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Child Poverty Insights disseminates emerging research, practice and thinking on child poverty to a global audience of UNICEF and other UN staff, practitioners and academics.

This edition discusses the positive results from Brazilian social protection programmes - Bolsa Familia and the Family Health program, on the mortality and health of children under 5.

Impact of Conditional Cash Transfer Programs and Primary Health Care Programs on childhood mortality: evidence from Brazil

Daive Rasella

*MPH, PhD, Postdoctoral Researcher
Instituto de Saúde Coletiva, Federal University of Bahia
Salvador, Brazil*



What are the effects of poverty on childhood health?

More than half of the world's poor are children; and the cumulative effects of poverty, especially in early childhood, can cause nutritional deficiencies and health problems that can reduce a child's capacity to later sustain a normal life and cope with difficulties. Poor children are more likely to die from pneumonia, diarrhea, malaria, measles and HIV/AIDS, which together with malnutrition are responsible for more than half of the deaths of children under 5 globally. Strategies adopted to reduce child mortality in developing countries are usually focused on interventions addressing biological causes, without considering its key underlying determinants. There is a growing consensus that to reduce health inequalities, especially during childhood, it is necessary to design interventions which also address social determinants of health.

What are the Bolsa Familia and the Family Health Program?

Conditional cash transfers (CCT's) are poverty-reduction interventions that were first implemented in the 1990's in Latin America. Through CCT programs, money is transferred from government to poor households with the requirement that parents comply with specific conditions focused on improving health and education for their children. The transfer of money aims to alleviate the immediate burden of poverty, and the condition attached to it aims to encourage the use of health and education services. CCT programs have become a common strategy for alleviation of poverty and reduction of inequalities in some low and middle-income countries.

In Brazil, the Bolsa Familia Program (BFP) was launched in 2003 and merged pre-existing social programs into one unique expanded program. The BFP is the world's largest CCT program, with a total of 13.9 million families enrolled in 2012. The coverage of BFP has expanded greatly in the past 10 years, and now reaches all Brazilian municipalities. A family beneficiary of the BFP receives a monthly money allowance by complying with specific conditions related to the health and education of their children. The amount each family receives depends on the income and composition of the family.

To meet the conditions related to health children younger than 7 years must be fully vaccinated according to the Brazilian immunization program schedule, and they must comply with routine health check-ups and growth monitoring. The frequency of such health check-ups and growth monitoring depends on the child's age and is based on the guidelines of the Ministry of Health. Pregnant and lactating women must attend scheduled prenatal and postnatal visits. Moreover they have to attend health and nutritional educational activities. If the family is within its catchment area, health-related conditions should be met using the facilities of the main primary health care program in Brazil, the Family Health Program.

The *Programa Saúde da Família* (The Family Health Program, FHP) is another large-scale national program, implemented in Brazil over recent years. By 2012 the FHP reached almost all Brazilian municipalities, covering 54.8% of the population. By offering free community-based health care FHP has broadened people's access to primary health care, especially in deprived and rural areas.

Our study assessed the effect of the BFP on under-5 mortality rates in Brazil; in particular for causes of mortality associated with poverty (such as malnutrition and diarrhea), and some intermediate mechanisms (such as vaccination, prenatal care, and admission to hospital), that could explain the effect of the intervention. We also analyzed the impact of the FHP and its joint effect with the BFP.

What is the effect of these two interventions on child mortality?

We found that both BFP and FHP coverage were associated with a significant reduction of under-5 mortality rates: the Bolsa Familia (BFP) effect was greater when the program had a high coverage (>32%) of the total population in a municipality, and all poor eligible population was enrolled and remained in the programme for 4 years or more. The Family Health Program (FHP) effect was strongest when the program had high rates of coverage of the population of the municipality (>70%) for 4 years or more. The strongest impact of the BFP was on reducing under-5 mortality resulting from malnutrition and diarrhea, whereas FHP was associated reduction in diarrheal diseases and in infections of the lower respiratory tract (Table 1).

Table 1
Percent reductions of under-five mortality rates (U5MR), overall and for some relevant group of causes, associated with different levels of coverage of the Bolsa Familia Program (BFP) and of the Family Health Program (FHP): Brazil, 2004–2009.

	U5MR	U5MR from Diarrheal Diseases	U5MR from Malnutrition	U5MR from Lower Respiratory Infections
BFP population coverage				
Medium	6% *	17% *	34% *	4%
High	12% *	32% *	46% *	6%
High and long-lasting	17% *	53% *	65% *	20% *
FHP municipality population coverage				
Incipient	1%	10%	12%	7%
Intermediate	7%*	29%*	28%	29% *
Consolidate	12% *	47% *	41% *	30% *

Please consider that BFP coverage levels and FHP coverage levels are calculate in different forms, so their effects cannot be compared
 * Statistically significant ($p < 0.05$)

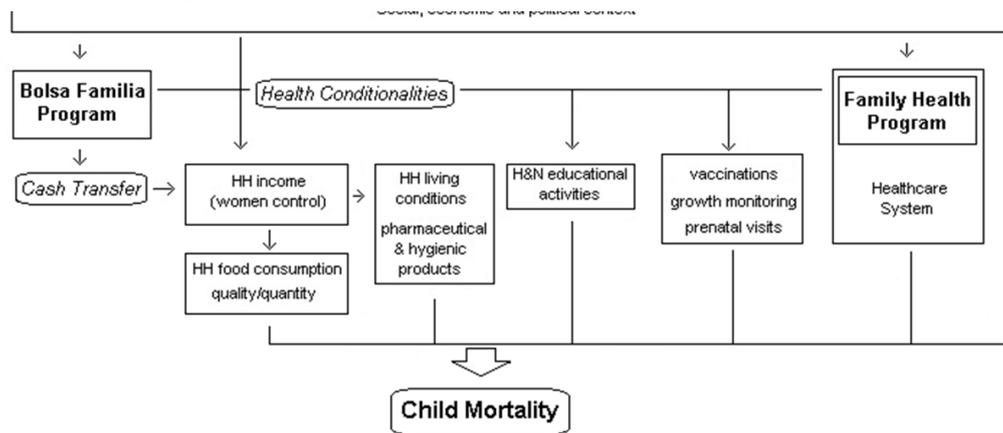
In a manner similar to its effect on the reduction in mortality rates, the BFP coverage increased vaccination coverage for measles, polio, and DPT, reduced the number of pregnant women who delivered without receiving any prenatal care, and reduced rates of hospitalizations of children under 5. The BFP had its strongest effect on reducing malnutrition. Previous studies have already demonstrated the positive impact of the FHP on vaccination coverage and pre-natal care. When the two programs were implemented simultaneously and with a high coverage in the municipality, they had a synergistic effect on the reduction of under-five mortality.

Why did the interventions have such a great effect?

To understand how the relatively small amount of money provided by the BFP can have such a strong effect on the beneficiaries' health, especially children's health, it has to be considered that the money allowance provided by the BFP is proportional to the economic poverty of the family, and that the association between income and health is non-linear: even a small amount of money, given to extremely poor families, could have a strong effect on child health.

This does not necessarily mean that a small amount of money is sufficient for poor families to reach child mortality levels of high or middle-income families, but it could have unexpectedly large beneficial effects. BFP, like other CCT programs, can affect child survival through different mechanisms as shown in Figure 1: an increased income can increase access to food and health-related goods such as drugs or hygienic products, and the health-related conditions of the program can improve access to health services.

Figure 1
Mechanisms linking the Bolsa Familia Program and the Family Health Program to child mortality



Concerning the first mechanism, it has to be considered that a strong association exists between child under-nutrition and child survival. As levels of child under-nutrition increase, so does the risk of death, especially from diarrhea. Recent research has shown that poor families enrolled in the BFP have increased their spending on food, and improved food security in their households. The second important explanation for the effect of the BFP on child survival is associated with its conditions on health, which include prenatal care, postnatal care, and health and nutrition education activities for mothers, in addition to a regular vaccination schedule and routine check-ups for growth and development for children younger than 7 years. Maternal knowledge and education are some of the strongest determinants of child health, improving nutrition, hygiene practices, and care-seeking for illnesses. Even if there is conflicting evidence as to whether monitoring of child growth is effective in itself, such monitoring can provide an entry point for preventive and curative health-care services and can reduce the scarcity of contact with the health system, an important determinant of child survival in developing countries. Concerning the FHP, it has been demonstrated that the program increases access to health care.

Our results show a certain degree of synergy between the BFP and the FHP. This could be explained by the fact that FHP can strengthen the effect of the BFP in comparison with traditional health facilities that are generally more distant, and do not undertake community involvement activities and home visits by community health workers. These FHP characteristics can assure a better follow-up of the conditions of the BFP. The increased family income due to BFP allowances can reduce economic barriers for the access to primary healthcare - as well as the other healthcare levels - increasing its effectiveness in the municipality.

Besides the impact on mortality rates, we identified a strong effect of the BFP on reduced hospitalizations of those under 5, both for overall and specific causes. That can be explained by two different mechanisms: decreasing the incidence of diseases by affecting social determinants of health, or by increasing early contacts with the primary health care and thereby reducing the number of serious cases of illness needing admission to hospital.

What is the conclusion of the study?

Our study provides evidence that a multi-sectoral approach composed of a large-scale conditional cash transfer program acting on social determinants of health, with an effective primary health care program attending basic health demands of the population, can substantially reduce childhood morbidity and mortality from poverty-related diseases in developing countries.

References/Further Reading:

Rasella D, Aquino R, Santos CA, Paes-Sousa R, Barreto ML. Effect of a conditional cash transfer programme on childhood mortality: a nationwide analysis of Brazilian municipalities. *The Lancet* 6; 382: 57–64.

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This issue is guest edited by Syeda Nazifa Tasnim, Mount Holyoake College.