance on NGO contracting, evidence on the impact of this policy on access, quality, equity, and health status is scant. In their review of contracting-out initiatives, Mills and Bloomberg (1998) noted: "perhaps the most important conclusion is that there remains relatively limited and contradictory evidence on the impact of selective contracting on efficiency and equity at the facility and/or at the health system level." A more recent review by Liu (2004) identifies only 17 journal entries related to the issue of contracting-out PHC services in developing countries (Liu 2004). Overall, the existing literature highlights the need for extensive additional research on the effects of contracting-out of PHC services on access, quality, and efficiency.

What follows is a brief account of the main empirical findings arising from the literature available. Access is the performance dimension that researchers have most frequently examined to assess the impact of contracting-out of PHC services. Liu (2004) concluded that there is evidence of a positive effect of contracting-out on access to priority health services, where access is measured in terms of coverage, availability, and quantity of services provided. Loevinson and

Harding (2004) found that, in a sample of six projects, private contractors were more effective than the government in increasing access to health services. With respect to equity Liu (2004) concluded that contracting-out has the potential to improve equity both in access to care and in financing when services are well targeted to the poorest population. Yet there is little to no evidence in the literature to support this. With respect to the quality of services delivered or supported by contracting-out initiatives, several studies have shown a positive impact on waiting time, patient satisfaction, client orientation, and other similar indicators (Liu 2004). Similar results were found with respect to health outcomes.

There is almost no evidence on the impact of contracting arrangements on efficiency. The few studies that do exist tend to be inconclusive. For example, Mills et al. (1998) found that in Zimbabwe contracting-out to the private sector implied higher costs than government provision of the same services. In contrast, the study by Loevinson and Harding (2004) concluded that in Pakistan, Bangladesh, India and Cambodia, non-governmental entities performed better than public institutions with similar amounts of financial input.

The evaluation of contracting-out initiatives faces several methodological problems and existing studies suffer from these limitations. First, baseline information or information from control groups is often not available or not used. In these circumstances it is difficult to attribute changes in performance to the contracting arrangement. Second, evaluations are often carried out by the contractor or the provider. Both parties may have incentives to show success rather than failure as their ability to obtain further financing for contracting-out arrangements may depend on performance. Results may therefore be biased. Third, even though most evaluation reports consider results (quantity, coverage), they tend to ignore the costs of providing services and managing the contractual arrangements. Last, even when information from a baseline or from a control group is available, it is methodologically challenging to relate results to the contracting arrangement as many other variables, or confounding factors, may influence results.

2. RESEARCH GOALS AND OBJECTIVES

This report compiles the methods and findings from two concurrent studies about the performance of NGOs contracted by government or donors to improve the coverage and quality of preventive and primary health care services in rural areas of El Salvador and Nicaragua.

The goal of this research is to offer policymakers in developing countries monitoring and evaluation (M&E) tools and empirical evidence about performance of contracting arrangements, so that they might to select the most appropriate methods for financing and delivering PHC services.

The research objectives are (1) to develop and apply in El Salvador and Nicaragua M&E methods to assess the performance of NGOs that are either directly engaged in the provision of PHC as a government contractor (El Salvador), or that are engaged in the support of public provision of PHC (Nicaragua), and to compare this performance with that of traditional public sector delivery; and (2) to offer empirical evidence about the performance of these initiatives relative to traditional public provision.

The primary research aim focuses more on the development and testing of M&E methods than on knowledge about the performance of specific NGOs. Thus, the author of this synthesis have chosen to omit the names of the actual NGOs involved in the evaluation.

3. OVERVIEW OF RESEARCH METHODS

This section provides a general explanation of research methods in both study countries. Further details about the specifics are presented in the following section.

Partners for Health Reform*plus* (PHR*plus*) developed a common research protocol for El Salvador and Nicaragua (Bitrán 2004). The criteria for country selection included the existence of NGOs engaged either in the support or in the direct provision of publicly funded PHC. It also included the interest of government in the study, and the presence of NGOs that were willing to be studied and of NGOs that were delivering only health services. In Nicaragua, most NGOs active in the social sectors simultaneously deliver a broad set of social services such as health care, nutrition, education, housing, and rural credit. Thus, selecting an NGO which only did PHC greatly reduced the array of potential study subjects. In El Salvador, while there are several NGOs that historically have delivered PHC with public or donor funding, the more successful ones have recently been grouped into a single project which hires them on a competitive basis to deliver a basic package of health services. They became the subject of this study. Meeting these selection criteria meant that in both countries the NGOs selected had been engaged in their projects for a relatively short period of time. Thus, the value of this study rests more on its proposed methods to assess NGO performance than in the specific results about performance, given the short life of these initiatives.

Within each country, the research protocol called for a comparison of health system performance (NGO contracted-out provision in El Salvador or NGO-supported provision in Nicaragua versus traditional public provision in both countries) using cross-sectional information on health status, health utilization, and perception of health care quality collected from a stratified sample of about 1,000 households in each country, divided between intervention and control areas.

In one department of Nicaragua, the study collected data from and made comparisons between two main groups of households: around 500 households were selected from the catchment area of an NGO that supported government provision of health care at the health facility and the community levels, and a similar number was drawn from the catchment area of government health centers operating outside the reach of any NGO (the control). NGO support of public provision took two forms: (1) the NGO staff trained government health workers in ambulatory facilities to help them improve their treatment practices; and (2) NGO health promoters worked at the community level encouraging leaders and families to engage in healthy practices, such as prevention, early detection of health problems, and timely use of health services.

In El Salvador, the study collected information and assessed relative performance in three main groups. In the first group, about 330 households were drawn from communities benefiting from the presence of an NGO. This NGO trained health promoters (HPs) and placed them in those communities. Additionally it operated mobile health teams (MHTs) that provided health care to households in the catchment area of the NGO's promoters as well as in neighboring communities. In the second group approximately 330 households were drawn from communities benefiting from a government health promoter. In the third group about 330 households were selected from communities lacking support from either government or NGO promoters. The second and third groups were used as controls.

PHRplus designed a household questionnaire to collect information about (i) socioeconomic and demographic characteristics of individual household members; (ii) characteristics of the household, including size, ownership, construction materials, and availability of basic services; (iii) household income; (iv) occurrence of acute health problems among all households members over a 30-day recall period preceding the survey; (v) health care seeking behavior to address these health problems; (vi) presence of pregnant women at the time of the survey and of women who had given birth in the preceding year; (vii) use of prenatal and delivery services by pregnant women; (viii) use of growth monitoring and preventive vaccinations in children under 5 years of age; (ix) patient time and money costs of health care; (x) household perceptions of health care quality; and (xi) anthropometric (weight and height) measurements in children under 5.

As can be seen from Table 1, both studies examined the same categories of health care (e.g., child diseases, nutritional status) but differed in terms of the performance dimensions that were evaluated. Furthermore, both studies had to confront several methodological challenges to evaluate the NGO impact, including the following:

- Lack of baseline information in El Salvador. In Nicaragua, the Detailed Implementation Plan (DIP) that was available for the NGO contains limited baseline information.
- A relatively short period of implementation of the NGO interventions may weaken the robustness of results. The NGO in Nicaragua had been operating in the study communities for the prior 12-18 months; in El Salvador, the target NGOs had been functioning for six months only. The impact of the NGO interventions, whether positive or negative, may be less apparent early on into implementation.
- In Nicaragua, NGO emphasis on training and implementation of new systems during year one may have distracted MINSA (*Ministerio de Salud*, or Ministry of Health) providers from their primary roles and resulted in lower results.
- Difficulty of finding appropriate control groups. In Nicaragua, it was difficult to identify control groups that met two necessary conditions: to be in the proximity of the intervention sites and to be similar in terms of socioeconomic characteristics to the communities with NGO support.
- Difficulty of separating the impact from other exogenous factors. Causal relationships are difficult to establish as health system performance is influenced by multiple factors whose impact is often difficult to isolate. Results are determined by many other variables besides program intervention. For example, differences in health status between the intervention and control sites may be explained by differences in poverty rather than by the contracting arrangement itself.
- Difficulty in obtaining implementation costs in Nicaragua.

TABLE 1: STUDY DESIGN, NICARAGUA AND EL SALVADOR

	NICARAGUA	EL SALVADOR
Analytical domains and sample size	<ul style="list-style-type: none"> • NGO-supported and government provision: 8 communities, 467 households • Non-NGO support/Government provision only: 13 communities, 534 households 	<ul style="list-style-type: none"> • NGO health promoter and mobile health team : 9 communities and 330 households • Government promoter: 9 communities and 335 households • No promoter: 8 communities and 335 households
Performance dimensions	<ul style="list-style-type: none"> • Utilization of health services • Perceptions of quality • Cost of provision to the payer • Health status (anthropometric measures in children) • Knowledge about health practices 	<ul style="list-style-type: none"> • Utilization of health services • Perceptions of quality • Cost of provision to the payer • Efficiency
Health service categories	<ul style="list-style-type: none"> • Child diseases: acute respiratory infections (ARI) and acute diarrheal disease (ADD) • Nutrition • Child immunizations • Family planning • Prenatal care • Deliveries 	<ul style="list-style-type: none"> • Child diseases (ARI and ADD) • Nutrition • Child immunizations • Family planning • Prenatal care • Deliveries
Methodological limitations	<ul style="list-style-type: none"> • Limited baseline information available through project's DIP • Short period of intervention: between 12 and 18 months • Presence of exogenous factors (impact of exogenous factors was evaluated econometrically) • Existing national household survey data cannot capture this intervention at the regional health authority (SILAIS) and health center levels. • Only applies to NGOs whose situation allows for the observation of appropriate controls, making the selection of control groups challenging. • Difficulty in obtaining information on cost 	<ul style="list-style-type: none"> • No baseline • Short period of intervention: 6 months • Presence of exogenous factors • Need to select two control groups – one that has public sector promoters providing services and one that does not.

4. BACKGROUND INFORMATION ABOUT HEALTH SYSTEMS AND RESEARCH METHODS

4.1 NICARAGUA

4.1.1 Health System

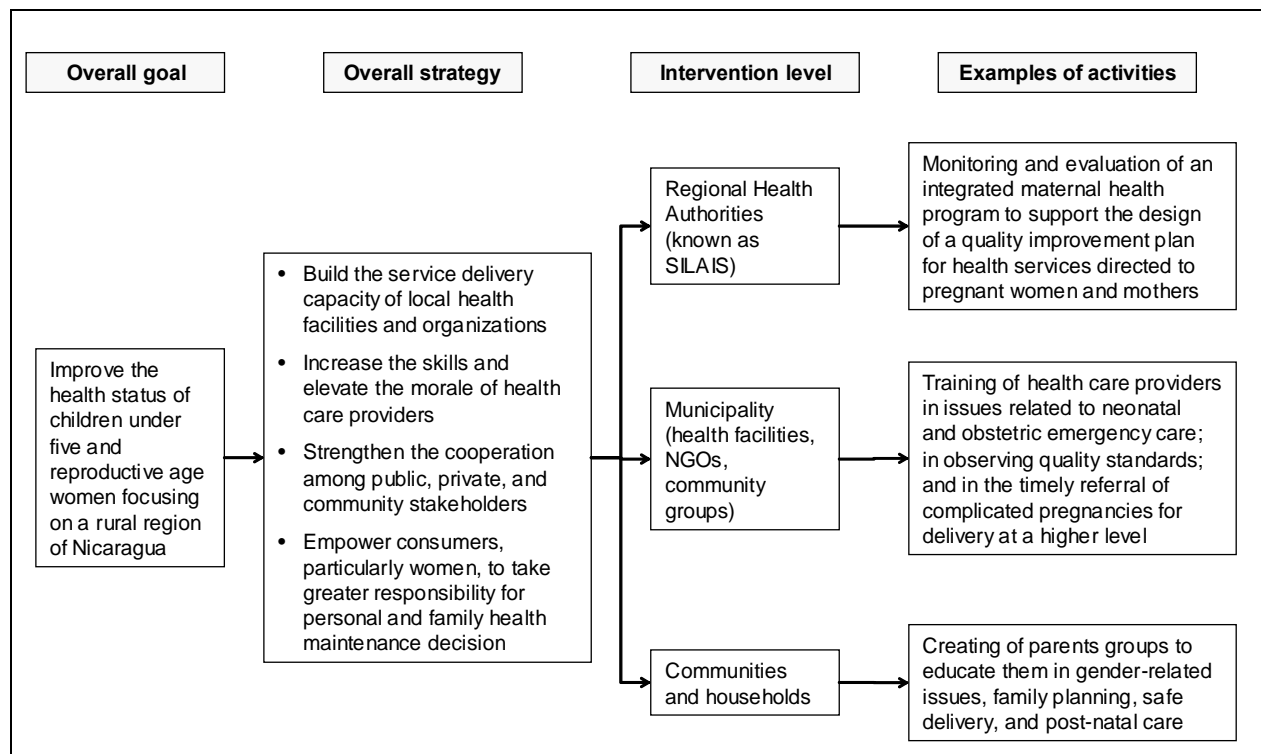
In Nicaragua, Bitrán and Muñoz (2004) compared core health indicators (health care utilization, health status, and quality of health care) in the catchment area where an NGO supports government-provided services with those observed in communities lacking similar NGO support for government provision of health services.

The NGO's goal was the improvement of children's health status and that of women of reproductive age through strengthening the capacity of local health facilities and by educating consumers, particularly women, to take greater responsibility for personal and family health maintenance decisions (see Figure 1). The program was targeted to more than 60,000 children under the age of 5 and more than 70,000 fertile-age women. The NGO was engaged by a health project financed by an international development agency and operated at three levels through the actions of its trained health promoters and other trained staff. At the Regional Health Authority (known as SILAIS) level, it provided technical assistance to help strengthen the SILAIS's planning capabilities and M&E. At the municipal level, it trained and supported the work of government health care providers in ambulatory health centers. At the community level, it placed paid health promoters (HPs), who educated household members in healthy practices.

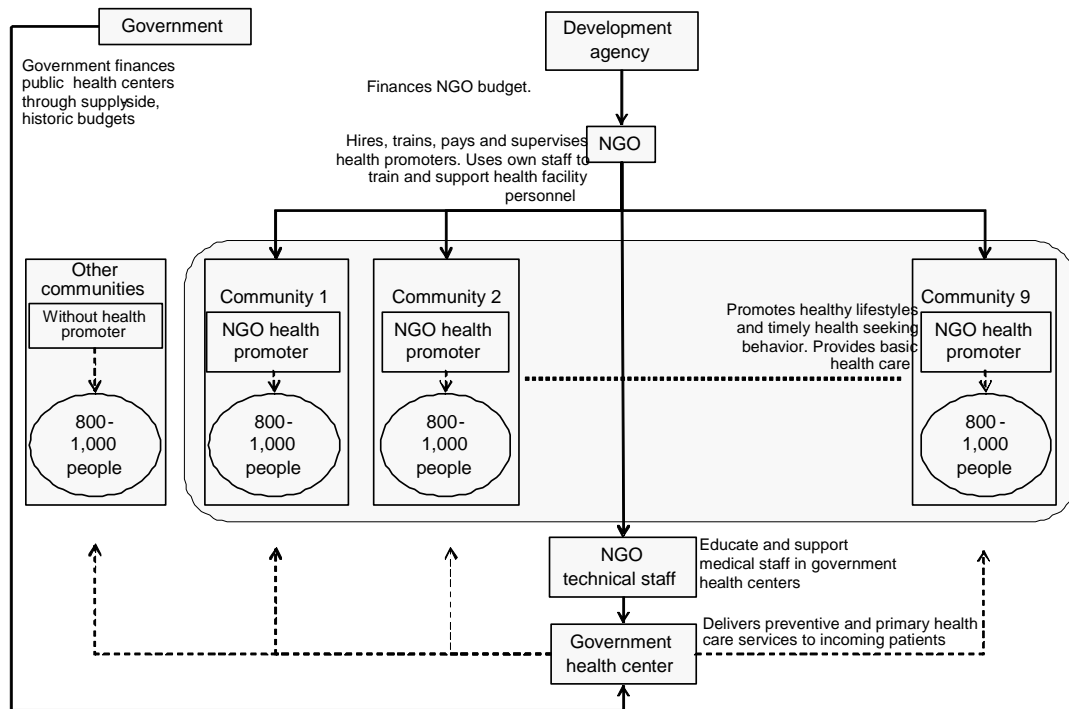
The development agency financed the NGO's budget and did not link directly or explicitly the performance of the NGO with the budgetary support it provided. The NGO carried out a baseline evaluation where it measured selected health status and health utilization indicators. The baseline measurement, however, was carried out at the departmental level and encompassed all of the nearly 800 communities in the departments, instead of being targeted to the specific 80 or so communities which the NGO set out to support.

Figure 2 shows the NGO support scheme in place in this department of Nicaragua.

FIGURE 1 NICARAGUA: GOALS AND STRATEGY OF AN NGO SUPPORTING PUBLIC PROVISION OF SERVICES



Source: assembled by the authors from information in the NGO's project description as contained in its DIP

FIGURE 2. NICARAGUA: NGO SUPPORT OF PUBLIC PROVISION AT FACILITY AND COMMUNITY LEVELS

Source: assembled by the authors from information in the NGO's project description as contained in its DIP

4.1.2 Research Methods

The evaluation carried out by *PHRplus* was conducted in one municipality where the NGO supported nine communities, out of a total of 120. The authors were unable to learn from the NGO what criteria were used to choose these communities for support. The nine communities contained about 900 households, of which *PHRplus* randomly selected 493 for the evaluation. Among the 111 communities without NGO support, *PHRplus* randomly selected 12 communities and, within them, 500 households. *PHRplus* designed a draft household questionnaire. It then hired and trained a local survey research firm, which tested and fine-tuned the questionnaire and later applied it to all 993 households.

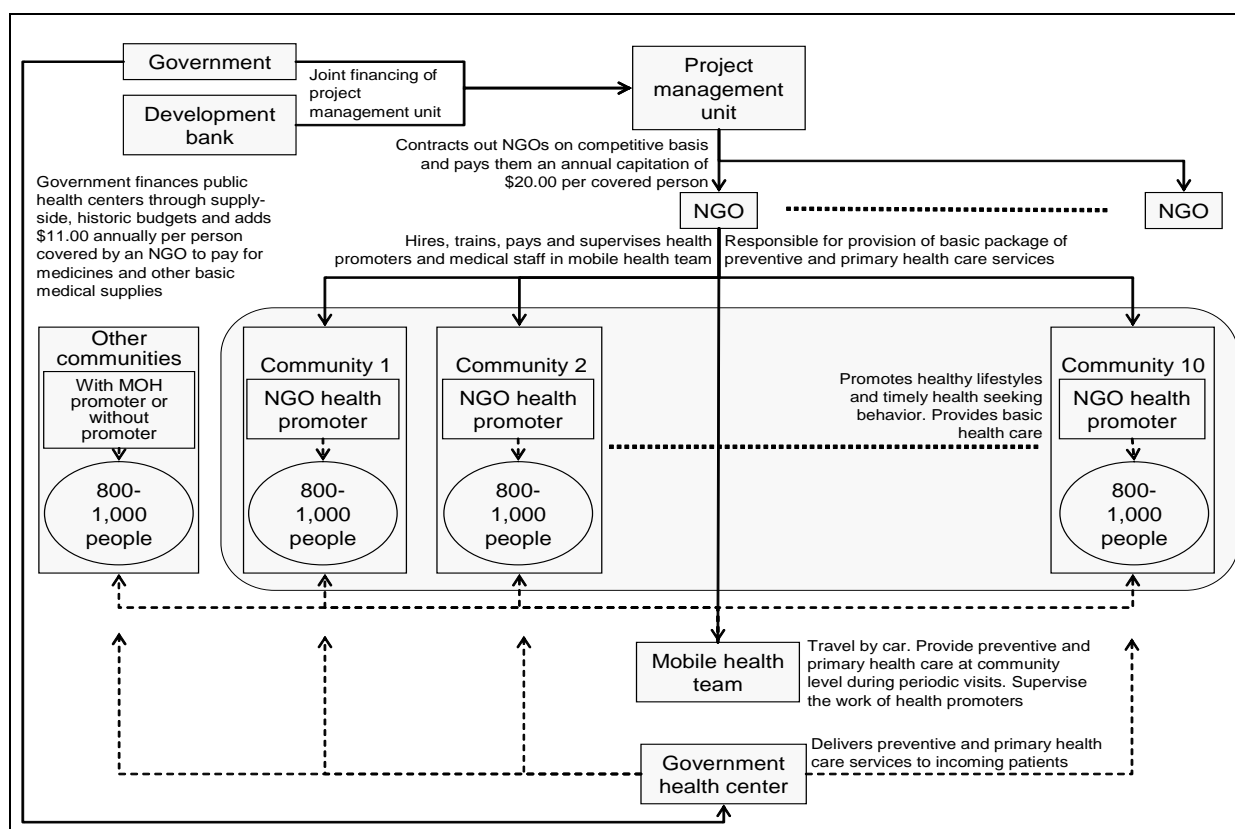
4.2 EL SALVADOR

4.2.1 Health System

In El Salvador, Maceira (2004) assessed the relative performance of four NGOs that were engaged in the provision of a basic package of preventive and primary health care services (see Figure 3). These NGOs were contracted through a competitive bidding process implemented by the project management unit (PMU) of a bilateral health project financed by the government of El Salvador and an international development bank. As the figure shows, the NGOs were hired to

implement a health care delivery model that combines the actions of paid health promoters at the community level and a mobile health team comprising a medical doctor, a nurse, and a nutritionist. HPs and MHTs function within the catchment area of a government-run health center. HPs are assigned a population of between 800 and 1,000 people, while MHTs and health centers have an assigned population of between 8,000 and 10,000 people. Thus, on average, 10 HPs and one MHT operate within the catchment area of each government health center. NGOs hire, train, and pay HPs and the members of the MHTs. The PMU pays each NGO a capitation payment of \$20.00 per year per person covered. In addition, the government, through its Ministry of Public Health and Social Action (MSPAS), allocates an extra \$11.00 per covered person per year for prescriptions and medical supplies.

FIGURE 3. EL SALVADOR: NGO CONTRACTING SCHEME



Source: Assembled by the authors from information in the NGO's project description as contained in its DIP

NGOs hired with this mechanism must submit a monthly report to the PMU showing the kinds and volumes of health care and health promotion activities delivered. The PMU, in turn, is supposed to verify that this information meets certain minimum delivery targets. Every month the PMU pays the contracted NGOs 90 percent, or \$18.00, of the \$20.00 capitation amount. The remaining 10 percent is retained until the end of the first year of the contract, and paid to the NGO upon verification that it has met its agreed upon delivery targets. At the time of the evaluation, the project was into its sixth month only and therefore the annual performance evaluation had not yet been carried out. Further, no baseline information had been collected by

the PMU prior to the implementation of the NGO contracting initiative, thus making the impact assessment more challenging.

In El Salvador, HPs are not exclusive to NGOs. In fact, starting in the early 1980s, the government of El Salvador, with the support of the United States Agency for International Development and through MSPAS, implemented the policy of hiring, training, and posting HPs in rural communities around the country. These promoters were expected to provide health education to the population in their communities and to encourage them to seek timely preventive and curative health care. Currently there exist around 1,600 MSPAS-financed HPs countrywide. Still, the existing public HPs, while many in number, are insufficient to cover all rural communities in the country. Thus, the majority of rural communities still lack an HP.

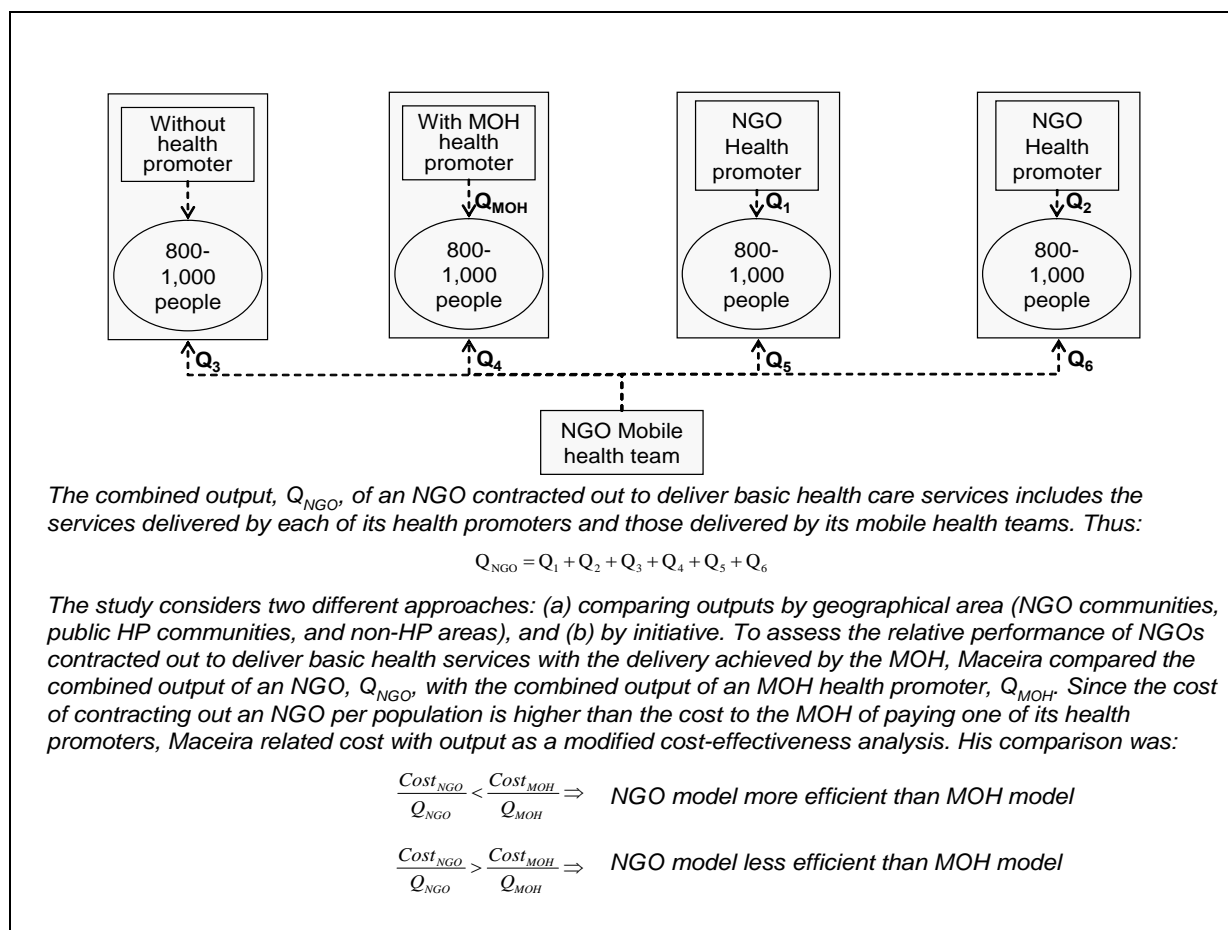
4.2.2 Research Methods

Recognizing that not all communities have an HP, and that some promoters are MSPAS employees while others work for an NGO, for research purposes Maceira stratified rural communities into three groups: (1) communities with an NGO-hired HP; (2) communities with an MSPAS-hired HP; and (3) communities without any HP.

Assessing the NGO's impact was a complex task in El Salvador because the activities of the NGO-hired MHTs were not confined solely to the communities with the presence of an NGO health promoter. Instead, as the Figure 3 implies, by design MHTs were required to serve all patients, including those living in communities without the presence of an NGO-paid HP. Thus, to measure the performance of an NGO contracted by government, Maceira considered the joint action of its HPs and its MHTs (see Figure 4).

In addition, Maceira also attempted to carry out a modified cost-effectiveness analysis to determine which delivery model – the MOH-paid HP or the NGO-paid HP combined with the MHT – was economically more attractive. He thus measured the cost of each of the two delivery models and then sought to compare the ratio of cost to output between the models.¹

¹ The analysis takes into account the total number of patients seen by type of intervention as well as by geographic area. One key assumption is that the technical quality of both models, NGO and MOH, is the same, and therefore their effect on patients' health is equal.

FIGURE 4. EL SALVADOR: MEASUREMENT OF OUTPUT BY NGO AND MOH PROMOTER-BASED HEALTH MODELS AND COST-EFFECTIVENESS ANALYSIS

As shown in **Table 2**, a comparison of the contracting out arrangements in El Salvador and Nicaragua indicates that the strategies and implementation framework is very different in each case even though both projects seek to improve the health status of vulnerable populations.

TABLE 2. GOALS AND STRATEGY OF NGOS IN NICARAGUA AND EL SALVADOR

	NGO IN NICARAGUA	NGOS IN EL SALVADOR
Overall goal	Improve health status of young children and women in fertile age in rural communities (including coffee plantations)	Improve health status of rural and indigenous population
Main strategy	Training of local providers, education of community, locally placed HPs	Provision of a basic package through a mobile health team and a locally stationed HP
Remuneration of NGO	Budget based	Performance related, bonus payments according to results
Relationship with local and national health authorities	External cooperation with limited interaction	Contractual relationship between the Health Authority and the NGOs

5. EMPIRICAL EVIDENCE ON THE PERFORMANCE OF NGO INTERVENTIONS

5.1 NICARAGUA

The analysis begins by examining factors outside of the NGO intervention that could influence results of the surveys. As noted above, an analysis of relative health intervention performance may be limited by the confounding influence of factors largely exogenous to the intervention itself. Main potential confounding factors include households' socioeconomic status and their accessibility to basic services. Thus, prior to assessing any differences in health system performance, Bitrán and Muñoz (2004) compared socioeconomic status and access to basic services between households with NGO support and those without it.

As shown in Table 3, poverty was widespread in the study municipality, but the communities with NGO support were somewhat poorer. This conclusion arises from an analysis of households' socioeconomic index (SEI),² income, and consumption. The average SEI in communities without support was 34.9 out of a maximum of 100. Communities with NGO support had an SEI of 32.7, or 2.2 points less than the communities without support. This difference was statistically significant although modest in magnitude. NGO-supported communities had a relatively greater "middle class" as implied by the distribution of SEI by terciles. Average household income per capita was significantly different between the two groups, being about 11 percent higher in communities without NGO support. With the exception of spending on rent or mortgages, per monthly capita spending on all other categories was higher in communities without NGO support.

² The authors constructed an SEI by assigning a score to each household on the basis of several socioeconomic characteristics. These included the education and employment of the head of household, the kind of construction of the home, the availability of services in the home, and the ownership of various assets, including one or more vehicles.

TABLE 3. NICARAGUA: SOCIOECONOMIC INDEX, INCOME AND CONSUMPTION EXPENDITURE IN COMMUNITIES WITH AND WITHOUT NGO SUPPORT

	Average socioeconomic index (SEI)		Household distribution according to SEI terciles				Household monthly per capita income by SEI terciles (córdobas ^a)				Household monthly per capita spending by category (córdobas ^a)					
	N	SEI	1	2	3	Total	1	2	3	Total	Food	Rental or mortgage	Education	Clothing	Debt service	Total
With NGO support	467	32.7	33.0	40.7	26.3	100.0	125.7	152.1	168.7	147.9	109.6	29.2	27.7	49.0	240.1	164.4
Without NGO support	534	34.9	32.8	29.8	37.5	100.0	121.8	147.0	213.8	163.6	115.9	21.3	34.0	55.2	268.1	168.9
Difference			*		-				-	*			-	-	-	
		2.2	*	0.2	10.9	11.1	3.9	5.1	45.1	15.7	-6.3	7.9	6.2	6.2	28.0	-4.5
Total	1,001	33.9	32.9	34.9	32.3	100.0	123.6	149.7	196.7	156.4	113.0	24.8	31.1	52.2	253.3	166.8

Differences in means: *: significant at 90% level; **: significant at 95% level; ***: significant at 99% level.
Differences in distributions: +: significant at 90% level; ++: significant at 95% level; +++: significant at 99% level.

a. The córdoba (C\$) is Nicaragua's national currency. At the time of the study, the exchange rate was approximately US\$1.00 = C\$16.00.

Access to basic services was also more limited in NGO-supported communities, as shown in Table 4. Whereas 5.4 percent of households in communities without NGO support had electricity connection, a mere 0.2 percent of those with NGO support had such a service. Likewise, communities supported by the NGO relied more heavily on rainwater than on public water supply. The availability of toilet facilities was low in both groups, but in communities with NGO support 60.6 percent of households lacked this service, compared with only 45.5 percent in communities without NGO support.

TABLE 4. NICARAGUA: ACCESS TO BASIC SERVICES FOR COMMUNITIES WITH AND WITHOUT NGO SUPPORT

		Source of potable water in households					Availability of toilet in households					
				Public pipe inside home	Public pipe	Rain water	Total	Private	Shared	Latrine or septic tank	Without toilet	Total
NGO support	N	Households without electricity (%)										
With NGO support												10
	467	0.2		13.5	37.8	48.6	100.0	0.4	0.2	38.8	60.6	0.0
Without NGO support												10
	533	5.4		36.2	35.1	28.7	100.0	0.0	0.0	54.5	45.5	0.0
Difference												++
		-5.2	***	-22.7	2.8	19.9	+++	0.4	0.2	-15.7	15.1	+
Total												10
	1,000	3.0		25.7	36.4	38.0	100.0	0.2	0.1	47.2	52.5	0.0

Source: Bitrán and Muñoz 2004.

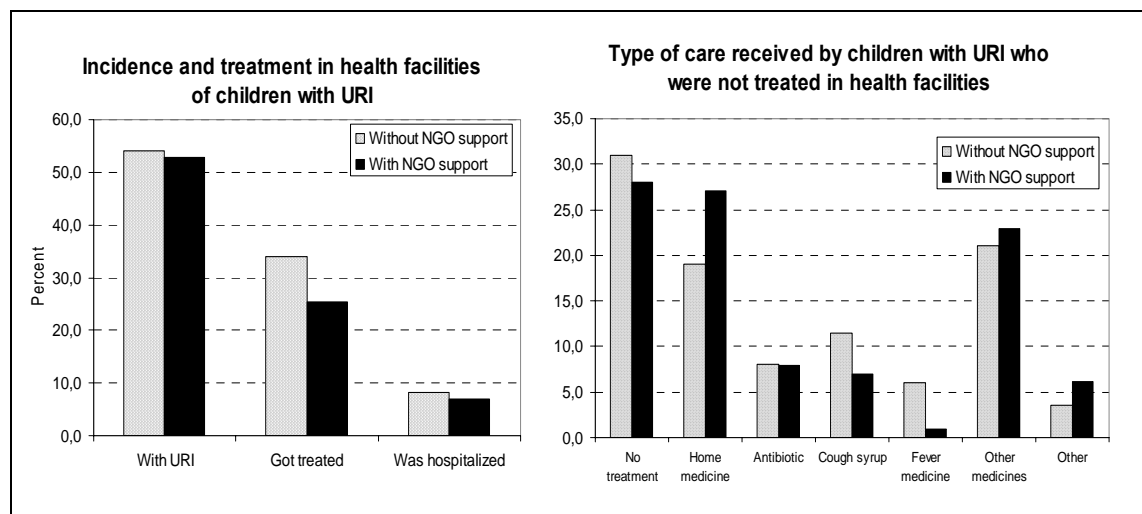
Differences in means: *: significant at 90% level; **: significant at 95% level; ***: significant at 99% level.
Differences in distributions: +: significant at 90% level; ++: significant at 95% level; +++: significant at 99% level.

The greater extent of poverty in NGO-assisted communities suggests that they had lower pre-intervention health status. Because poverty and health status are closely linked – where there is greater poverty there usually is lower health status – it is reasonable to assume that, prior to the arrival of the NGO, the communities that were to become its beneficiaries exhibited lower health status than the other, less-poor communities not selected for NGO support.

The NGO under study set out the following objectives in its DIP, in descending order of importance: improve the quality of maternal and child health services in government health centers; improve the quality of health care for children with diarrheal disease; improve the nutritional status of children under 5 years of age; strengthen breastfeeding practices; provide better treatment for children under 5 with pneumonia; increase birth spacing for women with children under 2 years; and strengthen HIV/AIDS prevention. What follows is a comparison of results, as measured by indicators chosen specifically to correspond to the NGO's objectives. The indicators cover health status, health service utilization, and perceived quality of care indicators, between communities with and without NGO support. There are no baseline (pre-intervention) measures of indicators of these objectives for the supported and non-supported communities. Given their commonly low socioeconomic indicators that correlate with health status, the (unknown) baselines for both sets of communities probably were similar, with the supported communities' indicators slightly worse. Positive results for the NGO support would be clearly evident if the indicators post-intervention for the supported communities were better than or equal to those of the control communities. Indicator values for the supported communities worse than the controls would be inconclusive, since they could indicate an improvement that was closing, but had not yet fully succeeded, of the pre-intervention gap between the intervention and control areas. However, a large gap post-intervention would be cause for concern that the intervention is not succeeding.

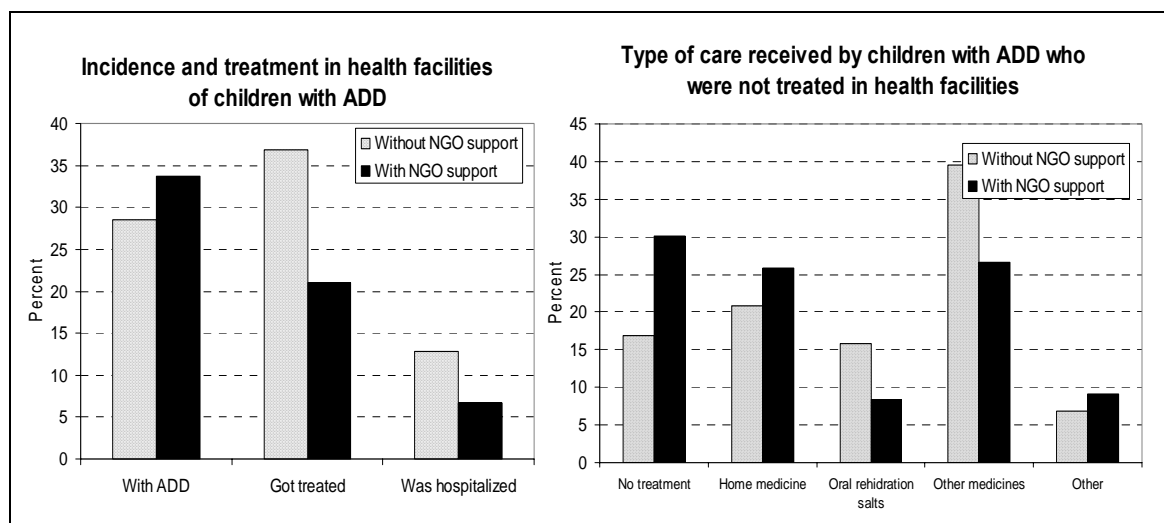
The incidence of upper respiratory infections (URI) was statistically not significant (upper quadrant of Figure 5). In contrast, the percentage of children who got treatment from a health facility was considerably higher in communities without NGO support (also left quadrant of Figure 6). There were also statistically significant differences in the distribution of the therapeutic actions taken by parents of children with URI who did not take them to health facilities (right quadrant of Figure 6).

FIGURE 5. NICARAGUA: INCIDENTE AND TREATMENT OF UPPER RESPIRATORY INFECTIONS IN CHILDREN UNDER 5



The incidence of acute diarrheal disease in children under 5 years was considerably higher in communities supported by the NGO, and this difference was statistically significant (left quadrant of Figure 6). Further, the proportion of children with ADD who received health care in facilities was considerably higher in those communities where the NGO was not present, and such a margin was statistically significant (also left quadrant of Figure 6). The therapeutic actions taken by parents of children with ADD who were not taken to a health facility also differed in their distributions (right quadrant of Figure 6).

FIGURE 6. NICARAGUA: INCIDENTE AND TREATMENT OF ACUTE DIARRHEAL DISEASE IN CHILDREN UNDER 5



In sum, the information on incidence of acute respiratory and diarrheal diseases in children is unfavorable to the communities with NGO support. Several conclusions can be drawn: (1) the differences were even higher prior to the arrival of the NGO; (2) the NGO's efforts to reduce the gaps have so far been insufficient; and (3) NGO support activities seem to have had a negative impact in the initial months because providers have been absent for training and systems are under revision; or (4) the NGO is simply not yet helping to improve the performance of the health system in its supported communities.

Other performance indicators examined in this research were unfavorable in the NGO-supported area, as can be seen in Table 5. The percent of children under 5 who were fully immunized at the time of the survey was one-third higher in communities without support than in those with support. Likewise, the prevalence of family planning methods was more than 50 percent higher in the communities without support. The use of prenatal care services and of institutional deliveries was also much higher in the communities without support.

TABLE 5. NICARAGUA: SUMMARY RESULTS (PERCENT)

	WITHOUT NGO SUPPORT (CONTROL)	WITH NGO SUPPORT	IMPACT OF NGO SUPPORT (WITH NGO VERSUS CONTROL)	
			ABSOLUTE DIFFERENCE	DIRECTION OF IMPACT
Curative care for children				
Children with ADD who received care	37	21	-16	Negative
Children with URIs who received care	34	25	-9	Negative
Child immunizations				
Children between 18 and 29 months fully immunized	65	48	-16	Negative
Child nutrition				
Children 6-59 months who received Vitamin A, last 6 months	43	44	1	Statistically not significant
Children 6-59 months who received growth monitoring control in last 6 months	23	20	-3	Statistically not significant
Family planning				
Women using family planning method	46	29	-16	Negative
Prenatal care				
Pregnant women with one or more prenatal care control	84	74	-10.	Negative
Delivery				
Women with institutional delivery	40	27	-13	Negative

Because the performance of a health intervention is affected by multiple factors, Bitrán and Muñoz estimated four econometric models – one for each of four selected performance indicators – in an attempt to measure the separate effect of several of such factors, including the presence or absence of the NGO. Table 11 presents the results of this exercise for the case of knowledge of family planning methods by women of reproductive age. With the exception of spending on education, all other variables were statistically significant at the 90 percent level. Literacy in the household, a higher SEI, and the geographic concentration of the community all have a positive influence on the knowledge of contraceptive methods. Controlling for those other separate factors, however, the presence of the NGO support activities seems to, in the short run, have a negative effect on this knowledge.

TABLE 6 NICARAGUA: DETERMINANTS OF KNOWLEDGE OF FAMILY PLANNING METHODS: SIMULATIONS

Simulation				
	(a) Without NGO support	(b) With NGO support	(c) Total	(d) Control communit ies receiving NGO support
Dependent variable (Y): Number of contraceptive methods known	2.4	2.0	2.2	1.9
Independent variables (Xi)				
0: Constant				
1: With NGO support (dummy)	0.0	1.0	0.4	1.0
2: Number of literate household members	0.9	0.8	0.9	0.9
3: Socioeconomic index (SEI)	35.3	32.7	34.2	35.3
4: Per capita spending on education	9.4	7.4	8.6	9.4
5: Concentrated community (dummy)	0.4	0.6	0.5	0.4

TABLE 7 NICARAGUA: DETERMINANTS OF KNOWLEDGE OF FAMILY PLANNING METHODS: ECONOMETRIC ESTIMATION

	Ordinary least squares regression ($R^2 = 13.9\%$)			
	Coefficients (<i>Bi</i>)	Stand ard error	t	Significance
Dependent variable (Y): Number of contraceptive methods known				
Independent variables (Xi)				
0: Constant	0.453	0.245	1.847	0.065
1: With NGO support (dummy)	-0.453	0.124	-3.641	0.000
2: Number of literate household members	0.335	0.183	1.837	0.067
3: Socioeconomic index (SEI)	0.037	0.007	5.638	0.000
4: Per capita spending on education	0.003	0.003	0.967	0.334
5: Concentrated community (dummy)	0.845	0.125	6.779	0.000

Bitrán and Muñoz used their econometric results shown in the Table 6 to simulate the incremental impact of NGO support. The outcomes of this exercise are presented in Table 12. In column (a), the model is evaluated with the average values of the independent variables measured in the communities without NGO support and, naturally, assuming no NGO support. The predicted value of the dependent variable is 2.4, meaning that on average women know 2.4 family planning methods in those communities in the absence of the NGO. In column (b) the model is evaluated with average values observed in the communities with support and with the NGO. Predicted knowledge of family planning methods is 2.0, or about one-fifth below that in simulation (a). In column (c) the model is evaluated for the entire population in communities without and with NGO support, for an average knowledge of 2.2 methods. In column (d) the variables that characterize the communities without NGO support were used to simulate what would happen if they received NGO support. The result is that average knowledge of family planning methods would drop from the value of 2.4 in column (a) to 1.9. All of the findings taken together show no conclusive evidence of a positive impact of NGO support on the targeted objectives (supported communities generally are worse than those in controls). Further, the often-large gaps in indicator values between supported and control communities suggest, but do not prove, unsuccessful interventions.

5.2 EL SALVADOR

In El Salvador, Maceira (2004) compared utilization and health service coverage statistics among the three kinds of communities included in his study: with NGO HP, with public HP, and without any HP.

As was done for Nicaragua, it is important first to examine the presence of any differences in the socioeconomic characteristics of households in the three study groups defined by Maceira. Table 8 presents summary statistics for selected demographic and socioeconomic information by group. As can be seen, the households included in the group with the presence of an NGO HP are smaller in total size and have fewer children under 5 when compared with the two other reference groups. Illiteracy in the NGO HP group is also the smallest of the three groups. In addition, the availability of public services and the quality of housing is also superior in that first group. Finally, average household monthly spending is the highest of the three groups, and the difference with the two other groups is considerable. In sum, in the localities of El Salvador where this study took place, those households benefiting from the presence of an NGO HP unambiguously exhibit higher socioeconomic status than the two other groups. This is contrary to the situation in the case

of Nicaragua. However, in the case of female-headed households, households with inadequate flooring, households with inadequate water supply, and households with pregnant women aged 13 to 18 years, the differences observed between communities with NGO HP and those without the presence of an HP were not statistically significant. In the case of homes with inadequate sewerage and pregnant women, and where there are public HPs, the results are not statistically significant.

TABLE 8. EL SALVADOR: DEMOGRAPHIC AND SOCIOECONOMIC OF HOUSEHOLDS IN COMMUNITIES WITH AND WITHOUT NGO SUPPORT

VARIABLE	NGO HEALTH PROMOTER	PUBLIC HEALTH PROMOTER	NO HEALTH PROMOTER	TOTAL
Average household size	5.18	5.36	5.49	5.35
Average number of children per household	2.99	3.56	3.5	3.35
Female headed households (%)	23.80	20.30	22.39	22.16
Pregnant women aged 13-18 years (%)	14.29	11.76	17.86	15.15
Illiterate population older than 6 years (%)	24.79	34.18	28.81	29.28
Population without any education (%)	46.61	61.07	61.72	56.48
Households with inadequate walls (%)	44.51	68.29	50.76	54.53
Households with inadequate flooring (%)	73.17	85.67	74.92	77.92
Households with inadequate sewerage (%)	84.76	85.37	90.83	86.98
Households with inadequate water supply (%)	10.98	15.85	9.17	12.00
Average household health spending (\$)	130.25	103.97	111.63	115.71

The above finding is important for two reasons. First, it would seem to contradict policy statements made by the program that proposed placing the NGOs in the poorest communities. Second, the higher socioeconomic status of the communities with NGO support could imply a more favorable health status for these groups, even prior to the arrival of the NGOs.

Table 9 compares the performance of the health system in the three groups. It is important to remind the reader that several providers are present in these communities, and therefore the utilization or coverage figures shown are the combined output of all of these providers, among which are found public HPs and/or NGOs.

As Table 9 shows, utilization and coverage figures vary depending on which comparison is made and which performance variable is chosen. For example, when the communities with the NGO HP are compared with the communities with a public HP (see “Comparison 1” in Table 9), the former perform better for curative care for children with ADD and URIs, for attendance to family planning monitoring, and for use of institutional deliveries. When communities with NGO HPs are compared with communities without any HP, the former perform better in seven of eight performance indicators. Overall, communities with an HP, either NGO or public, seemed to perform better than communities without any HP.

TABLE 9. EL SALVADOR: SUMMARY RESULTS

	NGO health promoter	Public health promoter (Control 1)	No health promoter (Control 2)	Comparison 1 Impact of NGO (With NGO versus Control 1)		Comparison 2 Impact of NGO (With NGO versus Control 2)	
				Absolute Difference	Direction of Impact	Absolute Difference	Direction of Impact
Curative care for children Children with acute diarrhea who received care	66.25	60.00	57.27	6.25	Positive	8.98	Positive
Children with URIs who received care	86.67	61.90	54.55	24.77	Positive	32.12	Positive
Child immunizations Children under 5 years fully immunized	31.51	25.41	23.45	6.10	Positive	8.06	Positive
Child nutrition Children under 5 years who received Vitamin A	56.84	62.32	47.46	-5.48	Negative	9.38	Positive
Children under 5 with growth monitoring control	59.47	62.80	41.72	-3.33	Negative	17.75	Positive
Family planning Women who attended family planning control	15.79	13.58	15.40	2.21	Positive	0.39	Positive
Prenatal care Woman with one or more prenatal care control during pregnancy	71.43	76.47	79.31	-5.04	Negative	-7.88	Negative
Delivery Women with institutional delivery	80.95	47.83	58.06	33.12	Positive	22.89	Positive

The above information does not suffice to understand the role played by the NGO in the delivery of health services, because it is not possible to ascribe the services provided to the NGO or to public providers, or to other providers. To elucidate that point, Maceira also collected information about the contribution made by each type of provider to the total provision of services in each of the three groups. Information from this analysis is presented in Table 7 in the case of the provision of Vitamin A for children under 5.

As can be seen in the upper part of Table 10 (“Total provision”), in the communities with an NGO HP, 56.8 percent of children under 5 received Vitamin A supplements. The equivalent coverage was 62.3 percent in communities with a public HP, and 47.4 percent in communities without any HP. The bottom part of the table shows who actually provided Vitamin A supplements to children. In communities with NGO HPs, 58.8 percent of provision was accounted for by the NGO’s HP. This performance slightly exceeded that of public HPs, who accounted for 51.3 percent of delivery in communities with public HPs. The category “Other” refers to all other providers, including, in this case, government health centers. As the table shows, MHTs are not important providers of Vitamin A but, as will be shown later, they play an important role in the provision of other services.

NGOs deliver services directly through their HPs in the communities where these are present, and also through their MHTs in all communities (not only those with the presence of an NGO promoter). Thus, the combined output of the NGO can be obtained from the bottom half of the table by adding the output of its HPs and that of its MHTs. In this case, total NGO output was $127+84=211$, or 30.4 percent of total output in these three kinds of communities.

To sum up the analysis of Table 10: Where there are HPs, both NGO and public, the coverage of Vitamin A delivery is higher than where there are none. In addition, HPs deliver more than half of all Vitamin A supplements provided in their communities. Where there are no HPs, government health centers and other providers, account for most of the delivery of Vitamin A supplements. The combined output of an NGO equals the sum of the individual output of its HPs and its MHTs.

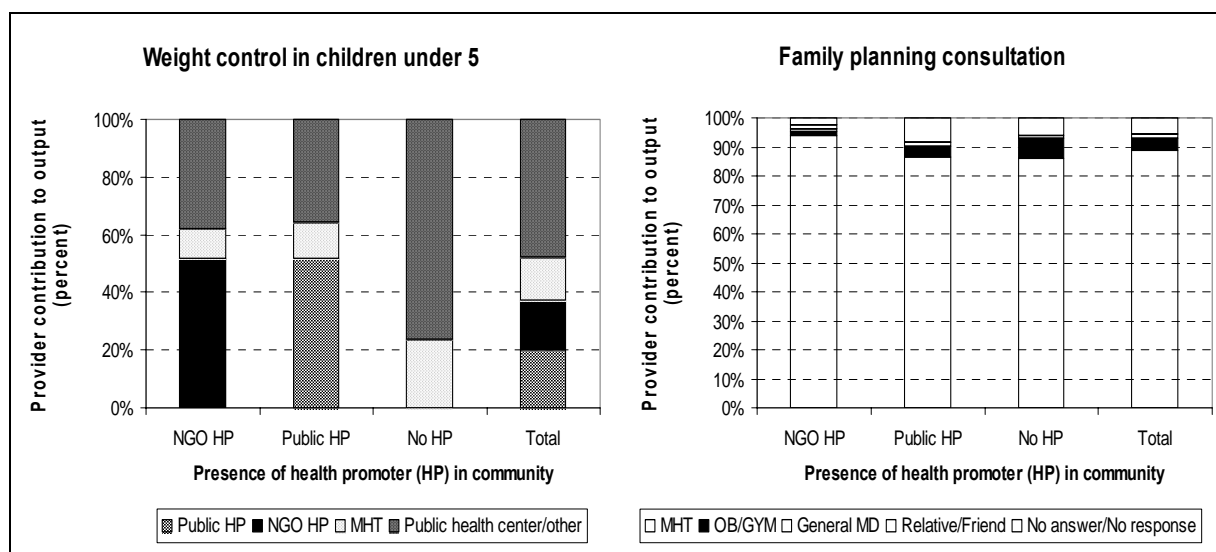
TABLE 10 EL SALVADOR: PROVISION OF VITAMIN A TO CHILDREN UNDER 5

	NGO health promoter	Public health promoter (Control 1)	No health promoter (Control 2)	Total
Total provision				
Did not receive Vitamin A	141	128	217	486
Percent	37.1	30.3	47.9	38.7
Received Vitamin A	216	263	215	694
Percent	56.8	62.3	47.4	55.3
No answer/Does not know	23	31	21	75
Percent	6.1	7.3	4.6	6.0
Total	380	422	453	1255
Percent	100.0	100.0	100.0	100.0
Provision by type of provider				
Public HP	0	135	0	135
Percent	0.0	51.3	0.0	19.5
NGO HP	127	0	0	127
Percent	58.8	0.0	0.0	18.3
MHT	18	35	31	84
Percent	8.3	13.3	14.4	12.1
Other	71	93	184	348
Percent	32.9	35.3	85.5	50.1
Total	216	263	215	694
Percent	100.0	100.0	100.0	100.0

NGO's contribution to output varies by type of health service delivered. The data from the preceding table showed that NGOs, through their HPs and MHTs, accounted for about one-third of total Vitamin A delivery to children under 5 in the study area, and that more than one-half the NGO's output was accounted for by their HPs. The above data also illustrate how the action of the NGO's MHTs was not confined to the communities with the presence of an NGO HP, but was instead widespread across all communities.

Figure 7 shows a similar situation for growth monitoring of children under 5 (left quadrant of figure), but a very different situation for family planning visits (right quadrant). In the study area, more than 90 percent of family planning consultations were delivered by NGOs and specifically by the qualified personnel in their MHTs.

FIGURE 7. EL SALVADOR: CONTRIBUTION TO OUTPUT BY TYPE OF PROVIDER: CHILD WEIGHT CONTROL AND FAMILY PLANNING CONSULTATIONS



The above data suggest that, in the study areas, NGOs are important providers of the three kinds of health services examined when compared to the provision achieved by public HPs only. Table 11 shows that this finding holds for all services studied. Taking as a reference a six-month period, the combined output of NGO HPs and MHTs delivered nearly 2.4 times as many immunizations to children and 5 times as many curative consultations to adolescents and adults as public HPs; they delivered 60-70 percent more Vitamin A to children under 5, well-baby care visits, and curative care for children under 5 with ADD and URIs.

TABLE 11. EL SALVADOR: COMPARISON OF TOTAL OUTPUT OVER A 6-MONTH PERIOD: NGO VERSUS MOH

	NGO (NGO HPs plus MHTs)	Public (public HP only)	NGO-to-public output ratio
Child immunizations: Children under 5 years fully immunized	121	50	2.4
Child nutrition: Children under 5 years who received Vitamin A	211	135	1.6
Well baby care: Children with at least on consultation for weight control	218	138	1.6
Curative care for children			
Children with URIs who received care	48	30	1.6
Children with ADD who received care	72	42	1.7
Prenatal care: Woman with one or more prenatal care control during pregnancy	1	1	1.0
Family planning: Women who attended family planning control	1,296	-	--
Delivery: Women with institutional delivery	3	-	--
Curative care: Persons with health problem who received curative care	120	24	5.0

The above finding led Maceira to inquire whether or not it would be more advantageous, from a public policy perspective, to engage NGOs with their HPs and MHTs rather than to hire

public HPs. Thus, he attempted to carry out a cost-effectiveness analysis by comparing, as described above, the ratio of cost to output for the NGO model with that for the public HP model.

The cost information for each model was as follows: a public HP makes \$350 per month and covers a population of 800-1,000 people. Over a six-month period, and assuming an average beneficiary population of 900 people, the per capita cost of the public HP model is exactly \$2.33. An NGO receives an annual per capita amount of \$20.00 to finance HPs and MHTs.³ That amounts to \$10.00 over a six-month period, or a cost exactly 4.3 times higher than the public HP model.

Total output by the NGO's combined HP-MHT model exceeds that of the public HP model by a factor of 1.6 to 5.0 for most services, yet the cost of the NGO model exceeds that of the public HP model by a factor of 4. This simple analysis suggests that deciding which model is superior is not an easy task. Maceira's conclusions in this respect are therefore only tentative.

Finally, Maceira developed four econometric models, with the aim of measuring the effect of the contracting of NGOs for the provision of health services, controlling for socioeconomic characteristics of the three population groups. The results show that in the four cases studied – immunization, growth monitoring, vitamins and family planning – there is a positive association for variable associated with the NGO initiative, which is statistically significant (99% Confidence Interval). Table 12 summarizes the results obtained for one of the interventions analyzed, family planning.

TABLE 12: DETERMINANTS OF METHODS OF PROVISION OF FAMILY PLANNING

ECONOMETRIC ESTIMATION				
Family Planning Control	Ordinary least squares regression ($R^2 = 11.49\%$)			
	Coefficients (B_i)	Standard error	t	Significance
Independent variables (X_i)				
0: Constant	-4.3995	0.2998	-14.67	0.000
1: ONG Initiative (Dummy)	6.1047	0.3242	18.83	0.013
2: Parent's Educational Level (in years)	0.0688	0.0276	2.49	0.709
3: Water Provision (Dummy)	0.0325	0.0878	0.37	0.000

³ As mentioned above in this report, the government health centers within whose catchment areas include NGOs get an additional annual per capita allowance of \$11.00 paid for by the government. This allowance is not included in the calculation, as the comparison is between the costs directly attributed to public and NGO HPs and to NGO MHTs.

6. CONCLUSIONS AND RECOMMENDATIONS

This final section is an account of main research findings.

First, the general situation of health care utilization seems more critical in the locations analyzed in Nicaragua than in El Salvador. For example, in Nicaragua, only around one-third of all children suffering from ARI receive care whereas in El Salvador at least half of the children do so. This difference is possibly explained by Nicaragua's more severe poverty.

Second, in El Salvador, households living in the catchment area of an NGO promoter receive more health care than households living in areas without public or NGO-contracted promoters: seven of a total eight indicators show a positive impact of NGOs on those households in comparison with households without a promoter. Also, communities in which there is an NGO-contracted health promoter performed better than communities with publicly financed HPs on five out of eight indicators.

Third, the evidence indicates that Nicaraguan communities in the early stage of NGO support are less well off than those without NGO support (none of eight health indicators is positively influenced by the presence of the NGO). Caution must be used in the interpretation of this result: (1) health care utilization levels depend not only on supply factors (including NGO activities) but also on demand patterns. That latter depends, for example, on the education level, household expenditure, and rurality. Muñoz and Bitrán measured through econometric modeling the influence of a series of such other variables and concluded that some of the negative differences in results are directly related to the presence/absence of the NGO activity; (2) NGO activity has been short in duration (less than two years so far), and results might be different if the NGO intervention had been implemented for a longer period; (3) in the light of the results from El Salvador – where public promoters do just as well as NGOs – results from Nicaragua might indicate that publicly financed HPs are doing a good job in the areas lacking NGO support.

Fourth, when considering all the indicators included in each study and not only the ones common to both, the situation just described is confirmed in Nicaragua. The table in the annex to this report lists the main activities to be supported by the NGO as per that organization's DIP. The first column of the table lists the principal strategies applied by the NGO under analysis. The second column indicates whether the evaluation study found better results in the communities supported by the NGO when compared to control communities. In contrast, in El Salvador, the situation becomes more favorable when considering all indicators as a majority of those related to curative and preventive health activities indicate that the NGO strategy has a positive impact.

Both studies demonstrate a series of methodological challenges that any study trying to evaluate NGO contracting will face. Most importantly, the lack of independent baseline information, or its limited availability, made the selection of control groups an absolute requisite. However, impact evaluation through control groups is difficult and costly as indicated earlier. More effort should be put into externally implemented evaluation studies that include the gathering of baseline information. Also, difficulties in collecting cost information make it difficult to evaluate the cost effectiveness of contracting out. More thought should be given to the issue of recording and collecting information on implementation costs of contracting out strategies.

Empirical evidence from the case studies is mixed regarding the presumed advantages of the contracting-out strategy in comparison to direct public provision. In El Salvador, NGO provision leads to somewhat greater output for some health activities but at a significantly higher cost than direct public provision, while in Nicaragua, areas without NGO support exhibit more favorable indicator values and greater coverage than NGO-assisted areas. These results may be partially explained by the fact that the analyzed projects have not been implemented for a long time and results may improve as time goes by and experience increases.

Possibly the most serious methodological challenge of both studies relates to the absence of independent baseline data to perform M&E. Therefore, the rest of this section discusses the main limitations of the transversal evaluation method used in this study, and compares it with a longitudinal evaluation method in order to recommend the latter method for future evaluations of NGO contracting arrangements.

The transversal evaluation consists in assessing NGO performance by means of comparing NGO-supported communities with similar control communities at any given point in time. In contrast, the longitudinal evaluation assesses NGO performance by means of comparing the status of NGO-supported communities at different points in time. Figure 8 shows a schematic representation of both methods.

FIGURE 8. TRANSVERSAL AND LONGITUDINAL EVALUATIONS

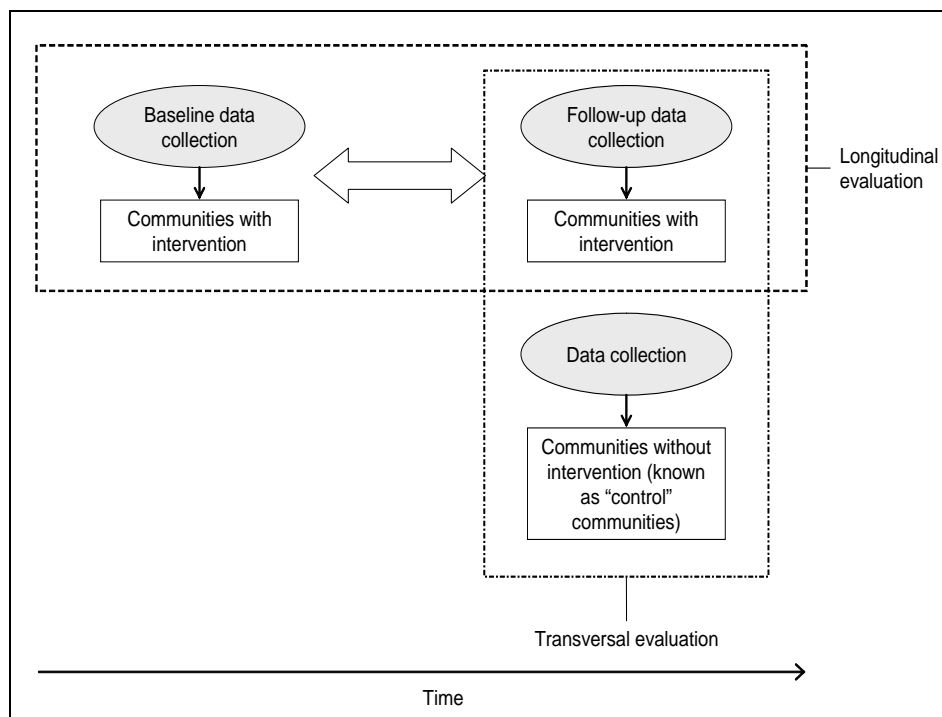


Table 13 shows a summary of some important characteristics of both methods. It shows that, if well planned, a longitudinal evaluation is more powerful and cost-effective than a transversal evaluation. Two advantages of a longitudinal evaluation are that:

- Follow-up evaluations are less expensive, because they do not require visiting control communities. Even though the baseline survey represents an additional cost, this is a one-time only effort. However, in practice, it happens often that baseline efforts are carried out, but transversal evaluations are nevertheless necessary, because the baseline does not meet the external evaluators' requirements.
- The contamination of transversal exogenous factors (which are larger than longitudinal exogenous factors) is eliminated. The evaluation is not limited by the availability of control groups. It must be noted, however, that a longitudinal evaluation requires careful planning and standardization, in order to make the baseline and all subsequent follow-ups comparable.

TABLE 13. CHARACTERISTICS OF TRANSVERSAL AND LONGITUDINAL EVALUATION METHODS

	Transversal evaluation	Longitudinal evaluation
Baseline	Not required	Required
Follow-up evaluations	Double: NGO-supported control communities	Simple: NGO-supported communities only
Type of evaluation	External	External
Standard evaluation method required over time	No	Yes
Contamination by longitudinal exogenous factors	Yes	Yes
Contamination by transversal exogenous factors	Yes	No
Limited to availability of control communities	Yes	No
Survey field costs	More expensive: In each follow up round both, control groups and NGO supported communities must be surveyed	Less expensive: In addition to the baseline, only NGO-supported must be surveyed

Source: Authors

Given the relatively short life span of the projects evaluated in Nicaragua and El Salvador, and the absence of comprehensive baseline measurements there, the surveys carried out by *PHRplus* for this research could be treated as baseline surveys. These could then be repeated in the future – for example when these NGO projects end a few years from now – to assess the projects' impact on the various performance indicators examined through this research.

ANNEX. NICARAGUA: ACTIVITIES TO BE SUPPORTED BY NGO

TABLE 14 NICARAGUA: EVIDENCE OF BETTER RELATIVE PERFORMANCE BY CONTRACTED OUT NGOS

STRATEGIES	RESULTS ¹
Mother and child care	
1. Train community midwives and health personnel in government health centers	No
2. Improve access to institutional or midwife-assisted deliveries for high-risk births	No
3. Promote at community level better knowledge about prenatal care and safe deliveries through training of community midwives and volunteers	No
4. Strengthen referral and counter-referral system, including government health centers, private providers, and maternal houses	No
Nutrient and micronutrient deficiency	
1. Detection of nutritional deficiencies in health centers	N.A.
2. Training of health care workers on home based nutritional rehabilitation programs	No
3. Training of volunteers on nutrition issues	No
4. Development of control and monitoring instruments to evaluate weight gain in children within the Integrated Community Child Health Program	No
5. Improve diagnosis of anemia through HemoCue Analyzer	N.A.
Promotion of breastfeeding	
1. Increase knowledge about benefits of maternal breastfeeding	N.A.
2. Create setting and support for an optimal start of breastfeeding in health facilities	N.A.
3. Involve decision takers in promote behavioral changes with regard to breastfeeding	N.A.
Treatment and control of diarrhea	
1. Train mothers in the use of ORT (Oral Rehydration Therapy)	No
2. Improve the availability of ORS (Oral Rehydration Solutions) in community centers adapted as oral rehydration facilities	N.A.
3. Promote the adequate use of antibiotics in the case of diarrhea	Yes
Treatment and control of pneumonia	
1. Educate mothers to detect signs of danger in pneumonia	No
2. Train personnel in the timely and quality treatment of Acute Respiratory Infection (ARI)	No
3. Development of long distance learning	Yes
Immunization	
1. Strengthen the management of vaccines and the cold chain through the regional authority	No
Birth spacing	
1. Increase access to family planning methods in far off regions	No
2. Improve the delivery of health care	No
3. Training of volunteers for the distribution of family planning methods	No
HIV/AIDS/STDs	
1. Prevention of HIV/AIDS by increasing knowledge	N.A.

Source: Constructed by the authors from information contained in the NGO's Detailed Implementation Plan.
1/ "Yes" indicates that the performance evaluation showed a positive impact of NGO activities. "No" indicates that no positive evidence could be found and N.A indicates that the corresponding strategy was not evaluated by this study.

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