CONDITIONAL CASH TRANSFERS AND HEALTH: UNPACKING THE CAUSAL CHAIN

Marie Gaarder, Amanda Glassman, and Jessica Todd.

I. Introduction

CCT programs are spreading rapidly throughout the developing world. Since 1997, seven countries in Latin America and the Caribbean have implemented and evaluated CCT programs with health and nutrition components\(^1\). CCT interventions related to health behavior have also been subject to recent evaluations in Asia and Africa. The existing evidence from these diverse programs, interventions, and regions are the subjects of this paper and include Brazil’s Bolsa Alimentacao/Bolsa Familia, Colombia’s Familias en Acción, Honduras’ Programa de Asignacion Familiar (PRAF), Jamaica’s Programme Advancement Through Health and Education (PATH), Mexico’s Progresa/Oportunidades, Nicaragua’s Red de Protección Social, Paraguay’s Tekopora, Malawi Diffusion and Ideational Change Project (MDICP), and Nepal’s Safe Delivery Incentive Programme (SDIP). Other CCTs with health components are in the process of development or of being evaluated in such diverse countries as Argentina, El Salvador, Panama, Bangladesh, Pakistan, Turkey, Egypt and Kenya.

The question that has been emerging from the CCT and health literature goes something like this: which components of the programs, or combination thereof, were important in achieving the ensuing improvement in health and nutritional outcomes? These impacts could be due to increased use of preventative and prenatal care services, increased food consumption, the receipt of nutritional supplements, increased knowledge in topics covered by the health information lectures (such as proper hygiene and food preparation, best practices for breastfeeding and treatment of diarrhea) or even increased coverage and timeliness of vaccinations through increased supply of preventative care services. Understanding the role of such factors in influencing outcomes is critical for developing more effective programs.

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\(^1\) Chile’s Solidario Program has been excluded from this review given that the transfer is not conditional on any behavioral requirement on school enrolment or health visits.
Several review articles on what we know about the impact of CCT programs on health and nutrition have been published lately (Glassman et al., 2007; Lagarde et al. 2007; Fiszbein et al., 2009; Leroy et al., 2009). This paper constitutes an update on these in two ways: first, it adds the results of the most recent rigorous impact evaluations; and second, it discusses to what extent the available evidence can help us explain the causal chain and assumptions underpinning the programs.

While each component of the typical CCT program may have been subject to impact evaluations independently in non-CCT contexts, this review will concentrate on what can be distilled about the contribution of each component within an integrated CCT program setting. In this exploration of the effect of cash conditional on health-seeking activities on health outcomes, the first question is what the conditioning itself buys you. Next follows the exploration of the additional effect of the add-ons; health talks, supply-side incentives, food supplements etc. It is important to note that causal inferences can not be drawn from any findings related to one component of the program, as the effects observed are likely to be dependent on the integrated nature of the program.

As we write, a number of the gaps in the causal chain are about to be further reduced: Egypt and Morocco are both in the process of designing and implementing programs in which they consider experimenting with conditional versus unconditional cash transfers. In Pakistan, the National TB control Programme is planning to experiment with modern in-kind contributions such as mobile phone minutes to incentivize to compliance with Tuberculosis treatment regimens.

The paper reviews the evidence on the health and nutrition results from rigorous impact evaluation of CCT programs in low and middle-income countries available to date. Building on the existing surveys, as well as additional papers that have come to our attention through contacts and seminars, we are in the process of undertaking further extensive study search and identification, and are applying stringent inclusion criteria. To date, the number of programs/interventions included are 9, covering 3 different regions of the world.
The remainder of the paper is structured as follows. Section 2 describes the methodology used for the identification and inclusion of studies in this review, section 3 highlights some basic design features of the included programs and interventions, section 4 describes the key demand and supply-side factors that determine use and effectiveness of health care services, and section 5 outlines the key assumptions that implicitly underlie the program effect model and current evaluation efforts with regards to CCT programs, reviewing and critically examining the evidence available about the plausibility of these assumptions. Section 6 concludes.

II. METHODOLOGY

We include rigorous impact evaluations assessing the effect of CCT interventions in low and middle-income countries on health care utilization and health and nutrition outcomes. Evaluations selected for our review use experimental design, including randomised controlled trials (RCTs) and quasi-experimental design. Excluded studies were those which do not control for endogeneity of programme placement or self-selection into the intervention group.

Building on the existing surveys\(^2\), as well as additional papers that have come to our attention through contacts and seminars, we are in the process of undertaking further extensive study search of relevant databases using the following key terms and/or their combinations: (conditional) cash transfer, (monetary) incentive, social protection, safety nets, health (services) (care), nutrition, and demand. No limitation regarding publishing date is being used, and searches are carried out both in Spanish and English.

III BASIC DESIGN FEATURES

The basic design features of cash transfer programs conditioned on health-related behavior described in this section include the design and structure of the health conditions and transfers, eligibility for and targeting of transfers, supply conditions, and impact evaluation.

\(^2\) See references on previous page.
In the case of the traditional CCT programs (which is how we will refer to the safety-net type of programs that have originated in Latin-America forthwith), in order to receive cash transfers month-to-month, beneficiary households must comply with a set of conditions related to the use of preventive health services and attendance to health education sessions. There are no explicit nutrition conditions; rather this outcome is expected to result from the combination of the increased income from the transfers and the nutrition knowledge provided by the education and training components of the programs. In the case of the Malawi intervention, the financial incentive is related to the collection of HIV test results at a nearby VCT center, whereas in Nepal it is related to giving birth in a public health facility.

There have been a number of different approaches to determining the transfer amount in the traditional CCT programs. In Colombia, Jamaica and Mexico, the amount of the health/nutrition transfer represents the difference between the consumption of an average extreme poor household and the food poverty line, with some variations (i.e., the per capita indigence gap for children under 6 only). The goal of this type of transfer is to – on average -- move households living in indigence to a minimum consumption level. In addition to a basic needs and political issue, minimum consumption was seen as a pre-requisite to human capital investment. Another approach, used in Honduras, is to base the transfer amount on the opportunity costs of accessing health care, which has resulted in a lower average monthly transfer. For the purposes of the present paper, it is important to note that the health and nutrition grant’s lump sum structure favors smaller families, which may affect program effects, and that it is the combined amount of the transfer, representing both schooling and health/nutrition subsidies, that influence the results achieved in the evaluated programs. On average, payment amounts range from 10 to 25 percent of total consumption among beneficiary households.

In the case of Nepal’s Safe Delivery Incentive Program, the amount was calculated based on the transport cost to the public facility where the delivery took place (and hence varied by region) and represented on average only one quarter of the cost of normal delivery. In the Malawi case, the incentive provided randomly to selected
participants was of a voucher of three dollars to be converted to cash upon collection of test results.

Traditional CCT programs are directed to poor families; in most cases, families with children. A central feature of CCT programs is the use of explicit targeting strategies to determine eligibility for benefits. PRAF and RPS apply geographical targeting strategies only. Poor localities are identified using an index of well-being usually constructed on census and survey information, program localities are selected randomly up to a budget constraint and all households within the selected localities are eligible to enroll in the program. Progresa/Oportunidades, FA and Bolsa Familia apply a first round of geographic targeting of localities, followed by the application of proxy means testing or direct income testing to identify individual households eligible to participate in the programs. Other conditions for the participation of localities are sometimes established; for example, the FA program requires that participating municipalities have a bank available within a given geographic reference area as well as sufficient supply of health and education services to be available to meet expected increases in demand. With the exception of Progresa/Oportunidades, CCT programs restrict entry to poor households with young children, school-aged children and pregnant women; all other households are excluded. For a more detailed discussion on the pros and cons of different targeting strategies used in CCT programs, see Glassman et al, 2007, and Coady, Grosh and Hodinott (2004).

In the Malawi MDICP project, there was no direct poverty targeting since participants were randomly selected from three rural districts, however poverty levels in Malawi are generally high, and a majority of respondents were subsistence farmers. Similarly, no explicit targeting was built into the SDIP in Nepal, however richer households were found to benefit disproportionately as they have a higher chance of delivering in a public health facility. (The incentive was only supposed to be available to women with two or fewer children, although this was found difficult to verify and was later scrapped.)

In some countries, minimum supply conditions had to be met prior to implementation of demand-side piece. In Colombia, this took the form of a
minimum provider/infrastructure to beneficiary ratio and the availability of “space” to produce more visits with respect to a standard ratio. In Mexico, minimum distances to facilities were established. In Honduras and Nicaragua, however, CCT programs built in supply-side strengthening intended to respond to the pressures associated with increased demand for services and the possibility that quality might decline as a result of higher productivity. This strengthening took the form of contracting private providers for the provision of a package of services and health education talks in Nicaragua ($160/beneficiary/year) and support to a quality improvement and basic package through public health centers in Honduras ($6,000/health center/year). In both cases, there were substantial delays associated with the implementation of these components, and these delays were greater than those associated with designing and launching an entirely new CCT program (a commentary on the relative efficiency of MOH). The supply-side contracts in the Nicaragua program included pay for performance (P4P) incentives. Nepal’s SDIP program provided explicit incentives to the health providers for each delivery attended (US$4.7), either at home or in the facility. This decision was partly inconsistent with the demand-side incentive for health facility use only, and may have acted to dampen the impact on neo-natal mortality and c-sections. In the Nepal project, the location of VCT centers where HIV results were available was also randomized, and it was found that the distance needed to travel for the results was a significant factor in take-up rate.

CCT-type safety-net programs are unique in their use of multisectoral interventions, and have also been pioneers in bringing rigorous impact evaluation methodologies to the social development sphere. The CCT evaluations have tended to adopt experimental (Honduras, Mexico, Nicaragua) or quasi-experimental (Colombia, Ecuador, Jamaica, Brazil, Paraguay, Chile) designs. In addition, some of these programs have included school and health center surveys and/or qualitative evaluations on aspects of the program’s operation and effects (e.g. Colombia, Honduras and Mexico).

The evaluation designs have varied in their ability to produce estimates of impacts that can be generalized to the full beneficiary populations or to similar programs.
For example, the evaluations of PRAF and RPS were conducted on pilot phases, which were implemented on a select portion of the country. In the case of PRAF, the pilot beneficiary group represented the most impoverished communities in the country. In the case of RPS, the pilot phase was not offered to the poorest localities, but was still not representative of all potential beneficiaries. In addition to the fact that generalizations of the impact results are limited due to issues of sample selection, they have not usually been designed to answer the question of why the program works (or not) since, instead of evaluating each component separately, the evaluations have focused on the impacts of the package of multiple interventions. Granted, separating the effects of the different components poses significant challenges, but attempts in this regard were limited at the outset by the choices and/or design of instruments and the general approach to the evaluation.

### Table 1: Program Characteristics: monetary benefits, health conditions and targeting

<table>
<thead>
<tr>
<th>Program/ country</th>
<th>Monetary benefit</th>
<th>Condition</th>
<th>Targeting: Poverty: Y/N Methodology</th>
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<tr>
<td>Brazil Bolsa Familia</td>
<td>(i) $18/HH; 5/child (up to 3 children); (ii) Av. Monthly: US$24</td>
<td>(i) Updated immunization cards for children 0-6 years old; (ii) Pregnant and breastfeeding women for “regular” visits to health centers; (iii) Children 0-15 years old for “regular” visits to health centers</td>
<td>(i) Yes; (ii) Poorest households from selected municipalities (selected according to infant malnutrition prevalence)</td>
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<tr>
<td>Colombia Familias en Accion</td>
<td>(i) $20/HH; $6/child primary age; $12/child secondary age; (ii) Av. Monthly: US$50</td>
<td>(i) Children aged 0-4 years attending growth monitoring visits according to a MOH protocol (6/year for age 0-1, 2/year for ages 1-3, 1/year for age 3-4); (ii) Mothers’ attendance to bimonthly health education workshops</td>
<td>(i) Yes; (ii) Locality (meet 4 criteria) and household (SISBEN)</td>
</tr>
<tr>
<td>Honduras PRAF</td>
<td>(i) $4/HH; $5/child; (ii) Av. Monthly: US$17</td>
<td>(i) Children attending growth monitoring visits according to MOH protocol; (ii) Pregnant women for at least four pre-natal care visits</td>
<td>(i) Yes; (ii) Locality (priority index)</td>
</tr>
<tr>
<td>Jamaica PATH</td>
<td>(i) $9/eligible HH member (child, elderly, disabled); (ii) Av. Monthly: US$45</td>
<td>Children aged 0-6 attend check-ups every two months during ages 0-1 and twice a year thereafter</td>
<td></td>
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<tr>
<td>Mexico OPORTUNIDADES</td>
<td>(i) $13/HH; $8-17/child primary; $25-32/child secondary; one time grant $12-22/child for school supplies; (ii) Av. Monthly: US$20</td>
<td>(i) Children aged 0-23 months fully immunized and attending growth monitoring visits every two months; (ii) Children aged 24-60 months attending growth monitoring visits every four months (iii) Pregnant women for at least four pre-natal care visits; (iv) Breastfeeding women for at least two post-partum care visits; (v) Other family members once a year for physical check-ups; (vi) Adult family members to attend health talks – female heads of household every two months; other adults once a year</td>
<td>(i) Yes; (ii) Locality and household (marginality index)</td>
</tr>
<tr>
<td>Nicaragua Red de Proteccion</td>
<td>(i) $18/HH; additional $9/HH with a school-aged child; $20/year/child for supplies; (ii) Av. Monthly: US$25</td>
<td>(i) Mothers’ attendance to bimonthly health education workshops; (ii) Up to date vaccination scheme for children aged 0-1 year old (not enforced due to supply issues)</td>
<td>(i) Yes; (ii) municipality (70 with lowest HAZ of first graders)</td>
</tr>
</tbody>
</table>
III. Understanding the Demand and Supply-side factors that determine utilization and effectiveness of Health Care SERVICES

Understanding the causal pathways that underpin an intervention is critical to evaluating how it works and what should be modified to improve effectiveness. This section will review the factors that influence the demand for and supply of health services.

Illness reduces market and non-market productivity, the total amount of time available for production, as well as individual well being. To avoid or minimize these unwelcome experiences, individuals will tend to invest in their health in order to produce health, or at least restore part of it after an illness. These ideas were presented in an article by Selma Mushkin (1962), and formalized by Michael Grossman (1972). The extent to which the desire to invest in ones health is reflected in the demand for health care depends on whether an individual identifies illness and is willing and able to seek appropriate health care (Ensor and Cooper, 2004). The identification of illness may depend both on the type of illness, as well as on the level of knowledge of the individual. Willingness to seek care is affected both by knowledge and perceptions (social norms), as well as by direct and opportunity costs of seeking treatment, household income, along with the costs, quality and availability of substitute products and services and intra-household decision-making. The latter may possibly include differences in preferences for males over females or for working adults over children and the elderly.
As noted in Eichler (2006), the supply of health care services is determined by a combination of structural inputs (staff time, infrastructure, drugs and supplies, land, etc.) and the processes that transform these inputs into outputs (such as the available technology and the management capability of the provider) that ultimately lead to improved health outcomes. Central to the transformation of inputs into outcomes is the behaviour of the health care provider, both at the individual and institutional level. The objective functions of individual providers could include, in addition to the desire to cure patients, the desire to make money and the desire for leisure time. Thus, deficiencies in the quality of care, which tend to impede the ability of health systems to improve health outcomes for the poor, are associated first and foremost with inappropriate incentives for providers along with insufficient resources, organizational rigidities and lack of knowledge.

The next section will critically examine the CCT program effect model in health by discussing the assumptions behind the CCT programs. Available impact evaluation results will be presented as they relate to each assumption, and will feed into the discussion on whether the implicit assumptions made when designing the CCT programs tend to hold.

IV. Assumptions Underlying the CCT Program Effect Model and Impact Evaluation Methodology

Conditional cash transfer programs, and the documents that describe them, do not tend to make explicit the assumptions underlying their design, particularly as regards the health conditionality. However, from the description of the situation prior to the programs, as well as the design of the interventions, the program effect model can be made explicit.

The typical CCT program has tended to include little in terms of direct interventions on the supply-side (Nicaragua is the exception), but does involve inter-sectoral agreements with ministries of health to provide services to program beneficiaries (in some countries this commitment is made more explicit by actually tagging the budget-line going to the health sector, so that it is earmarked for CCT program beneficiaries). The CCT program approach is to stimulate demand for health
services and educational health talks by transferring cash to the mothers conditional on attendance to health education talks and regular consultations at the public health center by children and pregnant women.

Based on this design, a number of implicit assumptions are made. First, that utilization of health services is sub-optimal among the poor. Second, that an increase in utilization of health care services will improve health status, and in particular an increase in public health services will have this effect. Third, that poor women lack sufficient health knowledge and fourth, that a transfer of information to them will induce behaviour changes. The fifth and sixth assumptions are also related: that imposing conditions and that monitoring compliance are necessary to increase utilization of services to the desired level. Some programs have assumed that the cash transfer and the conditions are not sufficient to ensure optimal child nutritional investment, and have added a food supplement. The specification of the woman as the beneficiary assumes that the intra-household allocation of the additional resources depends on who is named as the recipient, that the women are in charge of the health-seeking activities of the children, and that they tend to put a higher preference on child health than their male counterparts. The ninth assumption identified is that the existing supply of services is sufficient or will increase following increases in demand. Finally, the evaluation methods chosen implicitly assume that the areas impacted by the program are those that are measured and that data is collected appropriately to be able to measure the impact. Each of these assumptions is discussed in turn below, and the program effect model is represented schematically in Figure 1.
A number of assumptions are typically not made, implicitly or explicitly, when designing and evaluating these programs. First, although the impacts of the intervention may change over time and findings will be very sensitive to the point in time in which impact is measured, little has been done systematically to hypothesize and identify the trajectories (or functional form) of different types of health outcomes. Second, until now there has been little explicit thinking about how not only the cash transfer *per se* affects health and nutrition, but also how the manner in which the transfer is delivered may affect outcomes.

### 4.1 Sub-utilization of existing health services by the poor.

The idea to condition payments on regular check-ups at a health clinic is based on the assumption that the poor make insufficient use of preventive health services. However, an optimal level of use, although clearly defined in theory, is not well-defined in practice. In economic terms, a private optimum amount of use is defined as the amount of use that would be observed if poor families had full information about the costs and benefits of preventive health care. A social optimum amount of use is understood as the amount of use necessary to achieve a given level of
positive externalities that one person’s preventive care has on the rest of society. To calculate the private or social optimal use of health services for each individual would require entering into a discussion of the statistical value of life (and healthy life as opposed to disability-adjusted life), and although this is the kind of decision that governments and individuals make on a daily basis, by allocating a certain amount of budget to health services versus defense, or by wearing a seat-belt in the car, it is not one that is easily done in a program context.

In the absence of this kind of information, the assumption of under-utilization is best approximated by looking at systematic differences in use and fiscal impact among population groups. This aspect was generally explored during the design of CCT programs. Baseline health and nutrition documentation in CCT countries prior to intervention has indicated significant inequalities in the use and fiscal impact of health care by socioeconomic strata. Poor and rural households were much less likely to identify illness and seek care when sick than their better off counterparts; their out of pocket spending on health was more significant as a proportion of their total expenditures compared to that of the wealthy and direct and indirect costs associated with care-seeking were frequently cited as a reason for non-use of services. Even in systems with strongly progressive public spending on health, the poor displayed lower use rates. In Jamaica, for example, only seventy five percent of 0-6 year olds had visited a health practitioner in the 12 months prior to the program start date. The proportion was less than sixty percent with respect to the use of preventive care (Mathematica 2004).

Impact evaluations do indicate that the programs can increase utilization. While effects on utilization varied (see Table 2) there is also some evidence that the programs caused a substitution of providers. Gutiérrez et al (2005) report that the use of public health services in rural Mexico increased in the same proportion that private ones decreased, suggesting that beneficiary families in Oportunidades may have changed their health care seeking behavior by substituting public for private services.

However, there was little ex ante analysis conducted to directly test the proposition that the inequities in health and nutrition outcomes and outputs were primarily due
to demand-side factors relative to supply-side factors. As Handa and Davis (2006) note, "the common observation that poor children attend ... health check-ups less frequently is not sufficient evidence to conclude that a demand-side intervention will solve the problem since income is highly correlated with access to and quality of ... health care making it just as plausible that differences in outcomes are driven by the unequal distribution of quality services." And even if both supply and demand side factors are shown to be important, the question remains as to which is the more cost-effective option for the government to pursue.

Flores et al. (2003) attempted to estimate the relative cost-effectiveness of supply versus demand-side interventions in improving both health and education outcomes in Honduras. However, due to delays in the implementation of the supply-side incentives, what originally was designed as four groups of intervention (demand-side incentives, supply-side incentives, both, and none) in practice collapsed to little more than the traditional two. While the evidence is hence still lacking, Handa and Davis (2006) notes that health care, particularly preventive health care, differs from education in that information asymmetries are more acute and that poor households may be less likely to seek care for this reason, which would justify government intervention to correct this market failure.

4.2 Utilization of (public) health care services will improve health status.

By conditioning on the utilization of preventive health controls, primarily in public sector clinics, the CCT programs are clearly assuming that these actions will improve health status. Improvements in health and nutrition outcome indicators, as well as decreases in visits to the hospital and hospitalizations would be necessary but not sufficient indications that the assumption holds. The reason it will not be sufficient, is again the fact that other components of the program may be influencing the outcomes.

This assumption is multi-layered in that it relates both to the quality of the services given at the public clinics, as well as to the quality and effectiveness of substitute products and services. If utilization is low due to poor quality, increasing utilization without improving quality could have the opposite effect of that intended. We
review here the impacts found on nutritional status, morbidity and mortality. While improvements in health status are observed in some programs, none of these impacts can be tied directly to the use of health care services.

Unlike the unambiguously positive results with respect to food consumption, nutritional status outcome measures show a mixed result. Leaving aside the Honduras program, all of the programs show a significant reduction in stunting. Results for the proportion underweight are less consistent; Nicaragua RPS shows a large and significant decline, while the Colombia program shows impact only in rural areas for 3–7 year-olds. No effects on anemia are observed. Table 3 summarizes program effects on nutritional status.

Morbidity may increase or decrease as a result of the CCT intervention. On the one hand, greater use of preventive care and higher levels of health knowledge may lead to fewer episodes of illness. On the other hand, greater levels of health knowledge and more frequent visits to health centers may increase the probability that mothers more frequently and/or accurately diagnose illnesses and seek care when it is required. Moreover, improved health may lead to increased symptoms of morbidity (such as respiratory infections) which cause an increase in the demand for curative care (Oppenheimer 2001). These hypotheses have not been much explored by the evaluations, but where it has been measured (mainly in Mexico), CCT appear to decrease the incidence and prevalence of morbidity.

The Mexico evaluation found that the impact of the program on the probability of child illness is negative and statistically significant for all age groups, but not until a child had been receiving benefits for at least a 12-month period (Gertler and Boyce 2001). In rural areas, a small decrease in sick days for only the productive age population is observed, while a larger effect and wider age range is seen in urban areas. Overall, the number of days lost to illness decreased by 20% among beneficiary families (Gutierrez et al. 2005).

An Oportunidades study of the effect of the program on indigenous populations found that the program decreased illness rates from 0.2% to 3.5%, with the greatest
effects observed among children under three years old (Quiñones 2006). The average program effect estimations differ substantially from Gertler’s findings, most likely due to differences in sampling size and approach used. Positive program effects observed for indigenous beneficiaries were similar to those of non-indigenous beneficiaries. This finding could be considered a weakness of the program, as is argued by Quiñones, given the implicit assumption that the average effect of the program should be larger on poorer and more marginalized groups. On the other hand, it is remarkable that the benefits experienced are equivalent for both groups when one takes into account evidence that indigenous groups have a more difficult time complying with CCT conditions due to language and cultural barriers.

With respect to chronic disease-related morbidity, the required regular check-ups and participation in health talks may have a positive effect on household and social norms related food intake and activity. However, the income transfer to the household could make some behaviors that increase the risk of chronic diseases more affordable (e.g. junk foods, soft drinks, alcohol). The single study on this issue from Mexico finds encouraging results. Fernald et al. (2004) find high baseline prevalence of obesity (twenty percent), hypertension (thirty nine percent), and diabetes (nineteen percent) among the rural poor in Mexico and that Oportunidades participation significantly reduces the prevalence of all except diabetes. Symptoms of hypertension and diabetes are also significantly reduced via program participation.

Mortality was not measured directly by the evaluations; only the Mexican program uses administrative data to analyze program effects. Hernández et al. (2004) examine the impact of Oportunidades on maternal and infant mortality using data for the period 1995-2002 from the Ministry of Health (SSA) and the National Institute of Statistics, Geography and IT (INEGI). For the entire period, maternal mortality was eleven percent lower in the municipalities with at least one locality incorporated in the Oportunidades program compared to those without any localities incorporated. For the entire period (1997–2003), infant mortality was two percent lower in the municipalities incorporated in Oportunidades compared to the non-incorporated ones. Estimates of absolute numbers indicate that in this period an average of 340 infant deaths per year have been avoided thanks to the
program. The impact of Oportunidades on infant mortality at the municipal level increases relative to the proportion of the population incorporated in the program.

Nepal’s Safe Delivery Incentive Programme (SDIP) combines both demand-incentives and provider-incentives. It provides a CCT to households with an incentive to health staff for each delivery they attend. While this programme is not intended as a social safety net, it seeks to change health seeking behaviour with cash transfers. Interestingly, the fact that the financial benefits are paid after the delivery at a health facility (and after the most risky period for neonatal mortality, which is within the first day of life), both to the mother and to the health worker, and that the amount of the transfer is not sufficient to cover the cost of normal delivery, let alone a caesarian section (the CCT constitutes one quarter and one twentieth of these, respectively), minimizes the likelihood that any measured health outcomes are due to an income effect.³ The SDIP was found to reduce the probability of a home delivery by 4.2 percentage points, and increase the chances of a delivery in a government health facility (2.6 percentage points), by skilled birth attendance (2.3 percentage points) and by any health worker (4.4 percentage points). Nevertheless, the authors found no evidence that the SDIP had any impact on neonatal mortality or the caesarean section rate.

Gertler, 2000, tests the hypothesis that PROGRESA’s prevention activities reduce illness, reflected by reduced curative care. A 58 percent reduction in hospital visits is found for 0-2 year olds, suggesting a significant reduction in major illness. Similarly, a very large (100%) reduction in hospitalization for the over 50 group is found. This suggests that PROGRESA had a positive impact on health status.

### 4.3 Insufficient health education and knowledge among poor women

The inclusion of educational health talks, mainly targeted towards the women of beneficiary households, as part of conditionality implies an assumption that it is not only insufficient income that is the reason for inadequate health investments in the

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³ Although there is the possibility that the expected future payment was internalized in the household budget planning, the fact that the program experienced lengthy delays in the disbursement of funds would have reduced the chance of this happening.
household, but also a lack of information and education. However, direct measurement of health knowledge and attitudes has generally not been a component of the evaluations (or if included in questionnaires, has not been reported in evaluation reports or papers as in the case of Colombia), in spite of the inclusion of health education components in all programs. As knowledge, attitudes and practices are posited to be critical elements in health outcome changes, understanding the evolution of these factors is critical to explaining the health results observed.

The fact that others, such as men or the mothers-in-law, have not been targeted by the health education component does not imply that these are expected to have superior health knowledge, but rather that they have less to influence over the nutritional and health status of the children. This is an implicit assumption that, if wrong, may imply important missed opportunities. Who is in charge of specific household activities and decisions will tend to be culturally specific (in Bangladesh it was found that mothers-in-law were in charge of household nutrition, when present (White; 2009)), and may even vary between rural and urban areas within a country.

4.4 Information induces behavior change

Perhaps not by design, but by default, the educational health talks have tended to expose beneficiaries to health information passively. Expecting that this type of intervention will have an effect on the health seeking and health inducing behavior of households implies an assumption that information in and of itself will induce behavior change. There are a few exceptions to the lack of study of the impacts of providing health and nutrition information to beneficiaries on health knowledge and behaviors.

In addition to the increase in food consumption resulting from the cash transfers (see Table 4), Progresa evaluators found an increase in dietary quality and calorie consumption. After controlling for the income effect associated with increased calorie consumption, the increase in consumption of more diverse, high nutritional quality foods, such as fruits, vegetables and animal products, indicates that there may be an effect of the nutritional education provided through health education talks known as “pláticas” (Hoddinott et al 2000). This effect did not vary systematically by socio-economic status of the beneficiary families. Duarte et al (2004) attempts to isolate the
effects of the Oportunidades health talks on smoking and alcohol consumption in rural areas, an analysis that is also interesting given that a potential income effect of the transfer is to increase consumption of these goods, finding that youth consumed less alcohol and more cigarettes than control groups. Moreover, Prado et al (2004) report an increased knowledge of family planning methods in both urban and rural areas. In addition, in rural areas use of modern family planning methods is higher in the intervention than in the control group. Breastfeeding initiation and duration was included in many questionnaires, but few reported on results. Surprisingly then, the lecture-style health talks accompanied by peer to peer learning through the “community mothers” seem to have had positive effects in Mexico in some areas. Moreover, Davis et al (2002) find that the impact of Procampo (a transfer program designed to compensate farmers for lost crop income after NAFTA) on dietary diversity was greater when the family was also a Progresa beneficiary, indicating that the information transfer positively influenced health-related behaviors.

Table 4: Program Effects of Household Consumption

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<tr>
<td>Mean per capita Food Consumption/Expenditures</td>
<td>10.6% increase</td>
<td>no impact</td>
<td>21% increase</td>
<td>20.4% increase urban areas</td>
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<td>22.5% increase rural areas (household total)</td>
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<tr>
<td>Mean per capita Total Consumption/Expenditures</td>
<td>not reported</td>
<td>no impact</td>
<td>13% increase</td>
<td>13.9% increase urban areas</td>
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<td></td>
<td>16.9% increase rural areas (household total)</td>
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</table>

Evaluator found that the Colombia FA program increased the time that children are breastfed by 1.44 months in urban areas and 0.84 months in rural areas. In addition to increasing per capital consumption (Table A3), the program also improved the quality of food consumed by children, increasing the average number of days per week in which various proteins (between 0.25 days and 1.09 days),
grains (about 0.45 days) and fruits and vegetables (between 0.45 days and 1.23 days) are consumed. In addition, the program increased overall household consumption of high quality foods - proteins, tubers, cereals, fruits and vegetables and fats and oils in urban areas and proteins, cereals and fats and oils in rural areas. More evidence of CCT program impact on improving healthy practices comes from Maluccio and Flores (2004), who find that RPS not only increased overall food and total consumption, it also had a beneficial effect on dietary diversity in terms of both the number and quality of foods purchased.

4.5 Conditioning necessary to induce desired levels of utilization

In order to receive CCT cash transfers month-to-month, beneficiary households must comply with a set of conditions related to the use of preventive health services and attendance to health education sessions. By conditioning the transfer on certain types of desired behavior, CCT programs are implicitly assuming that the relaxation of the budget constraint brought about by the monetary transfer will not be sufficient to induce major changes in human capital investment. Instead, a condition that transforms the income effect into a price effect, for example, by requiring regular health check-ups, needs to be in place. However, this assumption may not hold. There may be a level of transfer which would induce the desired behavior without conditioning. In that case, the relative cost-effectiveness of a conditioned and non-conditioned transfer scheme should be calculated.

A major potential source of inefficiency in the CCT programs is paying people for what they were already going to do. In order to reduce this efficiency leakage, program designers should ideally model the probability that a given beneficiary will attend the conditioned health services under different transfer scenarios. Conditionality seems to work, though there are few well documented studies on this subject. A comparative ex post impact evaluation by Davis et al (2002) of the Mexico Progresa program (pre-cursor to Oportunidades) and an unconditioned transfer to poor farmers known as Procampo found that while overall increases in food consumption were comparable between the two programs, the effects on health and schooling were significantly greater under Progresa, suggesting that conditionality did make a difference for total program’s effects. However, the
transfer recipient is most usually a male in Procampo, while in the CCT program mothers or primary females are the main recipient, which could be the source of differences in outcomes, rather than the conditions.

Although not a comparative study, Agüero et al (2006) finds that an unconditional cash transfer program in South Africa, where only the title of the grant (Child Support Grant) implies the expected use of the money, increases nutritional status as measured by height-for-age. Significant impacts are found only when households benefit before the child’s second year of life, consistent with nutrition literature that indicates that the first two years of life are most critical for a child’s growth (Allen 1993; Martorell 1999) and with impacts found in CCT programs (see Table A4). Similarly, Paxson and Schady (2007) find that Ecuador’s unconditional cash transfer program Bono de Desarrollo Humano improves children’s nutrition. However, children in the treatment group were not found to be more likely to visit health clinics for growth monitoring. Thus, the findings indicate that conditionality is not required for a cash transfer program to have some desired health and nutrition impact. However, there is currently no evidence of whether conditions in either program would have improved nutritional status further.

A recent paper by Fernald et al. (forthcoming) finds that the cash component of the OPORTUNIDADES program, independently of the health care conditionalities and/or nutritional supplements was significantly associated with greater linear growth, in addition to better cognitive and language performance. This was verified by including a variable for cumulative cash transfers and controlling for family composition effects. The authors speculate that factors relating to the child care environment are likely to play a role to explain this finding, as well as having greater financial resources which allow parents to provide a better environment for their children, or through the purchase of goods that could directly influence child growth and development such as animal-source-foods.

There are certain potential risks to conditioning, even if it is related rather to a misunderstanding of what the condition entails. In the case of PRAF, it may have led to increases in fertility rates (Morris et al. 2004), and in the case of Brazil fear that
the good performance in the growth monitoring would lead to expulsion from the program or failure to requalify may have led some parents to underinvest in the children’s health and hence to the reduction in the rate of weight gain among program pre-school children (Morris et al. 2003).

4.6 Only if the conditionality is monitored and compliance enforced will it have an effect

Program designers have feared that without monitored conditionality and disincentives for non-compliance (docking transfers when conditions are not met), CCT beneficiaries will not comply with program conditions. Two important aspects may counter this effect. The first is that the mere signaling by the authorities (or program officials) that compliance will be monitored passes a message to the beneficiaries of the importance of the activity. Second, the presence of conditions implies that there is a risk of losing the transfers, which may linger for a long time. While conditions are always stated, compliance is not necessarily monitored. Of the cases where there was effective monitoring, as in Colombia, Mexico, Nicaragua and Jamaica, compliance is generally extremely high, ranging from a high of ninety nine percent of Oportunidades households in Mexico (Behrman and Todd 1999a) to a low of ninety four percent in Jamaica (Mathematica 2004). In cases without monitoring, evidence is mixed. Morris et al (2004b) find null effects in the Honduran program where conditionality was not enforced, though payments were also irregular and may be responsible for the absence of observed effects. Schady and Araujo (2006), however, find that just the announcement of conditionality, even if not enforced, was sufficient to induce a large and significant change in the behavior of poor households in Ecuador with respect to school attendance. However, similar work has not yet been done for health. In addition, there is limited knowledge about how long the mere threat of monitoring compliance can substitute for actual compliance.
4.7. Nutritional supplements necessary to ensure adequate child growth and nutrition

Some programs have assumed that the cash transfer and the conditions are not sufficient to ensure optimal child nutritional investment, and have added a nutritional supplement. Nevertheless, Neufeld et al. (2005) found that in the case of Oportunidades the nutritional supplement had had a limited role in improving child growth and nutrition. They studied the proper preparation and consumption of the nutritional supplements by children under five in urban beneficiary households, and found that the supplements could have a greater impact if a greater quantity was provided to families (because doses are commonly reduced due to sharing with non-targeted household members) and that more attention should be paid to ensuring on-time delivery of the supplements to localities and in how the information about proper preparation is delivered to beneficiaries. In addition, the form of some nutrients (in particular iron) was found to be less easily absorbed, which recently led to modifications of the formulation (IDB 2005). Thus, without this careful study of the delivery process and use of the supplements by beneficiaries, these issues would have continued to limit the effectiveness of at least one component of the program.

The fact that the nutrition supplements were often not prepared and consumed properly by beneficiaries in Mexico suggests that the growth improvements observed among young children were mainly due to increases in the quantity and variety of household food consumption. However, a key component missing in this analysis is an understanding of how well other information presented in the lectures was received and incorporated into beneficiary household practices. Qualitative studies have indicated that the information transfer in the health lectures was minimal, in part due to the fact that they were at first only delivered in Spanish and not in native languages. However, behavioral changes could also be studied quantitatively through household surveys that collect detailed information about breast and supplemental feeding practices of young children, treatment of incidences of diarrhea and other illnesses (not just documenting occurrences), immunization records for young children,
outcomes of current and past pregnancies (not just prenatal care) and other information related to the content of health lectures.

4.8 Household allocation of the additional (CCT) resources depends on gender of recipient

CCT programs designate the mother or primary female as the recipient of the transfer under the explicit assumption that they are more likely to invest in the welfare of the children in the household. Note that this implicitly assumes that the transfer recipient also decides on its use. While Davis et al (2002) find that a CCT program (Progresa) in which a female is the recipient leads to larger improvements in health and education than an unconditional transfer for farmers in which the male was most often the recipient (Procampo, intended to compensate for losses due to NAFTA) suggests that the identity of the beneficiary matters. However, this evidence is also confounded by the fact that Progresa imposed conditions while Procampo did not.

4.9 Supply-side of services is in place or will follow demand

With the exception of CCT programs that include supply side strengthening, such as Nicaragua, most programs assume that existing supply side capacity is sufficient to meet CCT beneficiary demand. This may be based on the common observation that provider productivity in the public sector is low and could be increased if incentives were aligned even if other inputs remain unchanged. In some countries minimum supply conditions had to be met prior to implementation of the demand-side piece. In Colombia, this took the form of a minimum ratio of providers and infrastructure to beneficiaries as well as the availability of “space” to produce more visits with respect to a standard ratio. In Mexico, minimum distances to facilities were established.

In Honduras and Nicaragua, however, CCT programs built in supply-side strengthening intended to respond to the pressures associated with increased demand for services and the possibility that quality might decline as a result of higher productivity. This strengthening took the form of contracting private providers for the provision of a package of services and health education talks in Nicaragua ($160/beneficiary/year) and support to a quality improvement and basic
package through public health centers in Honduras ($6,000/health center/year). In both cases, there were substantial delays associated with the implementation of these components, and these delays were greater than those associated with designing and launching an entirely new CCT program (a commentary on the relative efficiency of MOH). The supply-side contracts in the Nicaragua program included pay for performance (P4P) incentives.

It is often assumed that if the problem is on the supply side, then the transfer needs to be made to the supply-side, ideally in the form of an incentive to perform, and if the problem is one of lack of utilization due to a lack of knowledge of the benefits of preventive care or due to deficient information regarding the existence of the services etc. then the transfer should be made to the demand-side, i.e. the beneficiaries. Nevertheless, under the assumption that the beneficiaries are well-informed of the potential benefit from preventive health care, if the problem is one of quality and existence of health care provision, then the beneficiaries can use their additional cash from the monetary transfer to incentivize the supply-side.

In countries that did not purposely boost supply in tandem with the cash transfers, the hope was that governments and providers would increase supply-side inputs if beneficiaries began to demand services and provider accountability. In other words, as a response to conditions, beneficiaries may protest in front of the health center until the public health authorities respond (as was the case in Panama in 2006 as a reaction to the CCT pilot) or use part of their additional cash to encourage providers to work longer hours or obtain drugs and supplies. Nevertheless, a recent study (XX; forthcoming) investigates how supply side constraints (defined as size of catchment area, given identical sizes, and part-time versus full-time clinics) modulate the impact of the OPORTUNIDADES program on primary health care utilization in rural settings, and finds that in the presence of supply constraints, the incentive scheme is less effective in stimulating increased utilization of health services.
4.9 Health impacts measured are those that can be expected to be affected by the program and are measured appropriately.

This final assumption relates to our ability to measure the true impacts of a CCT program and holds if the program actually addresses the factors that affect both health care decisions and health outcomes. For example, CCT programs target the reduction of infant and maternal mortality; however, depending on the context, these outcomes may be more influenced by access to quality hospital services during delivery than factors that are more directly affected by a CCT program, such as maternal nutritional status. In addition, the evaluation instruments used to gauge program effectiveness are assumed to be appropriate and sufficient to capture the changes that arise as a result of the intervention. For example, in poor regions where a significant portion of births occur outside health facilities, the fact that CCT programs evaluate infant and maternal mortality based on facility reports, rather than sample surveys, may lead to significant under-estimation of these measures.

Moreover, CCT program evaluations have given very limited attention to the impact on health-related behaviors, attitudes and household decision-making or how these factors contribute or limit impacts on outcomes. As is clear from the evaluation documents, the majority of the program evaluations have focused on measuring the effects on specific health indicator outcomes, such as incidences of illnesses, child growth and outputs such as utilization rates of public facilities for preventative, curative and prenatal care. Granted, improvements in these outcomes and outputs were listed as goals by most programs, so determining the program’s impact is an important first step. However, many of the outputs, especially use of preventive and prenatal care are actually conditions for receipt of transfers, so it should be expected that the programs lead to increases.

Furthermore, although the program rationale and effect model indicate that the reduction of out of pocket and opportunity costs associated with health care seeking is both the principal mechanism to increase utilization and thus one of the outcome variables on which one would expect to observe impact, no evaluation has analyzed these aspects.
To summarize, much could be gained by prioritizing the measurement and evaluation of health impacts from the beginning of program and evaluation design.

**Trajectory**

A number of assumptions are not made, implicitly or explicitly, when designing and evaluating these programs. First, although the impacts of the intervention may change over time and findings will be very sensitive to the point in time in which impact is measured, little has been done systematically to hypothesize and identify the trajectories (or functional form) of different types of health outcomes. [to be finalized].

Second, until now there has been little explicit thinking about how not only the cash transfer *per se* affects health and nutrition, but also how the *manner* in which the transfer is delivered may affect outcomes. A study by Gertler et al. (forthcoming) showed that using banks to transfer the cash, rather than the traditional distribution of cash, had an effect on the consumption pattern with important health implications. In particular, this way of transferring money that does not leave it too readily available reduced impulse sending on junk foods, carbohydrates & some non-food items.

**V. CONCLUSIONS AND RECOMMENDATIONS**

CCT impact evaluations provide unambiguous evidence that financial incentives work to increase utilization of key services by the poor. Further, the evaluations indicate that cash transfers, accompanied by information, social support, weight monitoring and micronutrient supplementation, can stimulate healthier feeding practices and improve young children’s nutritional status dramatically, particularly the incidence of stunting.

The Mexican program suggests that adult health may also benefit. The multi-dimensionality of CCT program benefits is an added attraction. Unlike specific demand-side incentives, such as incentives for HIV testing or compliance with a
regimen of medication, CCT programs recognize that the barriers to better health and service use are part of a broader problem of household resource scarcity. Findings suggest that the poorest households must reach a minimum threshold of food consumption before they are able to make other investments in their well-being. Further, better nutritional status increases the effectiveness of health treatments. And because CCT programs are targeted to poor children, the cohort gains associated with preventive care and schooling are irreversible, even if a program must be halted. Moreover, cost information from Latin America indicates that the programs are affordable.

However, the mixed picture with respect to outcomes – vaccination, nutritional status and, where we have data, morbidity and mortality – suggest that encouraging utilization when services are of poor quality may not produce the expected effects. Moreover, the mixed results suggest that assumptions about needs, household decision-making and causal relationships might not be entirely correct and thus our expectations for impacts, given the current program designs, may be incorrect.

Financial incentives are a blunt instrument that can also have many unintended effects, such as those observed on fertility in Honduras. For this reason, it is important to design incentives carefully. This is particularly important with regard to the health and nutrition components as the evidence reviewed seems to indicate an under-design of these aspects of the CCT programs.

A key design question relates to identifying the marginal benefit of conditioned over unconditioned transfers. Monitoring conditionality is costly, and complying with the co-responsibilities is time-consuming for the household, and thus it is important to determine whether conditions are necessary. In some cases, it is probable that only increased income was needed and that poverty was the entire problem, but this should be carefully considered in the design stage.
A second critical question relates to the relative cost effectiveness of investing on the supply versus the demand-side within the health system. Supply and demand are jointly determined and, while paying poor households to use preventive services works at increasing utilization, it is still unclear what happens at the health post. If quality decreases, or non-beneficiaries are crowded out, the programs may pay too much for the care that beneficiaries receive. In other words, negative spillovers in service quality from demand-side programs may be greater than the net gain to beneficiaries. On the other hand, increased demand can encourage improvements in efficiency and quality. Regardless, these questions stress the need for an assessment of the supply-side and ex ante modeling of the demand for health care.

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Nicaragua:


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<td>Public clinic visits (reference period)</td>
<td>Rural</td>
<td>0-2 years old: 1.5% decrease (last 6 months)</td>
<td>0-3 years old: 11% increase (last 6 months)</td>
<td>0-2 years old: 22.8% increase</td>
<td>0-6 years old: 7% more likely to attend clinic 6 times or more: 4% more likely to attend 4-5 times</td>
<td>N/A</td>
<td>0-6 years old: 27.8% increase (last 6 months)</td>
<td>N/A</td>
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<td>No impact (last 4 weeks)</td>
<td>20.2% increase (last 30 days)</td>
<td>0-2 years old: 22.8% increase</td>
<td>Rural: 4-6% increase</td>
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<td>3-5 years old: No impact (last 6 months)</td>
<td>1.5% increase (last 4 weeks)</td>
<td>2-4 years old: 33.2% increase</td>
<td>Urban: No significant impact</td>
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<td>6-17 years old: 1.5% increase (last 4 weeks)</td>
<td>&gt;4 years old: 1.5% increase (completed age appropriate visit)</td>
<td>N/A</td>
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<td>18-50 years old: 1.5% increase (last 4 weeks)</td>
<td>N/A</td>
<td>3-7 years old</td>
<td>No impact (last 6 months)</td>
<td>N/A</td>
<td>20.7% increase (last 12 months; poorest quartile)</td>
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<td>Health control and weighting of children</td>
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<td>0-3 years old</td>
<td>17.5% and 23.6% increase, for all and extremely poor, respectively, (last 6 months)</td>
<td>N/A</td>
<td>N/A</td>
<td>No impact (last 6 months)</td>
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<td>20.7% increase (last 12 months; poorest quartile)</td>
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<td>Receive parasite treatment</td>
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<td>No impact</td>
<td>18.7% increase (5 or more; last pregnancy)</td>
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<td>No impact (last 6 months)</td>
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<td>20.7% increase (last 12 months; poorest quartile)</td>
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<td>Urban</td>
<td>6.12% increase (4 or more; Kessner Index15)</td>
<td>N/A</td>
<td>N/A</td>
<td>No impact (last 6 months)</td>
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<td>20.7% increase (last 12 months; poorest quartile)</td>
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<td>Professional care at childbirth</td>
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<td>2.6 percentage points increase in probability of delivery in government facility; 2.3 percentage points increase in prob. of skilled birth attendance; 4.4 percentage points increase in attendance by any health worker</td>
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<td>10-d postpartum physical examination</td>
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<td>5.6% decrease</td>
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<td>Voluntary counseling and testing center visit (details)</td>
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<td>27.4% (learn their test results)</td>
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Table 3: Program effects on nutrition, morbidity, and mortality

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<tr>
<td>Proportion stunted; haz&lt;-2.0</td>
<td>1997-1999</td>
<td>12-36 months decrease (coefficient for logit estimate reported) 1997-2003 24-72 months 29% decrease (girls) 11% decrease (boys)</td>
<td>0-4 years old no impact</td>
<td>0-4 years old 5.5% point decrease</td>
<td>0-2 years old 6.9% points decrease 2-7 years old no impact</td>
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<td>Proportion underweight; waz&lt;-2.0</td>
<td>no impact</td>
<td>0-4 years old no impact</td>
<td>0-4 years old 6.0% point decrease</td>
<td>Rural 0-3 years old no impact 3-7 years old 3.4% points decrease</td>
<td>Urban no impact</td>
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<td>Mean hemoglobin value (g/dL) of children</td>
<td>aged _12 mo (at baseline) after 1 y of program participation vs no exposure in the control group: 0.37</td>
<td>aged 6-59 mo: -0.1</td>
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<td>Prevalence of anemia (%) for children</td>
<td>aged _12 mo (at baseline) after 1 y of program participation vs no exposure in the control group: 10.6 after 2 y of program participation vs 1 y in the control group: -2.8</td>
<td>aged 6-59 mo: -0.2</td>
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<td>Probability of</td>
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<td>morbidity</td>
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<td>-23.3%</td>
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<td>&lt;48 mo: -11%</td>
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<td>Urban</td>
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<td>&gt;48 mo: NS</td>
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<td>-0.97d/mo</td>
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<td>Resp. Dis. NS</td>
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<td>Children</td>
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<td>Urban Diarrhea -NS</td>
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<td>whose mother reported that they were ill in the past 4 weeks:</td>
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<td>Resp. Dis. - NS</td>
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<td>- aged _3 y at baseline, -4.7%</td>
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<td>- aged 3-5 y at baseline, -3.2%</td>
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<td>Likelihood of children aged _3 y at baseline to be reported ill</td>
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<td>- impact after 2 mo of program 0.94</td>
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<td>- impact after 8 mo of program 0.75</td>
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<tr>
<td>Age 0-2:-0.007 (monthly average 0.12)</td>
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<tr>
<td>Age 51+: -0.006 (monthly average 0.006)</td>
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