9 Conditional Cash Transfer Programs and Health

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All of the major conditional cash transfer (CCT) programs in Latin America and the Caribbean have included components specifically intended to improve the health outcomes in beneficiary households. In Colombia, Jamaica, Honduras, Mexico, and Nicaragua, health-related activities were fully integrated with other components of the respective cash transfer programs, while in Brazil a separate program (Bolsa Alimentação) was set up to administer health- and nutrition-related payments. As discussed in detail later in this chapter, the health components of all of the CCT programs are based on the assumption that the achievement of optimal health status is constrained not only by low income but also by low demand for preventive health services. Thus, in all of these programs regular visits to health centers have been a condition for continuing to receive payments. In some countries, such as Mexico and Nicaragua, this conditionality has been rigorously enforced. In others, such as Brazil and Honduras, monitoring and enforcement have been weak. Reflecting both domestic and international policy priorities, most of the CCT programs have focused on young children and pregnant and lactating women, with only the Mexican Programa Nacional de Educacion, Salud, y Alimentacion (PROGRESA) requiring all household members to receive regular preventive health check-ups.

In this chapter we conceive of "health" as something broader than and distinct from nutrition, which will be discussed in the next chapter. In particular, we are interested in the potential of CCT programs to contribute to the United Nations Millennium Development Goals of reducing child mortality and improving maternal health (United Nations 2000). In the current policy environment, such a focus seems natural, but it should be noted that that is not the logic that guided the design of the original CCT programs in the mid-1990s. Rather, these programs were based on the perceived need to foster investment in human capital, an argument set out persuasively in the *World Development Report* of 1990 (World Bank 1990). Just as low educational levels were seen as a constraint to poor people's ability to achieve full economic productivity, small stature and chronic ill health were seen as holding back economic development. Public investment in health might alleviate these problems, particularly if fo-

cused on those in the most vulnerable stages of life: pregnancy, childhood, and (in the case of the Jamaican program only) old age. The CCT programs therefore set out to ensure that poor people benefited from basic preventive healthcare by making the opportunity cost of doing so zero (in Honduras) or negative (in Mexico and Nicaragua). Other complementary activities aimed to reinforce the conditioned payments to poor families. In Mexico and Nicaragua, health education sessions were provided at the community level, with attendance required. In Mexico, extra funds were available to the Ministry of Health to strengthen peripheral health services in PROGRESA areas. In Nicaragua, essential health services were contracted out to local nongovernmental organizations in areas served by the CCT program Red de Protección Social (RPS). In Honduras, the basic CCT concept was developed significantly by including a group of municipalities that were to receive significant extra funding for local health improvement teams, with training in quality improvement and the initiation of a community-based growth promotion program. Unfortunately, legal difficulties prevented the full implementation of this component.

In the remainder of this chapter we seek to understand whether experience to date supports the use of CCTs (specifically) to improve health outcomes. We first ask whether the different programs have succeeded in increasing the use of basic preventive healthcare services, as they all set out to do. We then ask whether increased contact between poor populations and public (or at least publicly financed) health services led to an increase in the coverage of interventions of demonstrated efficacy.[1] Finally, we seek to assess whether these impacts are likely to have saved children's and mothers' lives. Our conclusion is that in spite of the remarkable success of CCT programs in changing household behaviors, it is most unlikely that they have contributed anything to the global effort to reduce child and maternal mortality. We therefore consider how these programs could be modified to make them more cost-effective.

Findings on Health Impacts

Impacts on the Use of Preventive Health Services

Empty health centers are a depressingly familiar sight in many developing countries.[2] CCT programs assume that *one* of the reasons for these low use rates is that the opportunity costs (plus direct costs) of getting to a health center, wait-

1. A note on terminology is in order. A health "intervention" is used here in the sense of the promotion by health services of a biologically active material such as a vaccine, a clean birthing kit, or breast milk. "Coverage" means the proportion of the target population actually receiving the intervention. "Efficacy" means that an impact has been demonstrated in a randomized, controlled trial. In contrast, "effectiveness" means that an impact has been demonstrated under program conditions.

2. Lagarde, Haines, and Palmer (2007) also provide a review of these impacts but in less detail than that reported here.

ing for attention, and—sometimes—paying for the healthcare received outweigh the expected benefits as perceived by the policymaker. The conditioned payments eliminate these opportunity costs, at least for routine check-ups. There should thus be an observable increase in health center use. Such an increase in use should be detectable both in government records of numbers of consultations per health center and in surveys that ask beneficiary families to recall their history of health service use. Unfortunately, both sources of data are flawed. Routinely collected use data tend to be incomplete and generally do not record where health service users live, which is a problem when assessing the impact of program benefits that have been allocated geographically. Recall data, on the other hand, may be subject to deliberate distortion if survey respondents think there is any chance that the answers they give will affect their beneficiary status, which is quite likely if payments are being explicitly conditioned on health center use.

Gertler and Boyce (2001) find, based on an analysis of facility data, that there were 18.2 percent more visits to clinics in PROGRESA areas than in non-PROGRESA areas following the implementation of conditioned payments in Mexico. Because PROGRESA benefits were targeted only to the poorest families in the program areas, this means that the impact on PROGRESA beneficiary families would have been larger. The authors estimate that there might have been as much as a 60 percent increase in health service use among these families, and they find this figure consistent with the recall-based data, which suggest a 53 percent increase.

No other evaluations of CCT programs have reported their overall impact on health service use. This is understandable, because only PROGRESA required all household members to receive preventive health check-ups. In the following paragraphs we examine differential impacts by demographic groups, starting with pregnant women. All countries in the region provide free antenatal care in public health clinics and recommend frequent check-ups starting in the first trimester of pregnancy.

In Honduras, the household survey data suggested a large impact on the uptake of antenatal care (Morris et al. 2004). In the two evaluation groups receiving health vouchers, the proportion of women reporting five or more antenatal care visits increased by 18–19 percentage points, from a baseline level of 38 percent. There was no change at all in the control group; however, baseline levels in this group were much higher, at 49 percent. The fact that the program and control groups were substantially different at baseline with respect to this variable makes it difficult to be sure that the impact estimate is valid. Further doubts are raised by the routine government facility data, which do not indicate any impact at all on the use of antenatal care services.

In Brazil, there was no difference between Bolsa Alimentação beneficiaries and the comparison group with respect to the number of antenatal care visits. However, this outcome was inevitable given that only about 5 percent of all

program beneficiaries were captured during pregnancy. No data are available from Mexico, and the Colombian and Nicaraguan programs were not conditioned on the uptake of antenatal care.

Table 9.1 summarizes reported CCT program impacts on health service use by young children. By far the largest impacts are observed in Honduras, where the proportion of children in Programa de Asignación Familiar–Fase II (PRAF-II) taken to a health center in the month preceding the interview reportedly increased by 15–20 percentage points. Routine data on trips to government health facilities also suggest large relative increases (of 14–39 percent) for the age group between 1.0 and 4.9 years and somewhat more modest increases (of 4–24 percent) among infants.[3] A smaller but still statistically significant impact was observed in Brazil. In Nicaragua, program impact was eaten away over the two years of the evaluation as the control area gradually caught up with program area. This contrasts markedly with the Honduran situation, in which no improvement over time was seen in the control area. A quite different result is observed in Mexico, where the frequency of visits to health centers apparently *diminished* markedly in the youngest children, with no evidence of any impact, positive or negative, among children 3.0–5.9 years of age. It must be noted that the overall level of health service use observed in the Mexican data appears astonishingly low, some 5.5 times lower than the baseline levels observed in Honduras. Such low use is, in fact, hard to reconcile with the fact that Mexico had routine levels of immunization (for DPT3 and measles) of over 95 percent in the late 1990s.

Impacts on Receipt of Key Interventions

Only the evaluation of PRAF-II in Honduras has analyzed changes in the coverage of key interventions delivered during pregnancy. This study found that there was no significant change in the proportion of women effectively immunized against tetanus.

Several evaluations have analyzed the impacts of the CCT programs on the coverage of early childhood immunizations (Table 9.2).[4] Only the Honduras evaluation reported significant impacts, and this evaluation was limited to an indicator of the timely *initiation* of the early childhood immunization series. The percentage of children receiving DPT1 (or the equivalent first dose of the pentavalent vaccine) at the recommended age of 42 to 92 days increased by 7–9 percentage points. Coverage of measles-containing vaccine, which is supposed to be given at 12 months of age in Honduras, was not affected. This may be because the increased frequency of contacts with young infants brought about

3. Both survey data and routine facility-based data suggest that there were smaller impacts in the group that received both cash transfers *and* the service-level package in the PRAF-II program.

4. In addition to these studies, Attanasio et al. (2005) report the positive impact of a CCT program in Colombia.

TABLE 9.1 The impact of Latin American CCT programs on the health service use of young children

Country	Age group	Indicator	Baseline level in control group	Impact of CCTs		
				Absolute	Relative	Significance
Brazil	0–6.9 years	Percentage of children with ≥1 contact in the past month	65.2	+5.0	+7.7	$P = 0.026$
Honduras	0–2.9 years	Percentage of children with ≥1 visit in the past month	44.3	+20.2	+45.6	$P < 0.001$
				+14.9	+33.6	$P = 0.002$
Mexico	0–2.9 years	Number of visits per month	0.120	–0.030	–25.0	$P < 0.001$
	3–5.9 years	Number of visits per month	0.081	+0.005	+6.2	$P = 0.042$
Nicaragua	0–2.9 years	Percentage of children with ≥1 visit in the past 6 months	72.9	+11.0	+15.1	$P = 0.062$

NOTE: CCT, conditional cash transfer.

TABLE 9.2 The impact of Latin American CCT programs on the receipt of early childhood immunizations

Country	Age group	Indicator	Baseline level in control group (%)	Impact of CCTs		
				Absolute (%)	Relative (%)	Significance
Brazil	12–23 months	DPT3 vaccination	95.4	+0.9	+1.0	$P = 0.74$
		Measles vaccination	92.3	+1.4	+1.5	$P = 0.77$
Honduras	0–2.9 years	DPT1 vaccination at appropriate age	74.2	+6.9	+9.3	$P = 0.022$
				+9.1	+12.3	$P = 0.003$
	12–23 months	Measles vaccination	79.8	–0.2	–0.3	$P = 0.97$
				+4.3	+5.4	$P = 0.36$
Nicaragua	12–23 months	"Up-to-date" vaccinations	40.1	+6.1	+15.2	$P = 0.55$

NOTE: CCT, conditional cash transfer; DPT, diptheria, pertussis, and tetanus vaccine.

by the program facilitated the process of initiating the immunization series within the fairly tight time window prescribed but did little to alter the overall reach of the immunization program, which uses a number of different strategies to reach the largest possible proportion of children in need. This conclusion is reinforced by the negative results from Brazil, which has an exceptionally active immunization program and the highest coverage levels in the world. The Brazil evaluation also found that the Bolsa Alimentação program had not had any impact on children's age at first vaccination contact. As mentioned previously, this is scarcely surprising given that—in its early phase, at least—the program was enrolling over 85 percent of all beneficiaries after they had already reached 6 months of age.

The lack of impact on immunization coverage in Nicaragua is perhaps an artifact caused by the massive increase in coverage in the control area: from 40 percent to over 70 percent in the first year of the evaluation period. The authors of the Nicaragua evaluation believe that much of this change must have been due to the program activities' "spilling over" to the control areas.

Each of the CCT programs evaluated so far has shown a significant impact on the coverage of growth monitoring (Table 9.3). In general, these impacts have been large in both absolute and relative terms. The lowest impact was recorded for the PROGRESA program, which used a very insensitive measure for its evaluation (a child's having been weighed at least once over the previous year); because over 80 percent of control children had already met this target before the program began, quantitatively large impacts could not have been expected. Once again, the true magnitude of the impact of the Nicaragua program may have been underestimated due to marked improvements over time in the control group. A surprisingly modest impact is seen in the data from Brazil, in marked contrast to the very large impacts observed in Honduras.

Impacts on Health Status

None of the CCT program evaluations attempted to determine the impacts of the various programs on maternal morbidity or mortality, presumably because to do so would require an enormous sample size, quite beyond the means of a conventional program evaluation. Very large sample sizes would also be required to measure impacts on child (under age 5) mortality. Mortality rates disaggregated by group are reported in the Honduras evaluation, with very slightly higher rates in the two groups receiving CCTs than in the control group; however, these differences are far from statistically significant and in any case are not based on a double-difference analysis.[5]

Two evaluations have reported impacts on illness rates in young children (Table 9.4). In the study of the impact of PROGRESA, there was a significant

5. This means that it is not possible to determine whether any differences observed after implementation might simply reflect between-area imbalances that already existed at baseline.

TABLE 9.3 The impact of Latin American CCT programs on the growth monitoring of children

Country	Age group	Indicator	Baseline level in control group (%)	Impact of CCTs		
				Absolute (%)	Relative (%)	Significance
Brazil	0–2.9 years	Weighed in the past month	40.8	+13.2	+32.3	$P = 0.005$
Honduras	0–2.9 years	Weighed in the past month	43.0	+21.1	+49.1	$P < 0.001$
				+17.6	+40.9	$P < 0.001$
Mexico	0–2.9 years	Weighed in the past year	83.0	+7.0	+8.4	$P < 0.001$
Nicaragua	0–2.9 years	Weighed at health center in the past 6 months	59.8	+17.5	+29.3	$P = 0.017$

NOTE: CCT, conditional cash transfer.

TABLE 9.4 The impact of CCT programs in Honduras and Mexico on the illness rates of young children

Country	Age group	Indicator	Baseline level in control group (%)	Impact of CCTs		
				Absolute (%)	Relative (%)	Significance
Honduras	0–2.9 years	Diarrhea in the past 2 weeks	18.8	+5.9	+31.4	$P = 0.15$
				+3.0	+16.0	$P = 0.38$
Mexico	0–2.9 years	Ill in the past 4 weeks	35.1	–4.8	–13.7	$P < 0.001$
	3–5.9 years	Ill in the past 4 weeks	25.4	–0.8	–3.1	$P = 0.19$

NOTE: CCT, conditional cash transfer.

reduction for the period in the prevalence of illness in children less than 3 years of age but not among children aged 3–5 years. Supplementary analyses (not shown) indicate that this effect did not materialize until a child's family had been receiving program benefits for at least 12 months. Unfortunately, the generic categorization of "illness" does not allow for any assessment of the public health relevance of the finding, and the recall period of one month is considerably longer than is normally recommended. The Honduras study did not find a significant effect on childhood diarrhea. It is possible that these results were affected by a seasonality problem, because the groups receiving CCTs had higher prevalences of diarrhea at baseline (and were interviewed before the control group). If the baseline differences were due to seasonal variation, the point estimates of morbidity impact would probably be closer to zero.

The evaluation data from Mexico also indicate that adults' health status was improved by the program, as measured by days of difficulty with daily activities, days incapacitated, days in bed, and reported ability to walk without tiring.

Summary

It seems likely that CCT programs substantially increase the frequency of routine contacts between young children and health services. Overall contacts in Mexico are stated to have gone down, but uniquely in this study, children reportedly became healthier, which may have altered their health service use patterns. Facility-generated data from Honduras and Mexico are broadly in agreement with parents' reports, making it less likely that the impacts observed are solely the result of parents' lying about health service use in order to ensure that their benefits were not discontinued.

Probably as a direct result of the increase in health service contacts, the coverage of growth monitoring increased markedly and significantly in all studies. This effect was even observed in Mexico, where overall health service use apparently decreased in this age group. In the Honduras study, these changes could be confirmed objectively using official records on children's "Road to Health" cards. There was only weak evidence, however, that immunization coverage was similarly affected. It did appear that timely commencement of the routine immunization series was facilitated in Honduras (the study of that program was the only one to examine this question specifically). There was, however, no evidence of any program impact on the completion rates of the early childhood immunization series.

The evidence of program impact on the coverage of antenatal care is at best equivocal: the key data for this outcome come from Honduras, and in this study the recall data and government health service use data are not consistent. If use was increased, it is not clear why there was no impact on the coverage of tetanus toxoid immunization, because this is one of the main activities carried out during routine antenatal care.

Only the Mexico study provides strong evidence that morbidity in young children was reduced. It is not clear what kind of morbidity was involved or what the biological mechanism for such an impact might be. Other studies do not support this finding. Nothing is known about the impact of CCT programs on child or maternal mortality.

Health Service Use in Latin America: Is There a Demand Problem?

We have seen that the evidence that the CCT programs increased the uptake of preventive healthcare services for young children is quite compelling, whereas for pregnant women it is less so. These observations naturally lead one to wonder whether weak demand for preventive healthcare services was in fact a significant contributor to the poor health outcomes in Latin America and the Caribbean region prior to the introduction of the CCT interventions.

It is difficult to know whether young children experience an adequate frequency of contacts with health services in Latin America and the Caribbean. To some degree, however, immunization coverage may be seen as a proxy for health service contact in infancy.[6] Although immunization coverage rates vary from country to country, on the whole, the region has rather high immunization coverage relative to other regions. Indeed, in urban areas, the rate of initiation of the immunization series is around 95 percent or higher in most countries (Table 9.5). Many countries have series completion rates (as measured by the coverage of DPT3 or measles-containing vaccine) of over 80 percent in urban areas, although some countries—such as Bolivia and Haiti—have low rates. In rural areas, series initiation rates are over 90 percent in most countries, but the ability of the health systems to ensure the completion of immunization series is generally poor. Brazil, Honduras, Mexico, and Nicaragua are all countries where virtually all children get at least the first immunizations in the childhood series, and most of them probably receive these immunizations at the right ages. There was therefore little public health benefit to focusing CCT programs on this issue in these countries.

The vast majority of women in Latin America and the Caribbean receive antenatal care during pregnancy (Table 9.6). In fact, they commence antenatal care fairly early during pregnancy and make—on average—a large number of antenatal care visits during the course of a pregnancy (Table 9.7). Most Latin American governments recommend frequent check-ups during pregnancy, even though a remarkable multicountry study sponsored by the World Health Organization (Villar et al. 2001) has clearly shown that maternal and perinatal outcomes were not affected by replacing standard antenatal care with an evidence-based

6. Other factors that affect immunization coverage levels are the availability of the biologicals, whether the system encourages application at any health service, and acceptance in the population.

TABLE 9.5 Percentage of children receiving vaccinations in Latin American countries and Haiti, by urban or rural residence

	Urban or rural residence								
	Urban			Rural			Total		
Vaccinations received	DPT1	DPT3	Measles	DPT1	DPT3	Measles	DPT1	DPT3	Measles
Bolivia, 1998	86.7	56.2	54.8	74.7	38.3	45.4	81.6	48.6	50.8
Bolivia, 2003	94.8	74.3	66.5	93.9	67.5	60.2	94.4	71.5	63.9
Brazil, 1996	96.3	84.8	90.2	89.1	66.6	76.5	94.7	80.8	87.2
Colombia, 2000	96.0	78.9	71.6	93.8	72.3	69.0	95.3	76.8	70.8
Colombia, 2005	98.2	83.9	85.1	94.4	75.3	75.8	96.9	81.1	82.0
Dominican Republic, 1999	98.9	64.1	83.6	94.8	60.2	81.3	97.1	62.4	82.6
Dominican Republic, 2002	94.7	58.7	89.5	94.2	52.1	86.0	94.5	56.4	88.3
Dominican Republic, 2007	91.1	74.4	77.9	90.4	73.9	80.8	90.9	74.3	78.8
Ecuador, 1999 (ENDEMAIN)	n.a.	85.7	87.0	n.a.	86.1	84.6	n.a.	85.9	82.6
El Salvador, 2000 (ENSF)	n.a.	85.7	87.0	n.a.	86.1	84.6	n.a.	85.9	85.6
Guatemala, 1998–99	94.6	73.6	80.8	91.1	68.5	80.4	92.4	70.4	80.6
Haiti, 2000	80.7	49.0	60.9	73.6	39.7	50.2	76.0	42.9	53.9
Haiti, 2005–06	87.4	60.3	61.9	80.8	49.3	55.5	83.0	53.0	57.7
Honduras, 1996 (ENESF)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	95.9	83.5
Honduras, 2005	98.5	91.6	86.3	99.7	93.6	86.3	99.2	92.8	85.4
Nicaragua, 1997–98	96.8	83.6	88.5	93.8	75.2	82.6	95.4	79.7	85.7
Peru, 2000	98.3	88.5	74.0	93.9	77.1	69.3	96.4	83.6	71.9

SOURCE: ORC Macro (2004).

NOTES: The table shows the percentage of children aged 12–23 months who had received specific vaccines by the time of the survey (according to the vaccination card or the mother's report). DPT, diptheria, pertussis, and tetanus vaccine; ENDEMAIN, Encuesta Demográfica y de Salud Materna e Infantil (Demographic and Maternal and Child Health Survey); ENESF, Encuesta Nacional de Epidemiología y Salud Familiar (National Survey of Epidemiology and Family Health); n.a., not available.

TABLE 9.6 Percentage of live births in the three (five) years preceding the survey for which the mothers received antenatal care or no care, by source of care and urban or rural residence of the mother

Country and urban or rural residence	Source of care				
	Doctor	Trained nurse or midwife or other health professional	Birth attendant	None	Unknown/ not reported
Bolivia, 1998, rural	40.1	12.7	0.4	46.5	0.3
Bolivia, 1998, urban	79.6	1.6	0.3	18.1	0.4
Brazil, 1996, rural	62.9	7.4	0.2	28.5	1.1
Brazil, 1996, urban	88.8	3.7	0.0	6.9	0.6
Colombia, 2000, rural	76.0	7.3	0.1	16.6	0.0
Colombia, 2000, urban	91.2	2.5	0.1	6.1	0.0
Dominican Republic, 1999, rural	89.3	0.5	0.0	0.0	10.2
Dominican Republic, 1999, urban	87.3	0.0	0.0	0.3	12.4
Guatemala, 1998–99, rural	37.4	14.0	35.0	13.6	0.0
Guatemala, 1998–99, urban	66.6	11.2	10.2	11.1	0.9
Haiti, 2000, rural	34.7	39.2	1.1	24.8	0.1
Haiti, 2000, urban	65.7	23.8	0.0	10.5	0.0
Nicaragua, 1997–98, rural	34.7	40.2	1.9	22.3	0.9
Nicaragua, 1997–98, urban	43.5	47.8	0.2	8.2	0.4
Peru, 2000, rural	15.3	56.8	4.3	23.3	0.3
Peru, 2000, urban	47.3	45.1	0.2	7.2	0.1

SOURCE: ORC Macro (2004).

NOTE: If the respondent mentioned more than one provider, only the most qualified provider is considered.

TABLE 9.7 Median number of antenatal care visits and median number of months of pregnancy before first visit in Latin American countries and Haiti in various years

Country	Median number of antenatal care visits	Median months of pregnancy at the first visit
Bolivia, 1998	4.5	3.5
Brazil, 1996	6.2	3.1
Colombia, 2000	5.9	3.0
Dominican Republic, 1999	7.4	2.8
Guatemala, 1998–99	5.3	3.8
Haiti, 2000	3.3	3.8
Nicaragua, 1997–98	5.0	3.3
Peru, 2000	5.7	3.3

SOURCE: ORC Macro (2004).

NOTE: The table reflects antenatal care for live births in the three (five) years preceding the survey.

model that reduced the average number of check-ups in the study population from eight to five. No study has ever assessed in a scientifically rigorous way whether no antenatal care at all is actually worse than some antenatal care in terms of health outcomes. It is clear, however, that routine antenatal care in most countries in Latin America tends to be of very poor quality. Until these quality issues are resolved, it is far from clear that further increasing the frequency of antenatal check-ups should be expected to lead to significant health gains.

There are no population-based data on the coverage of growth monitoring in Latin America and the Caribbean. Although well-structured individual nutrition counseling clearly focused on behavior change can lead to improved growth (Santos et al. 2001), growth monitoring is rarely delivered in this way in routine health service contexts. The only rigorous study of the impact of growth monitoring alone (George et al. 1993) failed to find any benefit of this mechanistic intervention.

And yet there is indisputably a problem with weak demand for health services in pregnancy and childhood in Latin America and the Caribbean. The real problem is that pregnant women and children who are sick do not receive medically qualified attention on a timely basis. This is illustrated in Table 9.8, which shows the percentage of children under age 3 with symptoms consistent with acute lower respiratory infection who were actually taken to a health center. Ideally, all such children should be seen by a doctor or nurse so that their breathing rate can be measured objectively and their need for antibiotics assessed. However, in rural areas of Bolivia, Brazil, Guatemala, and Haiti, only a third or fewer of all children with these symptoms were actually taken to a health facility over the two-week period preceding the surveys. Similarly, surveys supported by the U.S. Centers for Disease Control indicate that

TABLE 9.8 Percentage of children with acute respiratory infection and fever who were taken to a health facility in Latin American countries and Haiti in various years, by urban or rural residence

Country	Urban	Rural	Total
Bolivia, 1998	57.3	34.8	47.2
Brazil, 1996	55.3	34.8	50.3
Dominican Republic, 1999	63.4	66.9	64.6
Guatemala, 1998–99	52.2	35.3	40.7
Haiti, 2000	31.4	24.2	26.2
Nicaragua, 1997–98	66.6	51.5	59
Peru, 2000	68.1	54.1	61.6

SOURCE: ORC Macro (2004).

NOTE: The table reflects children under 3 (5) years of age who were ill with a cough accompanied with rapid breathing and fever during the two weeks preceding the survey and were treated with specific remedies.

- in El Salvador in 1998, parents of 39.3 percent of children under age 5 with symptoms consistent with pneumonia did not consult with anyone, and
- in rural Honduras in 1996, 54.6 percent of children under age 5 with symptoms consistent with "severe acute respiratory infection" did not receive antibiotics.

In Latin America and the Caribbean, mothers' access to medical care during delivery varies dramatically from country to country and also between rural and urban areas of the same country. Although virtually all deliveries in urban areas of countries such as Brazil, Colombia, and the Dominican Republic take place in health facilities (Table 9.9), fewer than 10 percent of rural women in Haiti deliver in a health facility. In the CCT program countries, 70–80 percent of rural deliveries in Brazil and Colombia take place in health facilities compared to just 30–45 percent in Honduras and Nicaragua. Although Honduras has an extensive network of trained nonmedical birth attendants and they are present at well over half of all deliveries in rural areas, there is now a widespread recognition that the proportion of all births taking place in medical facilities must be increased because of the virtual impossibility of providing emergency obstetric care to women delivering at home. As will be seen in the following section, the lack of access to adequate delivery care is clearly reflected in the health statistics of the region.

The Epidemiology of Child and Maternal Mortality in Latin America and the Caribbean

The countries of Latin America and the Caribbean have achieved remarkable reductions in the mortality of children under age 5 over recent years and are on

TABLE 9.9 Percentage of live births in the last three (five) years preceding the survey, by place of delivery and urban or rural residence

	Urban				Rural				Total			
Country	Health facility	Home	Other	Unknown/ missing	Health facility	Home	Other	Unknown/ missing	Health facility	Home	Other	Unknown/ missing
Bolivia, 1998	75.5	23.9	0.0	0.6	30.1	69.2	0.0	0.7	55.9	43.4	0.0	0.7
Bolivia, 2003	75.5	23.3	0.8	0.4	32.7	66.3	0.8	0.2	59.3	39.8	0.8	0.2
Brazil, 1996	96.5	2.6	0.0	0.9	80.0	18.5	0.0	1.5	92.5	6.5	0.0	1.1
Colombia, 2000	94.2	5.6	0.0	0.1	70.0	29.7	0.0	0.3	86.8	13.0	0.0	0.2
Colombia, 2005	97.7	2.1	0.2	0.0	78.1	21.6	0.3	0.0	91.9	7.9	0.2	0.0
Dominican Republic, 1999	97.1	2.1	0.0	0.8	96.2	3.8	0.0	0.0	96.8	2.7	0.0	0.5
Dominican Republic, 2002	99.0	0.5	0.3	0.2	96.7	2.9	0.3	0.4	97.9	1.5	0.2	0.4
Dominican Republic, 2007	98.1	0.6	0.5	0.8	96.2	2.4	0.6	0.8	97.5	1.2	0.5	0.8
Ecuador 1999 (ENDEMAIN)	86.2	11.9	0.0	1.9	49.0	49.3	0.0	1.7	69.2	29.0	0.0	1.8
Guatemala, 1998–99	67.5	31.6	0.0	0.9	25.8	74.0	0.0	0.2	41.7	57.8	0.0	0.5
Haiti, 2000	38.6	47.0	13.9	0.5	8.2	88.5	2.7	0.6	18.1	75.0	6.4	0.5
Haiti, 2005–06	41.7	53.6	4.5	0.2	13.3	83.5	3.2	0.0	22.7	73.6	3.6	0.1
Honduras, 1996 (ENESF)	83.6	16.4	0.0	31.9	68.1	0.0	0.0	53.8	53.8	46.2	0.0	0.0
Honduras, 2005	89.3	10.5	0.2	0.0	49.6	49.8	0.5	0.0	66.5	33.1	0.4	0.0
Nicaragua, 1997–98	85.4	13.6	0.0	1.0	44.6	54.1	0.0	1.3	66.1	32.7	0.0	1.2
Peru, 2000	82.7	16.0	0.0	1.3	23.8	74.9	0.0	1.3	56.8	42.0	0.0	1.3

SOURCE: ORC Macro (2004).

NOTE: ENDEMAIN, Encuesta Demográfica y de Salud Materna e Infantil (Demographic and Maternal and Child Health Survey); ENESF, Encuesta Nacional de Epidemiología y Salud Familiar (National Survey of Epidemiology and Family Health).

track to achieve the Millennium Development Goal of a two-thirds reduction between 1990 and 2015. No other region in the world looks likely to achieve this goal. Yet there are still huge country-to-country differentials in the proportion of children dying before they reach their fifth birthday, with an almost fivefold difference between the levels observed in Colombia and those in Haiti (Figure 9.1).

The overall level of under-5 mortality is strongly related to the age structure of child deaths (see Figure 9.1). At the highest levels of mortality, deaths in early childhood (defined as 12–59 months of age) may account for more than a third of all under-5 deaths, while at lower levels of mortality as few as one in seven under-5 deaths may occur in this age group. Conversely, neonatal deaths (those occurring in the first month of a child's life) become progressively more important as overall mortality levels fall, accounting for one-half or more of all under-5 deaths at the lowest levels of mortality. The major causes of neonatal mortality are preterm births, infections, and birth asphyxia. Globally, these causes represent 31 percent, 27 percent, and 24 percent of all neonatal deaths, respectively (Simon Cousens, personal communication).

Accurate national or subnational data on the distribution of under-5 deaths by cause are not readily available in Latin America because the poorest seg-

FIGURE 9.1 Preschool mortality in Latin America, by country, year, and age of child

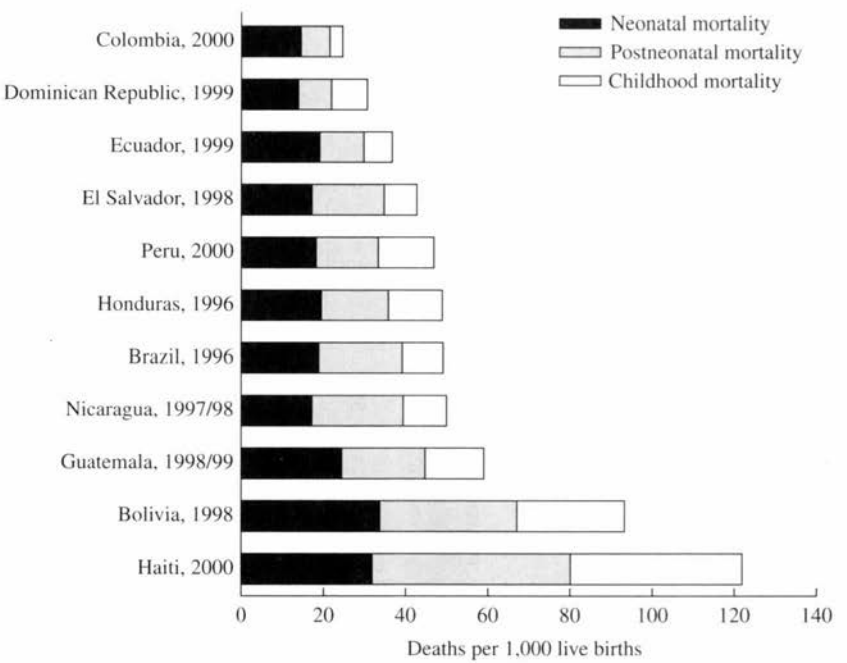
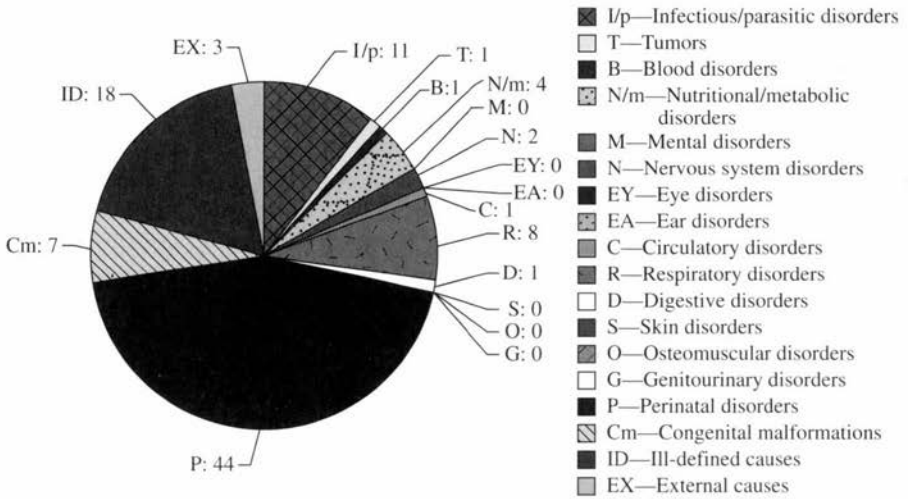


FIGURE 9.2 Causes of child mortality in children under 5 years of age in northeastern Brazil (percent)

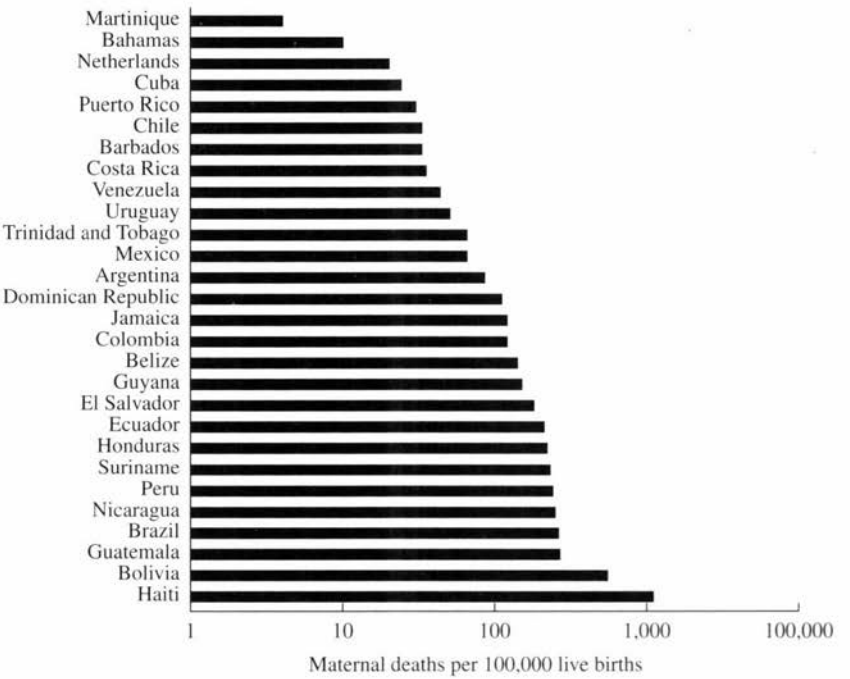


ments of the population do not tend to be well covered by systems that measure vital statistics. Certain causes of death, such as diarrheal diseases, tend to be systematically undercounted because of this bias. Even allowing for such distortions, however, it is clear that the under-5 mortality in the Northeast region of Brazil is dominated by causes arising in the perinatal period (from the 28th week of gestation up to and including the first week of life) (Figure 9.2). Similar patterns would undoubtedly be observed in other regions of Latin America and the Caribbean were high-quality data available.

Maternal mortality ratios (the number of maternal deaths divided by the total number of live births) also vary dramatically in the Latin American region, from values of 4/100,000 in Martinique to over 1/100 in Haiti (Figure 9.3). However, all but the most developed countries in the Caribbean and the Southern Cone of South America have ratios that are at least 10 times higher than the average for developed countries, which is 12 maternal deaths for every 100,000 live births. Lifetime risks of maternal mortality are particularly high (greater than 1/100) in Bolivia, Haiti, and the Central American countries of Guatemala, Honduras, and Nicaragua; the latter subregion is characterized by a combination of high maternal mortality ratios with persistently high fertility rates. The major causes of maternal mortality worldwide are hemorrhage (25 percent), sepsis (15 percent), complications of abortion (13 percent), eclampsia (12 percent), and obstructed labor (8 percent) (WHO 1999).

In summary, in the CCT program countries, neonatal, maternal, and, to a lesser extent, postneonatal (age 1 month to 1 year) mortality is a serious public

FIGURE 9.3 Maternal mortality ratios in Latin America, the Caribbean, and the Netherlands, by country



health problem. High fertility rates amplify the problem of high maternal mortality ratios in Central America. Virtually all of these problems could be ameliorated by more effective care during labor, delivery, and the immediate postdelivery period.

Conclusions and Recommendations for the Future of CCT Programs

The CCT programs in Latin America represent a notable case of the success that could have been. As a direct result of these programs, health service use by young children increased markedly in Brazil, Honduras, and possibly Nicaragua. This increase in use has been reflected in large increases in the coverage of growth monitoring in all the countries in which programs' impact has been evaluated (including in Mexico, where health service use was not thought to have increased). Yet for older children, the cart was put before the horse: traditional growth monitoring activities, widely discredited, were not reformed prior to introduction of the CCTs, so the incentive ensured compliance with a meaningless ritual rather than proving an effective health-enhancing action.

For infants, increased health service use was intended to increase immunization coverage. The challenge for the implementing countries was to increase the completion rates of childhood immunization series, because initiation rates were already very high, even in rural areas. So far, there is little convincing evidence that the programs have been able to meet this challenge. To some extent, this may be just a matter of bad luck, for the best data come from the two countries—Brazil and Honduras—where there is high coverage of even the later immunizations and little further improvement could realistically have been expected. The Nicaragua data are marred by a massive contamination of the control area, which may, in fact, be hiding an improvement on quite a remarkable scale: an increase of 46 percentage points in the prevalence of "updated vaccination" in one year. However, even if this does turn out to be the case, policymakers need to be realistic about the fact that better immunization is not going to save the lives of large numbers of children or mothers in these countries. Measles has now been all but eliminated from the Western Hemisphere, and diphtheria, pertussis, tetanus, polio, tuberculosis, and hepatitis B are not leading causes of childhood mortality anywhere in the world. Tetanus is a leading cause of neonatal deaths in only a very few high-risk countries, none of them in Latin America or the Caribbean. The relatively new Haemophilus influenzae type B vaccine, on the other hand, could potentially prevent large numbers of pneumonia and meningitis deaths, although population-based efficacy data for this intervention are yet to become available.

Direct evidence on the impact of the CCT programs on childhood morbidity is frustratingly heterogeneous, with no data at all available from either Brazil or Nicaragua. If there was a reduction in child illness in Mexico, it could be due either to a direct income effect or to the health education interventions. Future research should attempt to disentangle these two effects. However, in Mexico the vast majority of under-5 mortality occurs in the first month of life, so the observed effects, while striking, may be of limited public health significance.

There is only weak evidence that the CCT programs may have affected the uptake of antenatal care. Once again, increasing the uptake of this care would seem to be of dubious benefit while the quality of the service provided is so poor. The World Health Organization and other groups have tried to promote a more evidence-based strategy for antenatal care, but with limited success so far.

However, the greatest failing of the CCT programs implemented in Latin America and the Caribbean in terms of health is the neglect of the very period in which the need for behavior modification is the greatest: labor, delivery, and the immediate postpartum recovery phase. Only by concentrating resources on this period can maternal and infant mortality be affected. In the future, the health components of CCT programs in Latin America and the Caribbean should be radically redesigned to ensure that all deliveries take place

- in a clean, sterile environment;
- with qualified personnel at hand who have skills that include being able to teach mothers how to breastfeed successfully;
- where there is an adequate supply of antibiotics for both mother and child, as well as a limited range of other essential drugs; and
- where there is access to transport in case of an obstetric emergency.

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