Inequalities in Child Health

Are We Narrowing the Gap?

Adam Wagstaff, Flavia Bustreo, Jennifer Bryce, Mariam Claeson and Henrik Axelsson

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Health, Nutrition and Population (HNP) Discussion Paper

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Health, Nutrition and Population (HNP) Discussion Paper

Inequalities in Child Health: Are We Narrowing the Gap?*

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Abstract: We review what is known about the causes of socioeconomic inequalities in child health and thus the points where programs aimed at reducing child health inequalities should be focused. We present the evidence on the proximate and underlying determinants of child health. The proximate determinants affect child health directly and include food and nutrition, indoor air pollution, hygiene and other preventive activities, and care during illness. The underlying determinants affect outcomes indirectly through their effect on the proximate determinants, and include financial barriers, health-care provision, maternal education, and water, sanitation, and the home environment. We review the socioeconomic distribution of both determinants and find that for most determinants, poor children fare significantly worse than their better-off peers. We also review what is known about the success of actual programs in narrowing socioeconomic inequalities in child health. We end with lessons learned and with a call for action—for a new approach to improving the health of all children that is evidence-based, broad, and multifaceted, and for the development of better evidence on how programs can reduce child health inequalities.

Keywords: Child health, socioeconomic inequality in health, poverty and health, child survival, child malnutrition, child health interventions, equity.

Disclaimer: The findings, interpretations, and conclusions expressed in the paper are entirely those of the authors, and do not represent the views of the World Bank, the World Health Organization, its Executive Directors, or the countries they represent.

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* Members of the WHO-World Bank Child Health and Poverty Working Group who provided comments on earlier drafts of the paper include Robert Black (Johns Hopkins University), Niklas Danielsson (formerly of WHO), Davidson Gwatkin (World Bank), Jack Langenbrunner (World Bank), Milla McLachlan (World Bank), Saul Morris (London School of Hygiene & Tropical Medicine), Chandra Mouli (WHO), Alex Preker (World Bank), Eva Rehfuess (WHO), and David Woodward (WHO).

† A shorter version of this discussion paper will appear in the December 2003 issue of the American Journal of Public Health.
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The health of the world’s children has improved significantly in recent decades, as evidenced by reduced levels of global mortality and malnutrition. But this encouraging trend in overall child health hides substantial differences in child health outcomes, both between and within countries. Poor children are doing much worse than better off children on most, if not all, health status indicators. Efforts to target public health expenditures to the poor have had mixed results, as governments are constrained by high demand for health services and limited resources. In fact, in many countries the rich have benefited more than the poor from public expenditures on health.

The World Health Organization and the World Bank both recognize that the international community has a responsibility to address the inequalities that exist between children of different socioeconomic status. We must do more to ensure that health programs will be adequately targeted to poor children, and that inequalities in health outcomes will be narrowed. In 2002, the two organizations formed a joint working group to focus attention on this important issue. The working group is multi-disciplinary and includes public health and nutrition specialists, epidemiologists, economists, and health systems experts. Members of the working group were closely involved in a session on policies for equitable health outcomes during the Global Consultation on Child and Adolescent Health and Development in Stockholm in March 2002.

This paper is a result of the collaboration between WHO and the World Bank. The paper reviews what is already known about the causes of socioeconomic inequalities in child health. This evidence highlights the areas in which programs aimed at reducing child health inequalities should be focused. The paper also reviews what is known about the success of actual programs in narrowing socioeconomic inequalities in child health. Finally, the authors call for action—for an approach to improving the health of all children that is evidence-based, broad and multifaceted, and for research efforts to expand and enhance the evidence-base with regards to how programs can reduce child health inequalities.

It is hoped that this paper will stimulate further thinking and research in this area. It is also hoped that the international community will join the call for action so that the health of all children can be improved.

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Department of Child and Adolescent Health and Development
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May 2003
Our thanks to Rae Galloway for comments and suggestions on an earlier draft, to Chantal Granier for her excellent administrative and moral support, and to those who participated in the session on child health and poverty at the Global Consultation on Child and Adolescent Health and Development in March 2002, for their constructive feedback on an early version of this document. Special thanks are also due to Charito Hain for administrative support throughout the writing of this report, Gisele Biyoo for reviewing the print version, and Kathy Strauss for formatting and graphic design.
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AB/AM</td>
<td>Antibiotic/Antimalarial drug</td>
</tr>
<tr>
<td>ARI</td>
<td>Acute Respiratory Infection</td>
</tr>
<tr>
<td>CDD</td>
<td>Control of Diarrheal Disease</td>
</tr>
<tr>
<td>CNP</td>
<td>Community Nutrition Project</td>
</tr>
<tr>
<td>CNW</td>
<td>Community Nutrition Worker</td>
</tr>
<tr>
<td>DPT</td>
<td>Diphtheria, Pertussis, Tetanus</td>
</tr>
<tr>
<td>GOBI</td>
<td>Growth monitoring, Oral rehydration, Breastfeeding, Immunization</td>
</tr>
<tr>
<td>HNP</td>
<td>Health, Nutrition and Population</td>
</tr>
<tr>
<td>IAP</td>
<td>Indoor Air Pollution</td>
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<tr>
<td>IMCI</td>
<td>Integrated Management of Childhood Illness</td>
</tr>
<tr>
<td>ITN</td>
<td>Insecticide-Treated Net</td>
</tr>
<tr>
<td>MCE</td>
<td>Multi-Country Evaluation of IMCI</td>
</tr>
<tr>
<td>MCH-FP</td>
<td>Matlab Maternal Child Health and Family Planning, Bangladesh</td>
</tr>
<tr>
<td>MDG</td>
<td>Millennium Development Goal</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
</tr>
<tr>
<td>ORT</td>
<td>Oral Rehydration Therapy</td>
</tr>
<tr>
<td>PRAF</td>
<td>Family Allowance Program, Honduras</td>
</tr>
<tr>
<td>PROGRESA</td>
<td>Anti-Poverty Program, Mexico</td>
</tr>
<tr>
<td>PSF</td>
<td>Family Health Program, Brazil</td>
</tr>
<tr>
<td>RPS</td>
<td>Social Protection Network, Nicaragua</td>
</tr>
<tr>
<td>SHIP</td>
<td>School Health Insurance Program, Egypt</td>
</tr>
<tr>
<td>SIF</td>
<td>Social Investment Fund</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children's Fund</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>WSC</td>
<td>World Summit for Children</td>
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</table>
Substantial progress has been and continues to be made in the field of child health. A child born in 1960 in Latin America and the Caribbean had a 105 in 1,000 risk of dying before her first birthday; by 1999 this had fallen to 30 in 1,000. Progress has continued throughout the 1990s: the prevalence of underweight children in the developing world declined by 13%, and more than 60 countries achieved at least a one-third reduction in under-five mortality. But progress has been uneven. In the statistics on child health, one common theme emerges: poor children lag behind their better-off peers. As illustrated in Figure 1, under-five mortality currently averages 6 per 1,000 live births in the industrialized countries but is as high as 91 per 1,000 in the developing world. In Sub-Saharan Africa it is a staggering 175 per 1,000.

Child health also tends to be worse among the poor within countries. In southeast and northeast Brazil, for example, over the period 1987–1992, among children in the poorest third of the population, the under-five mortality rate was six times that among the richest 10% of children (113 compared to 19). Figure 2 shows the differences between the poorest and richest quintiles, as measured by consumption variables, in under-five mortality rates for another six developing countries.


There is broad acceptance that these inequalities are ethically indefensible. They are inequities, not simply inequalities. One public health minister recently referred to socioeconomic inequalities in health as the “greatest inequity of all,” and there is currently a broad commitment on the part of the international community to tackling them. The current Director General of the World Health Organization wrote in her foreword to the 1999 World Health Report: “Our first priority must be to reduce—then eliminate—the debilitating excess burden of disease among the poor.” In 1997 the World Bank promised, as a first priority in its work in health, nutrition, and population, “to work with countries to improve the health, nutrition, and population outcomes of the world’s poor, and to protect the population from the impoverishing effects of illness, malnutrition, and high fertility.” The UN Convention on the Rights of the Child emphasizes that life, good health, and health care are rights to which all children are entitled, and UNICEF’s former Executive Director has urged that “ending the massive violation of children’s rights still taking place around the world is one of the central moral imperatives of our time.”

This commitment to improving the health of all children comes at an opportune moment. The sad fact is that socioeconomic inequalities in child health appear to be widening. Reductions in infant and under-five mortality have been fastest among the rich countries. Between 1960 and 1999, infant mortality fell by 81% in high-income countries, by 74% in middle-income countries, but by only 43% in Sub-Saharan Africa. There is also growing evidence that in several developing countries, child mortality and malnutrition have improved faster (or worsened more slowly) among the better off. In Bolivia, for example, during the 1990s, under-five mortality fell by 34% among the richest quintile but by only 8% among the poorest quintile.

The persisting—and sometimes widening—gaps in health between poor and better-off children caution against setting targets defined in terms of population averages only, for in doing so we run the risk of failing to notice child health inequalities and changes in them. Although the United Nations (UN) World Summit for Children (WSC) in 1990 aimed at universal coverage of child health interventions, the WSC targets are defined and have been monitored at the population level. Likewise, the child health UN Millennium Development Goals (MDGs) and targets do not make any reference to inequalities in child health, and achieving them is possible even with widening inequalities—an outcome that would in the view of at least one minister for international development not be in the spirit in which the MDGs were drawn up. The persisting gaps in child health also cast doubt on the effectiveness of the strategies employed to date to improve child health, whether they help to narrow child health inequalities or at least whether they will be sufficient to eliminate them. Immunization and oral rehydration therapy (ORT)—two of the core elements of UNICEF’s GOBI strategy—tend to be far more common among the better off than among the poor in the developing world. In India, for example, despite a government policy to immunize all children, measles coverage varies from 23% in the poorest quintile to 71% in the richest. This suggests that programs aimed at conditions that disproportionately affect the poor may not necessarily disproportionately benefit them. Furthermore, although subsidies to primary care—a key element of the World Health Organization’s “Health for All” strategy—are typically more equally distributed than subsidies to hospitals, they nonetheless accrue disproportionately to the higher-income quintiles in roughly half of the developing countries for which data are available and in roughly half of India’s states. Guinea provides a stark example of the failure of publicly financed primary care to reach the poor: in 1996, the share of subsidies to primary health care accruing to the poorest quintile was only 10%, while the richest quintile received 36%. These pro-rich subsidy inequalities, which do not occur in industrialized countries, arise despite the lower levels of medical need of the better off.

With the May 2002 UN Special Session on Children fresh in our minds, and the commitment expressed there by world leaders to renew their efforts to improve child health, this is an opportune moment to ask what we know about the subject. We review what is known about the causes of socioeconomic inequalities in child health and hence what ought to make for a successful set of programs (sections II and III). We also review what is known about the success
of actual programs in narrowing socioeconomic inequalities in child health (section IV). We end with lessons learned and with a call for action—for better evidence, but most of all for a new approach to improving the health of all children that is evidence-based, broad, and multifaceted.

Chapter Endnotes
10. Stecklov, Bommier and Boerma (1999); Stifel, Sahn and Younger (1999); Gwatkin, et al. (2000); Wagstaff and Nguyen (2001); and World Bank (2001c).
15. UN Secretary General (2001).
27. van Doorslaer et al. (1993).
M ore than half of global under-five deaths have been estimated to be attributable to a few conditions, namely pneumonia, diarrhea, malaria, measles, and HIV/AIDS, as illustrated in Figure 3.\(^1\) Malnutrition is an underlying cause of many of these deaths. These conditions disproportionately affect the poor. The poorest 20% of the world’s population account for 47% of deaths from communicable diseases whereas the world’s richest 20% account for only 4%.\(^2\) Within countries—and specifically among children—a similar picture emerges. Malnutrition tends to be more common among poor children than better-off children.\(^3\) In the island of Cebu in the Philippines, the four communicable diseases that account for half of all under-five deaths—measles, diarrhea, pneumonia, and fever/febrile convulsions—are so disproportionately concentrated among the poor that they account for nearly 70 percent of the under-five mortality gap between rich and poor.\(^4\)

This takes us only so far—it begs the question of what generates this distribution of cause-specific deaths. We can get further in unraveling the causes of socioeconomic inequalities in child health by adopting Mosley and Chen’s distinction between the “proximate” and the “underlying” determinants of child health.\(^5\) The former affect child health directly (e.g., feeding practices, preventive activities, care during pregnancy and childbirth), while the latter do so only indirectly through their effect on the proximate determinants (e.g., mother’s knowledge, household income, access to health facilities). A good deal now is known about the proximate determinants of child health—the behaviors, preventive practices, and interventions that can improve the health of and reduce deaths among children. Evidence also is starting to emerge about the socioeconomic distribution of these determinants. Together, these two literatures provide the explanation—at one level—for the existence of socioeconomic inequalities in child health. The evidence on the socioeconomic distribution of the proximate determinants is summarized in Table 1.

Feeding and Nutrition

Malnutrition makes children less able to fight infections and is a contributory cause in at least one third of under-five deaths. The risk of dying from infectious diseases is much higher if the child is malnourished, and the vicious cycle of malnutrition-infection is critical to child survival, particularly during the first year of life.\(^6\) Adequate nutrition of the mother—before and during pregnancy—is essential to ensure that children are born with an appropriate birth weight. From birth, exclusive breast-feeding for the first six months reduces infant mortality from infectious diseases and malnutrition.\(^7\) It has an especially pronounced protective effect on the poor.\(^8\) Beginning at the age of six months, when breast milk alone no longer provides all the needed energy and nutrients, appropriate complementary feeding practices become important, including feeding frequency, consistency of food, and approach to feeding.\(^9\) Micronutrient de-
Table 1. Socioeconomic Differences of Proximate Determinants

<table>
<thead>
<tr>
<th>Proximate Determinants</th>
<th>Socioeconomic Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeding and nutrition</td>
<td>The nutritional status of children and mothers is significantly worse in poorer than richer households. Food supplementation for infants and consumption of iodized salt are lower in poorer households. Breastfeeding, which decreases with higher socioeconomic status, is the only aspect of nutrition that is favorable to the poor.</td>
</tr>
<tr>
<td>Hygiene and indoor air pollution</td>
<td>Good sanitary practices, including hand washing and appropriate disposal of excreta, are less common in poorer households. The risk of exposure to indoor air pollution is highest among poor rural families, who rely more than the rich on biomass and coal as sources of fuel.</td>
</tr>
<tr>
<td>Other preventive activities</td>
<td>Poorer households and countries have lower rates of a number of preventive activities: antenatal care, skilled attendance at delivery, immunization, the use of contraceptives, and the use of insecticide-treated nets.</td>
</tr>
<tr>
<td>Care during illness</td>
<td>Children in the poorest quintile are half as likely as richer children to be taken to an appropriate provider. Adherence by parents to treatment advice and referral is often lower in poorer families. Use of oral rehydration therapy tends to be lower in poorer countries. Receipt of an appropriate antibiotic by children with probable pneumonia and the correct use of antimalarial treatment are lower in poor households.</td>
</tr>
</tbody>
</table>

Deficiencies in women and infants increase morbidity and mortality among young children. In particular, iron-deficient anemia can have severe consequences.

Poorer children fare worse in feeding and nutrition. Maternal nutritional status is significantly worse in poor countries. In Bangladesh in 1996, 52% of mothers were underweight, with a body-mass index below 18.5. The figure in Brazil, whose per capita income is nearly 12 times that of Bangladesh, was just 6%. Furthermore, maternal nutritional status is worse among poorer women within countries. Complementary food intake among infants also displays a socioeconomic gradient, and the consumption of iodized salt is lower in poorer regions. The only feeding pattern that has a gradient that is favorable to the poor in the developing world is breastfeeding, which decreases with socioeconomic status. However, this pattern is the opposite to that seen in industrialized countries—such as Australia, the United Kingdom, and the United States.

Hygiene and Indoor Air Pollution

Other important proximate determinants include the immediate environment where children live, hygiene, the use of safe water, and indoor air pollution (IAP). The safe disposal of feces and hand washing after defecation and before food preparation can protect children from diarrhea and other communicable diseases, as can the use of safe drinking water. IAP in family homes is produced by burning coal or biomass fuels (wood, dung, fiber residues) for cooking and heating, in combination with inadequate ventilation. Prolonged exposure to indoor air pollutants increases the risk of pneumonia in children and of low birth weight. Better hygiene, including hand washing and appropriate disposal of excreta, is more common in better-off households, and the poor, who rely disproportionately on agricultural residues and animal dung as sources of fuel, are most at risk of exposure to IAP.

Other Preventive Activities

A number of other key preventive activities are also known to improve child health. Antenatal care and assistance at birth result in healthier newborns, and can help foster healthy feeding practices of newborns, young children, and mothers. Birth spacing can improve the mother's health as well as improve the survival prospects of subsequent children. Measles immunization has been shown to have beneficial effects that go well beyond the prevention of measles mortality, and has especially pronounced effects among poor children. Regular use of insecti-
cide-treated nets (ITNs) for the prevention of malaria can reduce illness and deaths from malaria in geographic areas where the disease is common. Each of these preventive activities tends to display a socioeconomic gradient. Poorer countries typically have lower rates of antenatal care and attended deliveries than richer ones. Within countries, too, gradients are evident between the poor and the better off. In Morocco and Pakistan, 3% and 6%, respectively, of women in the poorest quintile received at least two antenatal visits; in the richest quintile in both countries the proportions were 64%. In Bangladesh and Nepal, 2% and 3% of births in the poorest quintile were attended by a medically trained person; the percentages in the richest quintile were 30 and 34%. The use of contraceptives also displays a socioeconomic gradient: in Sub-Saharan Africa, the average rate in 2000 was just 23% while in Latin America and the Caribbean the average was 73%. Immunization coverage against diphtheria, pertussis (whooping cough), and tetanus (DPT) and measles is lowest in Sub-Saharan Africa and South Asia; in the case of DPT, coverage actually was falling in these two regions during the late 1990s. Coverage rates within countries tend to be lower among poorer children: across 44 developing countries, children from the richest quintile are, on average, twice as likely to have been vaccinated against DPT than children from the poorest quintile. As illustrated in Figure 4, poor children also are less likely to have received the full immunization schedule (BCG, measles, and three doses of DPT and oral polio vaccine). Children living in poor households also are less likely to use ITNs than children living in wealthier households.

![Figure 4. Full Immunization Rates for Children of Age 12–23 Months by Socioeconomic Status](image)

Some childhood illnesses can be managed at home. Correct home management involves a number of important family practices. Some of these have been investigated thoroughly and shown to be effective, such as giving increased fluids and continuing to feed a child with diarrhea and providing the appropriate treatment for pneumonia and malaria. Rates of ORT (increased fluids plus continued feeding) for children with diarrhea tend to be somewhat lower in poorer countries but within countries do not vary markedly with wealth. The steepest gradients show rates among the richest quintile that are only twice as high as those in the poorest. By contrast, receipt of an appropriate antibiotic by children with probable pneumonia does display a socioeconomic gradient, as does the correct utilization of antimalarial treatment. As illustrated in Figure 5, data from Tanzania show that poor children are significantly less likely than their richer peers to receive antibiotics if they are suspected to have pneumonia and antimalarial drugs if they have fever.

Some childhood illnesses require professional care. Caregivers must recognize the illness early and respond either with correct treatment at home or by seeking care from a trained health provider. Poor or delayed care seeking has been identified as a contributor in up to 70% of child deaths. The recognition of illness, particularly severe illness, is followed by the decision to take the child to a knowledgeable provider. This decision also is associated with socioeconomic status. On average, children in the richest quintile are nearly twice as likely to be taken to an appropriate provider when they are ill with either diarrhea or pneumonia than poorer children. For
caregivers who take the child to a provider, additional practices are involved in following the advice they are given about how to care for the child. For severely ill children, this advice can include referral to a hospital. Evidence indicates the existence of a link between adherence and child health outcomes.\textsuperscript{43} Unnecessary illness can arise from incomplete treatment, therapy failure, drug resistance, or the later misuse of leftover medicines. In rural Sudan, the adherence to treatment advice and referral has been found to be strongly associated with parents' socio-economic status.\textsuperscript{44}

\textbf{Figure 5. Receipt of Antibiotics and Antimalarial Drugs by Children in Tanzania}

![Graph showing receipt of antibiotics and antimalarial drugs by children in Tanzania, categorized by poverty level.](source: Schellenberg et al. (2003)).

\textbf{Chapter Endnotes}

8. WHO Collaborative Team (2000).
10. Ashworth and Antipatis (2001); Duggan and Fawzi (2001); and Fawzi, et al. (2002).
13. Ibid.
27. Lindsay, et al. (1989); and Abdulla, et al. (2001).
30. Ibid.
32. Ibid.
44. Fadil, et al. (forthcoming).
3. The Causes of Child Health Inequalities:
Digging Deeper

At one level, then, the causes of socioeconomic inequalities in child health are clear. A limited number of proximate determinants have been demonstrated to affect the health of children directly. These behaviors, preventive practices, and interventions that can improve child health and reduce child deaths are unequally distributed across socioeconomic groups. But the Mosley-Chen framework prompts the obvious next question: Why do these inequalities in the proximate determinants of child health arise and persist? Why, for example, are children in the richest quintile in India three times more likely to be immunized despite the existence of a free-of-charge and ostensibly universal government immunization program? Digging deeper into the causes of child health inequalities is crucial if the failures of policies to date are to be identified, and if successful policies to combat inequalities in child health are to be devised for the future.

The fact that most of the key proximate determinants of child health are worse among the poor does not necessarily mean that it is low income that is the cause of these inequalities. The poor are disadvantaged compared to the better off on a number of underlying determinants of child health, as well as having less income. The literature reviewed in this section covers a broad range of studies: some use multiple regression methods to parcel out the different effects of the various underlying determinants of child health; some document their inequalities across socioeconomic groups; together they provide a picture of the underlying causes of socioeconomic inequalities in child health. The evidence on the socioeconomic distribution of the underlying determinants is summarized in Table 2.

Financial Barriers

Income

Measures of child health tend to improve with income, at both the country level and the child level. Most proximate determinants tend to improve with higher income, including adult energy intake; the likelihood of a pregnant woman receiving antenatal care; the likelihood of antenatal care being sought; the timing of antenatal consultations; the likelihood of a delivery taking place away from home; the likelihood of a child being immunized; the likelihood of a child sleeping under an impregnated bed net; the likelihood of a sick child being given ORT; and the likelihood of a caregiver seeking care for a child with fever. By contrast, holding constant other influences, higher income has been estimated to reduce both the likelihood of initiating breast-feeding and its duration.

It is not just a household’s total income that matters—the degree of the woman’s control over its use also matters. There is evidence that women who exert relatively little control over household financial resources are less likely to use improved cooking stoves. They also are less likely to receive antenatal care, are more likely to have fewer antenatal visits, and are less likely to have visits in the first trimester of pregnancy.

The Role of Prices

A normal hospital delivery in Dhaka, Bangladesh, costs the equivalent of one quarter of an average monthly income. A single hospital contact in Vietnam in 1998 cost the equivalent of 22% of annual non-food consumption expenditure per capita for the poorest quintile. It is known that a higher money price for health care tends to reduce—or at least delay—health service utilization, especially among the poor, unless accompanied by improvements in service quality. Cost also tends to be a factor in determining the demand for other proximate determinants of child health. For example, cost has been found to be a factor influencing the use of bed nets among poor households. Higher food prices have been found to have negative impacts on child survival and malnutrition. This is consistent with the frequently—though not universally—observed negative relationship between food prices and nutrient intake. The nutritional status and nutrient intake of
# Table 2. Socioeconomic Differences of Underlying Determinants

<table>
<thead>
<tr>
<th>Underlying Determinants</th>
<th>Socioeconomic Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial barriers</td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>By definition, income is lower among the poor than the rich.</td>
</tr>
<tr>
<td></td>
<td>The poor are particularly sensitive to increases in the price of health care, food, bed nets, and other commodities.</td>
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<td>The role of prices</td>
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<tr>
<td>Geographic accessibility</td>
<td>The poor tend to have to travel further, and for longer, to get to health facilities.</td>
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<tr>
<td>Availability of human and material resources</td>
<td>The facilities serving the poor are less likely to be well stocked with drugs and to be appropriately staffed.</td>
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<td>Case management of child illnesses tends to be worse in poorer countries, and may be worse for the poor within countries.</td>
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<td>Other underlying determinants and their inequalities</td>
<td>Attitudes toward women in poor communities tend to be less favorable to good health outcomes than they are in better-off communities. The poor are likely to be disadvantaged in terms of general community infrastructure.</td>
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The poor are particularly sensitive to changes in the price of food.23

## Health Care Provision

There are several key steps to ensuring accessible and good quality health services.24 These steps are sequential—the second step is irrelevant if the first is not in place. On each step of this ladder, the poor are disadvantaged.

### Geographic Accessibility

An important dimension of geographic accessibility is travel time. This depends on the distance households have to travel, but also the transportation system, the road infrastructure, the climate, and geography. Distance is the most frequently encountered variable in empirical studies, but travel time also is often used: both emerge as having a significant impact on both utilization and health outcomes.25 The poor tend to have to travel further to get to health facilities and for longer, due in part to the extra distance but also to the difficulty of transportation.24

## Availability of Human and Material Resources

Services may be geographically accessible, but essential inputs—such as drugs, vaccines, contraceptives, micronutrients, or trained staff—may be unavailable or in short supply most or part of the time. Child mortality and malnutrition have been found to be sensitive to the availability of drugs in local facilities.27 This reflects in part the fact that utilization of services (e.g., antenatal care and vaccinations) is
higher in households living in areas where local facilities are well stocked with essential drugs and staff. But it also reflects the greater impact that contacts in such facilities have on health outcomes. Facilities serving the poor are less likely to be well stocked with drugs and to be properly staffed.

Organizational Quality
The way that health services are organized (hours of operation, waiting time, gender of providers, lack of courtesy, required under-the-table payments) affects rates of service utilization. Qualitative studies have shown that prospective patients value integrity and courtesy in staff, as well as technical competence, and take these and other aspects of organizational quality into account when making utilization decisions. Health facilities have been criticized by poor people for their long waiting times and rude staff, but there does not appear to be any evidence showing that, say, public facilities serving poor people are systematically worse in their organizational quality than those serving better-off people.

Relevance of Services
“Relevance” is used here to describe the extent to which services respond to the health needs of the population. Section II summarized the key preventive activities and curative interventions needed to keep children healthy. If the health system is not geared up to promote and deliver these interventions, their impact on child health outcomes will be limited—however accessible facilities are, however well-stocked they are, and however polite their staff are. It is not surprising, therefore, that child mortality and malnutrition have been found to be sensitive to the availability of child health services (e.g., immunization programs, childbirth facilities, and growth monitoring) in local facilities. Studies have reported fewer child-specific services being offered by facilities serving poor rural areas than by facilities serving better-off urban areas.

Timeliness of Services
Certain key health services—such as emergency obstetric care but also immunization—must be delivered in a timely manner. In Bangladesh, for example, it has been demonstrated that the impact of measles vaccination on survival prospects is significantly larger among children vaccinated in their first year of life than among children vaccinated later. For many services, too, such as the completion of vaccination schedules and tuberculosis treatment protocols, continuity is an essential determinant of efficacy and outcome improvement. Timeliness of service utilization tends to be worse among the poor—children from poorer backgrounds are less likely, for example, to have completed the full course of immunizations—but these inequalities reflect both differences in care-seeking behaviors on the part of households and differences in provider behavior.

Technical Quality
The technical quality of care—measured, for example, by the quality of case management—is influenced by but not wholly dependent on the availability of drugs and human resources. The quality of case management of childhood illness by health professionals varies considerably, and is often very low. In Vietnam in 1997, 78% of children seeking care for diarrhea were correctly assessed, and of those 67% were correctly rehydrated. In Burundi in 1992, the figures were only 2% and 13%, respectively. The quality of case management has an important influence on the degree of health improvement consequent upon a particular health service contact. Technical quality also has a potential influence on utilization decisions themselves, insofar as prospective patients are able to gauge it. Are the poor reliant on poor-quality facilities? The fact that drugs and human resources are less available in facilities serving the poor would suggest so, but there is no firm evidence on the extent to which the quality of case management is worse in facilities serving the poor. Surveys designed to assess the quality of care for ill children carried out by ministries of health and their partners in a number of developing countries, albeit with different objectives and sampling frames, do not suggest that there is a significant association at the country level between income per person and the quality of case management. It is not known whether facilities serving the poor within countries provide worse-quality care than facilities serving the better off. In many developing countries, poor women seeking care for children with diarrhea or ARI are more likely than their better-off counterparts to seek care from a private provider. The quality of this care is often poor, involving, for ex-
ample, inappropriate antibiotic use for diarrhea and noncomplicated ARI, as well as inadequate malaria prescription.\textsuperscript{41} Though anecdotal evidence suggests that the poor receive worse quality care than the better off, even from the same provider, empirical evidence on the topic of quality gaps is very limited.

**Maternal Education**

In many countries, mother’s education has been found to increase child survival\textsuperscript{42} and to decrease child malnutrition\textsuperscript{43}, even when other determinants are held constant. There are, however, studies that have found weak or nonexistent effects for one indicator or both.\textsuperscript{44} Most proximate determinants usually increase with higher levels of maternal education, including supplementary food nutrient intake among infants; good sanitary practices, including hand washing and appropriate disposal of excreta\textsuperscript{45}; the likelihood of receiving antenatal care, of choosing formal care in preference to traditional care\textsuperscript{46}; the timing of antenatal consultations\textsuperscript{47}; the likelihood of a baby being delivered away from home\textsuperscript{48}; the likelihood of a baby being delivered by a trained person, irrespective of where the birth occurs\textsuperscript{49}; the use of well-baby clinics\textsuperscript{50}; the likelihood of a child being immunized\textsuperscript{51}; the use of ORT\textsuperscript{52}; and the likelihood of a caregiver seeking care for a child with fever\textsuperscript{53}. Breast-feeding is the exception to this pattern: holding other influences constant, including household income, better-educated women are less likely to start breast-feeding and to maintain exclusive breast-feeding\textsuperscript{54}, and more likely to discontinue breast-feeding earlier.\textsuperscript{55, 56}

The link between maternal education and child health, and the tendency for poorer women to be less well educated, is one of the other key explanations of why poorer children die earlier and are less well nourished. The socioeconomic inequalities in maternal education are large—both across countries and within them. In Sub-Saharan Africa at the end of the 1990s, the net primary school enrollment rate was 60\%, while in East Asia it was 95\%.\textsuperscript{57} Inequalities between the poor and better off are evident within countries, too. The gap in educational attainment is especially large in South Asia and western and central Africa: there is a 10-year difference in median grade completed between the poorest 40\% and richest 20\% of households in Pakistan, and a nine-year gap in India.\textsuperscript{58} Furthermore, in many countries, the poor-nonpoor gap in education is larger among women, whose knowledge is often most important for child health.\textsuperscript{59}

**Water, Sanitation, and the Home Environment**

Holding other underlying determinants of child health constant, improved drinking water sources (quality, but especially *quantity*) and adequate sanitation are typically—though not always—found to lead to better child health outcomes.\textsuperscript{60} Hygienic behaviors are a good deal easier if there is a ready supply of safe water and a flush toilet or latrine in the house. Socioeconomic inequalities in water and sanitation are highly visible. In Sub-Saharan Africa at the end of the 1990s, 57\% of the population lived in households with access to safe water; the figure in Latin America and the Caribbean was 86\%.\textsuperscript{61} In 2000, only 22\% of the population of South Asia lived in households with adequate sanitation; in the Middle East and North Africa, the figure was 83\%.\textsuperscript{62} In Côte d’Ivoire in 1994, 85\% of households in the richest quintile had piped water; in the poorest quintile none did.

**Other Underlying Determinants and Their Inequalities**

A variety of social norms and practices influence women’s access to resources, both inside the household (e.g., food, water, time) and in the community (e.g., land, extension services, credit). They also influence their decision-making power in the household. These norms influence the time and energy cost of women’s work related to household production and reproduction, placing a direct burden on them and limiting their capacity to engage in productive work, to seek health care, and to devote time and energy to child care. There is evidence that in poor communities, attitudes toward women tend to be less favorable to good health outcomes than they are in better-off communities.\textsuperscript{63}

Although the evidence is less firm than for the other underlying determinants of child health, it seems likely that better community infrastructure results in better child health outcomes. The likelihood of households having good drinking water and good sanitation is greater if pipes and sewerage systems are in place in the local community. There is, in-
deed, evidence that good sanitation in the community reinforces the beneficial effects on nutritional status of good sanitation at the household level.\textsuperscript{64} Electricity has been linked to overall child mortality\textsuperscript{65}. The mechanisms are varied and are likely to include improved refrigeration of food and better conservation of the potency of vaccines. The poor are likely to be disadvantaged in respect to community infrastructure, just as they are in most other underlying determinants of child health.

\textbf{Chapter Endnotes}

2. Preston (1975); Pritchett and Summers (1996); World Health Organization (1999); and Alderman, et al. (2000).
15. The reasons for this are unclear. Breastfeeding is influenced by a variety of factors—such as counseling, whether the mother and child are separated after birth, policies at the workplace that make a difference to whether working mothers are able to maintain breastfeeding, and the promotion of breastfeeding. What is less clear is whether the distribution of these across income groups is such that these factors could account for the negative effect of income on breastfeeding. For example, are better-off women systematically less likely to have policies at the workplace that facilitate continued breastfeeding? This is unclear. Formula milk is, of course, an expense, especially to low-income households, and one cannot rule out the possibility that in such settings the income effect reflects at least in part the fact that higher incomes make formula milk more affordable. Cost may be less of an issue in industrialized countries.
37. Ibid.
38. Ibid.
42. Wolfe and Behman (1982); Hobcraft, McDonald and Rustein (1985); Merrick (1985); Hossain (1989); Thomas, Strauss and Henries (1990); Panis and Lillard (1994); Frankenbergn (1995); Lee, Rosenzweig and Pitt (1997); Sastry (1997); and Guikey and Riphahn (1998).

56. As with the income effect discussed above, the reason for this is unclear.
60. Wolfe and Behrman (1982); Merrick (1985); Behrman and Wolfe (1987); Esrey and Habicht (1988); Benefo and Schultz (1996); Lavy, et al. (1996); Lee, Rosenzweig, and Pitt (1997); Ridder and Tunali (1999); and Jalan and Ravallion (2001).
62. Ibid.
4. What Can Programs Do to Narrow Socioeconomic Inequalities in Child Health?

Digging below the proximate causes of child health reveals how, ultimately, socioeconomic inequalities in child health can be traced back to a complex web of socioeconomic inequalities in the underlying determinants of child health. The exercise also provides clear pointers—both to help understand the failure of policies to date and to help design more promising policies.

A program could achieve an equalizing effect on child health outcomes because it focuses disproportionately on the poor (pro-poor targeting) or because it achieves a larger impact on the outcomes of the poor than on those of the nonpoor (pro-poor impact). These two effects could reinforce one another, of course. But by the same token, a program that is not targeted on the poor could still reduce child health inequalities if its impact is sufficiently pro-poor. The converse is true: a program might be neutral or pro-rich in its impact, and yet still reduce health inequalities because of strong pro-poor targeting. Ideally, program evaluations would shed light on how well the poor fare with respect to both targeting and impact. Rarely, however, do they do this. Targeting is often not addressed at all, and analyses of impact often assume equal impact among the poor and better off.

Lowering Financial Barriers for the Poor
Making the Poor Less Poor

As has been seen, income has pervasive effects on child health, operating through a number of key proximate determinants and interacting with other underlying determinants, such as water and sanitation. Macroeconomic and microeconomic policies that succeed in raising levels of income in general—without having adverse effects on its distribution—are likely to have payoffs in terms of improved child health outcomes among the poor, as will policies aimed at improving the living standards of the poor in particular.

Social protection programs provide an example of such an antipoverty policy. Rarely have the child health impacts of such programs been evaluated. South Africa’s new old-age pension is an exception. This universal program extended to the whole population a relatively generous safety net for Whites who reached retirement age without an adequate employment-based pension. By the end of 1993, the program had become an important source of income for non-Whites. The pension has been found to improve not only the health of pension recipients but also the health of other members of households where resources are pooled. Among under-five Black children, the pension is estimated to have led to an eight-centimeter increase in height—equivalent to half a year’s growth.

It is often claimed that income transfers achieve a larger impact on child health if the transfer is paid to women, because, as has been seen above, women’s control over financial resources influences child health outcomes. The design of the long-standing child benefit scheme in the United Kingdom and the new child grant scheme in South Africa reflects this thinking. Credit programs aimed at poor women, while intended to improve the situation of women, also may lead to improvements in child health. While it is clear that at least some of these programs have indeed reached poor women, there is some controversy over their impact. In Ghana, a microcredit scheme for women with accompanying nutrition messages significantly improved the nutritional status of children for participating mothers. However, the previously reported beneficial effects of participation in microcredit schemes on the usage of contraceptives and of maternal health services recently have been argued to stem from a failure to control for self-selection into the microcredit program and nonrandomness in their placement.

Making Transfers Contingent on Participation in Health-Promoting Activities

In Honduras, a family allowance program known as PRAF provides a cash payment to poor households with children or pregnant women that is contingent on continued prenatal checkups, growth monitoring,
and vaccinations. The PROGRESA program in Mexico (see Box 1) and the social protection network (or RPS) in Nicaragua are similar in design. There are also several examples in the nutrition field that combine microcredit programs and training for financial management and cottage industry skills with education programs to encourage adoption of positive nutrition behaviors.

Evidence suggests that the three above-mentioned programs in Central America have all been well targeted on the poor. PROGRESA also has been found to have significantly increased utilization of public health clinics for preventive care—including prenatal care and child nutrition monitoring—with no offsetting reduction in the utilization of private providers. It is also estimated to have caused a 12% reduction in the incidence of illness among under-five children and an increase of about one sixth in mean growth per year among children aged 12-36 months.

**Box 1. The PROGRESA Anti-poverty Program in Mexico**

PROGRESA is an anti-poverty program in Mexico aimed at improving the health, nutritional, and educational status of poor children. It was adopted in 1997 as a national program and covers approximately 2.6 million families, which is about one-third of rural families and about 10% of all families in Mexico. The program is in the process of being adopted by Argentina, Colombia, Honduras, and Nicaragua.

The program provides cash transfers to poor families on the condition that the household engages in behaviors that are designed to improve health and nutrition. As such, the family only receives the cash transfer if it participates in the following sets of activities:

- Use of preventive health services by every family member.
- Attendance of children under five and lactating mothers at nutrition monitoring clinics for growth monitoring, nutritional supplements, and nutrition and hygiene education.
- Visits by pregnant mothers to clinics for prenatal care, nutritional supplements, and health education.

The large size of the cash transfer, corresponding to a 25 percent average increase in the income of very poor households, ensures adequate incentives for participation in the program. In contrast to other child health and nutrition programs, which often suffer from low take-up rates, PROGRESA has achieved a take-up rate of 97 percent.

An innovative feature of the program is that it gives the cash transfers to the mother of the family, because it is believed that this will increase the amount that is spent on food and other productive purposes. This approach seems to have been successful, as 70 percent of the cash transfer has been used to increase both quantitative (calories) and qualitative (richer in protein and micronutrients) food availability. Available evidence also demonstrates that the PROGRESA program was successful in targeting its intended beneficiaries, mainly due to the implementation of appropriate procedures to separate poor households from nonpoor households.

The PROGRESA program also achieved substantial improvements in both health utilization and health outcomes. A recent evaluation of the program with a controlled randomized design reported that the program significantly increased utilization of public health clinics for preventive care including prenatal care and child nutrition monitoring, without crowding out the use of private care, and lowered the number of hospitalizations. Children under five in the PROGRESA program had a 12 percent lower illness incidence compared with children not in the program. In addition, a recent study found that children between 12 and 36 months who received PROGRESA treatment had significantly increased chances for growth and were at significantly reduced risk of being stunted. It was estimated that these effects may have increased mean growth per year for these children by more than 15%.

Sources:
* Gertler (2000).
* Hoddinott and Skoufias (2000).
* Skoufias, Davis, and Behrman (1999).
* Behrman and Hoddinott (2001).
Making Health Services and Other Health Determinants Less Expensive

The cost of health care can be lowered through a variety of means, including health insurance, health cards, fee waivers, and vouchers. Whether public\textsuperscript{10}, private\textsuperscript{11}, or community-based\textsuperscript{12}, health insurance often increases the utilization of health services. In some studies, usage by the poor has been found to be particularly sensitive to coverage by insurance and other schemes that reduce the price of health care.

For example, Egypt’s School Health Insurance Program (SHIP) appears to have had a marked impact on the probability of a visit to a formal provider among children in the poorest quintile.\textsuperscript{13} Indonesia’s health card scheme (see Box 2) also appears to have had an especially pronounced impact on utilization among the poor.\textsuperscript{14}

Several factors need to be borne in mind in designing any scheme aimed at reducing the cost of accessing health services. The first concerns the incentives to

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**Box 2. The Health Card Program in Indonesia**

In 1998, the Asian economic crisis hit Indonesia. As a result of the crisis, poverty increased drastically, mostly due to drastic increases in food prices. One of the effects of the crisis was a decrease in utilization of health-care services. In response to this situation, the pro-poor Indonesian Health Card Program was implemented as a part of a set of general social safety net interventions. The program has been reported to cover 10.6 percent of Indonesian households.

The health cards were distributed to districts based on the estimated number of poor. Local leaders received the health cards for distribution and got guidelines for how to determine household eligibility. The guidelines contained a poverty measure, which specified that a household was eligible for the health card if it had insufficient funds for any of the following activities:

- Worship according to faith
- Eat basic food twice a day
- Have different clothing for school/work and the home
- Have a floor that is not made out of earth
- Have access to modern health care for children or modern contraceptive methods

In addition to the poverty measure criteria, local leaders did have leverage at the local level to distribute the health cards based on their own insight and knowledge of local conditions.

The owner of the health card and his or her family members were entitled to free services at public health-care facilities. Private-sector health-care providers were not included in the health card program. The benefits of the health card included the following:

- Outpatient and inpatient care
- Contraceptives for women of childbearing age
- Prenatal care
- Birth assistance

The public service providers were compensated for the additional workload induced by the health card program by a lump-sum transfer. The compensation was based on the number of health cards that were allocated to the district.

A recent evaluation of the program, based on a nationwide household survey, found that the pro-poor targeting seemed to be successful. Health card owners generally were poorer, were of lower education, lived more often in female-headed households, and worked more often in agriculture as compared to non-owners. Ownership of a health card had a positive impact on the use of outpatient health-care services for households in the poorest two quintiles. There was a substitution effect from private to public providers, as the health card only entitled beneficiaries to services in public health facilities.

providers that the scheme generates. If providers are not compensated—or are only partially compensated—for patients who are covered by the scheme (whether it be an insurance scheme, a fee-waiver scheme, or a health card scheme), they will have a lesser incentive to treat them than they will to treat other patients. The experiences of Bolivia and Peru with their insurance programs for mothers and children (the Seguro Materno Infantil) illustrate this point: in the early years of both schemes, providers were not fully reimbursed when delivering services covered by insurance.\textsuperscript{15} This problem was anticipated in the scheme recently implemented in the Yunnan province of China, which provided vouchers for free care to the poorest 5% of the population as identified by village councils through a participatory poverty assessment.\textsuperscript{16} To ensure that providers had the same incentive to treat patients with and without vouchers, providers were able to obtain full reimbursement for patients using vouchers from the provincial headquarters. Substantially larger increases in the proportion of children with diarrhea receiving treatment were observed in the counties running the scheme than were observed in the control county.

The other consideration is to ensure that the poor—and especially the very poor—are covered. General social insurance schemes, such as that in Vietnam\textsuperscript{17} and Colombia\textsuperscript{18}, often have lower coverage rates among the poor than among the better off. In the case of Vietnam, the scheme barely reaches the poor at all: in 1998, it covered 29% of the richest quintile, but only 6% of the poorest quintile. Even Egypt’s SHIP, which is targeted on children, has lower coverage rates among the poor, simply because poor children are less likely to be in school. Private insurance coverage, unsurprisingly, is not common among the poor\textsuperscript{19}, and community financing schemes have a mixed record in reaching them.\textsuperscript{20} Fee waivers also have a mixed record and often end up exempting the near-poor or other nonpoor (e.g., civil servants, military families).\textsuperscript{21} There are, however, some encouraging trends and examples. In Colombia, although social insurance coverage is still higher among the better off, the poor were the major beneficiaries of the expansion of coverage in the 1990s.\textsuperscript{22} Similarly, although the coverage of Egypt’s SHIP is uneven, it is likely to have substantially narrowed inequalities in insurance coverage among poor and better-off children. The health card scheme operating in Indonesia, which was intended to be targeted toward the poor, has, in practice, been so.\textsuperscript{23}

Policies to reduce the prices of medicines, food, and other proximate determinants of child health also have had beneficial effects. For some drugs, governments may require the assistance of the global community to help lower the price. In many cases, however, countries may be able to achieve a good deal by themselves. In the 1990s, for example, under its Doi Moi economic liberalization program, the Vietnamese government deregulated its domestic pharmaceutical industry and opened its borders to international trade. This, coupled with increased donor assistance, resulted in a reduction of 30% in real terms of the price of medicines—a change that has benefited the poor as well as the better off.\textsuperscript{24} In some cases, including medicines, it may be feasible to subsidize the price for the poor. The social marketing of bed nets provides such an example. In nutrition, a variety of schemes have been employed to reduce the cost of food—either for the population as a whole or the poor in particular. Examples include food stamps, food subsidies, and school feeding programs.\textsuperscript{25} Of these, at least in Sri Lanka and Honduras, food stamp schemes appear to have led to the greatest increase in food consumption.\textsuperscript{26} Subsidizing iodized salt also has proved a cost-effective means of providing iodine to vulnerable groups.

**Improving Health Provision for the Poor**

Few, if any, health sector programs impact on only one dimension of health service provision. Many aim, for example, to improve access and technical quality. This makes pigeonholing them awkward.

**Making Services More Accessible for the Poor**

Accessibility can be improved in a number of ways. One is to reduce travel time to existing health facilities. Evidence on the impact of road improvement projects on health utilization and health outcomes is very limited, and the evidence available is not clear-cut.\textsuperscript{27} However, a recent impact evaluation of a road rehabilitation project in Vietnam reported a significant reduction in walking time (17 minutes) to the hospital for the sample as a whole, and an even larger reduction among the poorest 40% (22 minutes).\textsuperscript{28}
Another strategy is to expand the coverage of facilities—by building new ones, by using outreach from existing facilities, or by making use of community-based service delivery. This has been a theme in a number of maternal and child health programs. One well-documented example for which hard evidence is available is the Matlab Maternal Child Health and Family Planning (MCH-FP) project in Bangladesh. Since 1977, a “treatment” area has been provided with a variety of MCH-FP services, delivered through a mixture of government facilities and mobile workers, supported by field-workers from nongovernmental organizations (NGOs). A recent study compares the changes in inequalities in child mortality in the MCH-FP and control areas. Over the period 1982-1996, child mortality fell by just over 40% in both areas. In the control area, the biggest percentage reduction was in the richest group, whereas in the program area the largest reductions were among the poorest group. The use of outreach was also a key feature of the Bamako Initiative in west Africa. In both Benin and Guinea, evidence suggests that the use of outreach led to significantly higher levels of immunization coverage, though it is not known where in the socioeconomic distribution the increases were largest.

Several Latin American countries—notably Bolivia, Brazil, Mexico, and Peru—have expanded coverage of basic health care to their poor populations on a more systematic basis, and in the process have aimed to improve the relevance and technical quality of care. Rather than extending existing delivery modalities, these programs have involved contracting with community agents of one kind or another. In Ceará in Brazil, a large program for community health workers was established and another program for traditional birth attendants was expanded. Responsibility for health services was decentralized to rural municipalities, these being the ones with the worst health indicators. A social mobilization campaign for child health was implemented, which included using the media and small radio stations to broadcast educational messages. The program aimed at increasing a wide range of child health interventions, based in part on the GOBI strategy of growth monitoring, oral rehydration, breast-feeding promotion, immunization, and vitamin-A supplementation. Results indicate that substantial improvements were observed in average levels of service usage and outcomes following the program’s introduction, and moreover that service usage (vaccination coverage, weighing, and ORT use) increased fastest among the poor. Moreover, health outcomes—diarrhea, stunting, and low weights—all improved, although they improved faster among the better off. Success in Ceará led to the Community Health Agents program, which has gradually become subsumed into the Family Health Program (PF). PSF was intended at least initially to be targeted to poorer municipalities. In this respect, the program has had only limited success, due to the limited capacities (financial and human) of poorer municipalities to implement the program. PSF does, however, appear to have had an impact on outcomes. For example, municipalities with PSF in the state of Pernambuco saw declines in infant mortality, whereas those without the program saw increases. The with-PSF municipalities also saw significantly larger declines in the hospital mortality rate of under-five children.

The use of contractors (including NGOs) to make public funds in the health sector achieve better results has been a feature of other countries’ attempts to expand access. In many cases, payment has been linked to results, rather than to contacts. In Bangladesh, NGO field-workers educating mothers in the use of ORT were paid according to the mothers’ knowledge of ORT use. In Romania, primary-care physicians are paid in part according to capitation and in part according to fee-for-service, in a scheme not unlike that which has operated in the United Kingdom and various other European countries for many years. In Romania, as in other European countries, there has been an attempt to “tilt” the incentive structure so that incentives are skewed toward delivering care to poor children: a fixed bonus was added to the capitation payment paid to physicians practicing in remote or low-income areas. Performance-based contracts with NGOs have been used to deliver community-based nutrition services (growth monitoring, nutrition and education sessions, referral to health facilities of unvaccinated children and pregnant women, and food supplementation) in Senegal and Madagascar (see Box 3). The focus of both programs was on poor areas. In areas covered by the projects, malnutrition fell steadily, and lower rates of malnutrition were found among children who had
benefited from the project compared to those who had not. In Madagascar, children with severe malnutrition—the poorest of all—gained the greatest benefit from the program.42

In none of these examples are there any results showing the gain (if any) from using contractors rather than a more traditional delivery modality. Two recent experiences in the field of child health provide such evidence. In Haiti, NGO workers delivering various preventive measures in a USAID-funded project were initially paid a flat-rate sum, but thereafter were paid according to interventions delivered, with a target and a bonus paid if the NGO exceeded the target. In all three participating NGOs, immunization rates increased after the adoption of the results-based payment system. In two of the three, use rates of ORT increased. And in one of the three, antenatal visit rates increased.43 In a recent experiment in Cambodia, the results are, on the face of it at least, more promising: immunization coverage, the use of antenatal care, and other indicators improved most in districts where NGO providers were operating on a contractual basis; furthermore, the poor appear to have benefited disproportionately in these areas.44 A difficulty with these results, however, is that the government spending per person was substantially higher in contracting-out districts than in the others, so it is not clear whether the improvement overall and the lower inequality were due to the contracting or to the higher resources available.

An alternative to the government paying NGOs is for the government to enter into a partnership with them. PROSALUD in Bolivia provides an example of a public-private partnership underpinned from the start by a focus on the poor.45 A nonprofit organization, PROSALUD was started in 1985 in Santa Cruz. The municipal government built or provided the facilities, but PROSALUD staffed and managed them.

### Box 3: Nutrition Projects in Senegal and Madagascar

Two large-scale nutrition projects in Senegal (Community Nutrition Project, or CNP) and Madagascar (Secaline), both started in the mid-1990s, were designed to reach the most vulnerable groups among poor people. Pro-poor targeting was performed at two levels. The first level was geographical, as the projects were implemented in poor peri-urban areas in Senegal and rural areas in the two most vulnerable regions of Madagascar. The nutritional status of children and whether women were pregnant or lactating constituted the second level of targeting. For example, because malnutrition is more common among the poor in Senegal, targeting malnourished children should increase the pro-poor targeting effect. Data indicate that the pro-poor targeting was successful. For example, 79% of CNP’s costs were spent on service delivery in poor target neighborhoods.

The projects contracted with community nutrition workers (CNWs) to provide preventive nutrition services at the community level. The CNWs were trained by local consultants, training institutions, or project staff, and were supervised by NGOs. Target beneficiaries received the following services:

- Monthly growth monitoring of children
- Weekly nutrition and health education sessions to women
- Referral to health services for unvaccinated children, pregnant women, severely malnourished children, and sick beneficiaries
- Home visits to follow up on beneficiaries who were referred or who did not come to use the services
- Food supplementation to malnourished children
- Improved access to water stand pipes (in Senegal)
- Referral to a social fund for income-generating activities (in Madagascar)

The project achieved important improvements in the nutritional status of children. In Madagascar, malnutrition rates among children covered by the project diminished steadily. For example, one intervention zone reported a decrease in the proportion of malnourished children from 25% to below 10% between 1994 and 1997. In Senegal, severe malnutrition of children 6-11 months disappeared (from 6%) and moderate malnutrition of children 6-35 months decreased from 28% to 24%, as measured by weight-for-age scores.

From its inception, PROSALUD aimed at coupling high quality with a focus on delivering services to the poor and near-poor in urban and peri-urban areas. It practiced a system of cross-subsidization in which the better off subsidized the poor, and users of curative services subsidized users of preventive services.

**Increasing Availability of Human and Material Resources in Facilities Serving the Poor**

Perhaps one of the best-known examples of a systematic attempt to increase the availability of drugs in facilities is the Bamako Initiative in Guinea and Benin. This involved a community-based cost-sharing exercise, the retention of revenues locally, and the use of these revenues to maintain drug supplies. In addition, an essential drugs policy was introduced, limited to “essential” drugs and focused on generics. This led to substantial increases in immunization coverage and utilization of antenatal care, though it is not known whether impacts were similar for all socioeconomic groups. Some concerns have been expressed over the deterrent effects of the cost-sharing arrangements in the Bamako Initiative on utilization by the poor. The evidence on this seems to be inconclusive, with one study suggesting that the poor do not appear to have been any more deterred than the better off from seeking health care. A way of minimizing any negative effects on utilization among the poor is to couple cost-sharing with a solidarity community tax—in Niger, where this approach was tried, utilization among the poor actually increased when the revenues from both the fees and the tax were used to purchase drugs for facilities.

Social investment funds (SIFs) also have been used to increase resources in health facilities in poor areas. Like the contracting model, they have facilitated the circumventing of rigid public-sector norms on, for example, salaries. They also have provided communities with a greater degree of control over investment priorities than is typically the case with government spending decisions. Through the use of targeting mechanisms, SIFs also can, in principle at least, be concentrated on poorer areas. The Bolivia and Nicaragua SIFs, both of which involved investments relevant to child health, have been subjected to evaluation. In the case of Nicaragua, the SIF investments included infrastructure and equipment for health posts and health centers, while the Bolivian SIF projects included repairing existing health facilities and constructing new ones. The Bolivian SIF also provided medicines, furniture, and medical equipment, as well as equipment such as ambulances to enable health staff to make more house calls and keep in contact with facilities. In Nicaragua, the SIF investments turned out to be well targeted on poorer areas. Furthermore, the users of health facilities improved through SIF spending were disproportionately poor. In Bolivia, by contrast, SIF health facility investments were not well targeted on the poor. In terms of impact, there were also noticeable differences between Bolivia’s experience and Nicaragua’s. No significant impacts on diarrhea prevalence or malnutrition were found for any of the Nicaragua SIF investments, though in Bolivia, SIF health investments led to significant improvements in antenatal controls and attended deliveries, and to a 26% decline in under-five mortality.

Geographic resource-allocation formulas also have the potential to increase the resource endowments of facilities serving the poor. These have provided a means of reducing inequalities in resources between poor and better-off regions in industrialized countries. In the developing world, such formulas have not been widely used, though a scheme was introduced in Mexico in 1998 and plans are at an advanced stage in several other countries. In the absence of such formulas, it is hardly surprising that better-off regions typically receive more public resources than poorer regions. In Peru, for example, per-capita allocations allocated through the regional budget (which excludes teaching hospital allocations) are 66% higher in the Lima region than in the very poor regions. In Bangladesh, more developed districts receive more per capita than less developed districts. The success of geographic resource-allocation formulas in terms of redistributing funds—or increments in budgets—and affecting health outcomes among the poor has yet to be properly documented.

**Increasing Technical Quality of Health Care for the Poor**

In the 1990s, several countries mounted national control of diarrheal disease (CDD) programs aimed at promoting the use of ORT and preventive interventions. Tentative estimates of the impacts of the pro-
Box 4: IMCI in Tanzania—Results from the Multi-Country Evaluation

The Multi-Country Evaluation (MCE) of IMCI is under way in four countries: Bangladesh, Peru, Uganda, and Tanzania. Further evaluations are planned for Brazil, Cambodia, and Kazakhstan. The objectives of the MCE are to evaluate the impact of the IMCI strategy on health (child mortality, child nutritional status, and family behaviors); to assess the cost-effectiveness of IMCI; and to document the findings from IMCI implementation as a basis for improved planning and implementation of child health programs. The MCE also attempts to identify potential barriers to implementation and to scaling-up of the program.

This box presents some of the findings from the MCE being conducted in Tanzania. IMCI has been fully implemented in two districts (Morogoro Rural and Rufiji) of Tanzania since 1999. As such, the program has implemented the three main components of the IMCI strategy: improved case management through health staff training; improved health systems, for example by ensuring an adequate supply of essential drugs; and promotion of important family and community practices. IMCI is particularly relevant because its five target diseases and conditions—acute respiratory infections, diarrhea, measles, malaria, and malnutrition—account for over 70% of under-five deaths in Tanzania.

A health facility survey that was conducted in August-September 2000 revealed dramatic improvements in the quality of care management in areas with IMCI compared to areas where IMCI had not yet been implemented. As illustrated in Figure 6, children who visited health facilities in IMCI areas were significantly more likely than their non-IMCI counterparts to be checked for danger signs, for cough, diarrhea, and fever, and to have their weight checked against growth charts. As illustrated in Figure 7, health staff in IMCI areas also were significantly more likely to check immunization status and feeding practices, and to prescribe antibiotics and antimalarial drugs to children in need thereof.

Sources:
grams in Brazil and Egypt (both administered in poor areas), and in Mexico and the Philippines, were recently collated. The data are strongly suggestive of a strong impact—in these countries, mortality attributable to diarrhea fell faster than mortality from other causes. Although some changes other than the CDD program could have accounted for some of the decline, it is unlikely that they accounted for all—or even most—of it. What is not known is whether these programs reduced socioeconomic inequalities in the use of ORT, and whether they had similar or dissimilar impacts on the mortality rates of the poor as on those of the better off.

Improving health staff skills is another way of improving the technical quality of care in health facilities serving poor children. The integrated management of childhood illness (IMCI) strategy seeks to improve provider skills specifically in the management of childhood illness. The strategy combines elements of improved treatment for the major killers of children under five years of age, as well as prevention through immunization, improved feeding practices, and protective behaviors. Treatment guidelines and the training methodology to improve health workers' skills were developed and refined through research and field-testing in several poor countries, including the Gambia, Ethiopia, Kenya, Tanzania, Uganda, and Bangladesh. The quality of care provided by health workers trained in IMCI has been found to be significantly better than the quality of that provided by nontrained health workers in several settings: in Tanzania trained providers were twice as likely to prescribe antibiotics appropriately; in Bolivia trained providers were 10 times more likely to recognize the danger signs of a sick child; and in Niger health workers' performance (tested against the IMCI algorithm) increased by 34% to 85% after IMCI training. See Box 4 for a further discussion on the results of IMCI implementation in Tanzania.

In addition to the skills of health providers, the IMCI strategy aims at improving the elements of a health system that are critical for child health services, including the supply and management of drugs, referral for severe illness, monitoring, the health information system, and supervision. Although IMCI was developed to meet the needs of peripheral facilities with different categories of health workers and without access to costly technologies, concerns have been expressed over the ability of health systems to effectively implement IMCI—and any other health services for that matter—and to achieve large-scale coverage, without systemic improvements. Problems identified include the high level of staff turnover, the inadequate mechanisms and incentives to maintain health worker performance, an inadequate drug supply, and inadequate management capacity at the central and district levels. These problems are especially pronounced in poorer areas.

As private providers represent a large proportion of first-level care, there is a need to improve the skills of public and private sector health workers. In rural India, an intervention to improve the quality of care for sick children provided by private practitioners resulted in substantial improvements in private practitioners' case management of ARI, diarrhea and fever. This involved training health providers and negotiating an unpaid contract to change practices, but also through discussion with mothers to identify their perception of the quality of care provided, and to inform them of critical elements for good case management of childhood illness. In two urban communities in Pakistan, a combination of provider training and consumer education achieved improvements in the clinical case management of sick children, as measured by how providers applied the IMCI strategy.

**Bringing About Behavior Change**

Maternal education has pervasive effects on child health, operating through a number of key proximate determinants, and interacting with other underlying determinants, such as water and sanitation. Increasing educational levels of girls is highly likely therefore to have major payoffs in terms of improved child health outcomes amongst the poor. But behavior change—both positive and negative—can be brought about through means other than formal education.

**Behavior Change**

Communication programs to bring about behavior change have proved effective at developing healthy behaviors in a number of areas, though it is unclear how effective they have been among poor house-
holds. Mild and moderate malnutrition can often be eliminated or controlled through relatively simple changes in dietary and food hygiene practices that are amenable to change through well-planned and executed behavior-change strategies. An evaluation conducted on the nutrition component of the first World Bank loan to Indonesia, which provided educational inputs only, found a significantly improved nutritional status of 40% of the children. What is not known is how far the nutritional status of poorer children improved—since severe malnutrition is even more concentrated among the poor than moderate malnutrition, it seems unlikely that the poor benefited equally. Hygiene is another area where communication is often argued to have proved an effective means of changing behavior, though typically it has been combined with other measures. A recent review of the evidence found that twelve hand-washing interventions in nine countries achieved a median reduction in diarrhea incidence of 35%. Many of the most successful interventions provided soap to mothers, explained the oral-fecal route for disease transmission, and asked mothers to wash their hands before preparing food, and after defecation. A recent review of measures aimed at increasing the safe disposal of feces found a median reduction of diarrhea disease of 26%, a median reductions in all-cause child mortality of 55%, and a median reduction in mortality from diarrhea of 65%. There is some evidence that this approach can benefit the poor. In Central America the social marketing of soap resulted in decreased diarrheal incidence rates, particularly among children under five in targeted low socioeconomic groups. Social marketing has also been used to change perspective and utilization of impregnated bednets in several settings where malaria is of concern, but the extent to which the poor have benefited is unknown.

Behavior can be influenced in negative ways too. Promotion of the unnecessary use of infant formula milk by the private sector has had damaging effects on child health. To address this WHO and UNICEF have developed an international code for the marketing of breast milk substitutes. A number of countries have applied related regulation to the production and distribution of such substitutes. For example, this strategy was successfully used to decrease the distribution of free and low-cost infant formula in the Philippines.

**IMCI's Comprehensive Approach to Behavior Change in Child Health**

Building on the successes of behavior-change programs, IMCI provides women attending clinics with information and counseling on a wide range of the proximate determinants of child health. These facility-based efforts are reinforced through a community-based program. In Brazil the provision of nutrition education and counseling by IMCI-trained health workers resulted in improved knowledge on the part of the mothers, better feeding practices, and improved nutritional status of children after 18 months. In India, the government worked closely with NGOs, community volunteers and health workers in eight villages in rural Haryana, deciding on the content of the counseling after an analysis of the traditional beliefs and current caretakers’ practices. Compared to the control areas (where no community volunteers or health workers were trained), the intervention areas achieved longer breastfeeding durations, a higher quality of complementary feeding provided to children after six months, and increased hand-washing before feeding children.

**Improving Water, Sanitation and the Home Environment Among the Poor**

There is also scope for improving infrastructure at the household and community levels—making water supplies safer and more plentiful; improving sanitation; and switching to improved stoves with cleaner fuels, and improving ventilation.

A recent study of piped water in India highlights how the impact of piped water on child health varies with income and maternal education. Among poorer children, piped water reduces the incidence of diarrheal disease only amongst those whose mothers have achieved a level of education above primary level. This highlights the importance—especially amongst poor households—of behavior-change strategies to accompany water infrastructure projects.

The Bolivia and Nicaragua SIF evaluations also shed light on the impact of water and sanitation infrastructure investments on child health. Both included sanitation, and the Bolivia SIF included water projects too. In both countries, the SIF sanitation investments were poorly targeted, being disproportionately concentrated in better-off areas, but water
projects were well targeted. No significant impacts of water or sanitation projects on diarrhea were found in Nicaragua, but in Bolivia SIF water investments are estimated to have resulted in a 41% reduction in under-five mortality.

A recent study in Kenya demonstrated that the use of cleaner fuels and improved stoves can reduce the prevalence of acute respiratory infections and conjunctivitis among children under five years of age and among women between 18 and 60 years of age.65 In addition, in Guatemala, improved biomass cook stoves were shown to reduce pollutant emissions and pollution exposure among the populations who cook daily with biomass fuels.66

Chapter Endnotes

10. Waters (1999); and Yip and Berman (2001).
36. This may have been due to a larger proportional increase in breastfeeding among the better off, and the likelihood that the better off, being better educated, are more likely to have adopted behavior-change interventions faster.
38. Ibid.
42. Rokx (2001).
47. Soucat, et al. (1997b).
48. Ibid.
61. The fact that diarrhea incidence and case fatality rates are significantly higher among the poor than the nonpoor makes it unlikely that the scale of mortality reduction achieved would have been possible in the absence of a significant program impact on the poor.
64. Schellenberg, et al. (2001b).
68. Lambrechts, Bryce, and Orinda (1999).
69. USAID and DFID (2001).
70. Bustreo et al. (2003) and Waters et al. (2002).
75. Ibid.
76. Saade, Bateman, and Bendahmane (2001).
78. Stewart and Guille O (2000).
82. Bhandari, Bahl, Martines, and Bahn (2002).
5. Conclusions

The facts on child health and inequalities in child health are clear enough—and sobering. In most countries, rates of mortality and malnutrition amongst children continue to decline. But large inequalities between poor and better-off children exist—between and within countries. These inequalities appear to be widening rather than narrowing. Richer countries have seen faster declines in child mortality and malnutrition than poorer countries, and the poorest regions look least likely to reach the Millennium Development Goals.\(^1\) Within countries reductions in mortality and malnutrition have been most pronounced amongst richer children. These data call into question the strategies relied upon to date.

There is, as we have shown, solid knowledge on most of the key proximate determinants of child health: feeding and nutrition, sanitary practices and hygiene, other preventive activities, and care during illness. For the most part, poor children fare worse than better-off children. At one level, then, the causes of socioeconomic inequalities in child health are clear. Less obvious is why poor children fare worse on these practices, behaviors and interventions, especially as many governments have in place programs aimed at providing all children with access to key child health interventions, such as immunization. We have shown above how disparities in the proximate determinants of child health are caused by a complex web of socioeconomic inequalities—the underlying determinants of child health. As in another recent review of the child health field\(^2\), two broad themes emerge from this analysis, and these together point towards the ingredients of a more comprehensive approach to child health—one that embraces all children, whatever their socioeconomic status. It recognizes the importance of having solid scientific evidence on the various proximate determinants of child health and their impacts. But it goes beyond it, recognizing the need for multidisciplinarity—the need to harness insights from several disciplines simultaneously.

Households Matter

The first theme is that households—and in particular caregivers—play a crucial and dual role: as ‘producers’ of child health, and as ‘demanders’ of health services. It is caregivers who feed their children, who do or do not wash their hands before preparing food, and who do or do not dispose of feces safely. It is caregivers and their families who burn fuels for cooking and heating, and who purchase, treat and use bednets. It is the caregiver who is in the perfect position to administer ORT to a child with diarrhea, or to obtain antimalarials to a child with fever.

Much of a child’s health is—or at least can be—‘produced’ in the household. Moreover, for those interventions that are or ought to be delivered by a professional—antenatal care, the safe delivery of a newborn, immunization, and care of a sick child that cannot be administered at home—the caregiver plays a crucial role. She makes the initial contact, and plays a key part in what follows, in terms of compliance, follow-up visits, referrals, and so on.

Understanding the behavior of caregivers provides the key to modifying caregiver behavior, and is thus a crucial process in improving child health outcomes. This is why it is so important to have a thorough understanding of the influence on caregiver behaviors of the underlying determinants of child health. These determinants are many. Financial barriers—low income and high prices—are important. So too are features of the health care delivery system—caregivers’ utilization decisions are influenced by service accessibility, by the availability of material and human resources in facilities, and by organizational quality. The education of the caregiver plays a major role, as does the availability of a good water supply and adequate sanitation facilities. In all of these respects, the poor are disadvantaged. Tackling these disadvantages can help poor households as producers of child health to achieve more from the ‘inputs’ they currently use (e.g. getting a more nutritious diet from the food they already have) and to obtain more ‘inputs’ where necessary (e.g. additional
poor. So even if the investment is well targeted on the poor, as it was in the Bolivia social investment fund, the project may nonetheless have only a limited equalizing effect—or even a disequalizing effect—on the socioeconomic distribution of child health outcomes.

Looking Forward
We end with two calls for action. First, there is enough evidence for us to be confident that more can be done now to reach poor children and improve their health and nutritional status. If good results can be achieved for the better-off, it is surely possible to do better than at present for the poor. Enough is known about what ought to make for a successful set of programs. As we have shown in this paper, there is much evidence on the pathways—the direct and underlying determinants—through which child health outcomes are influenced. Enough positive examples of actual programs are already available: we have highlighted the examples of the PROGRESA program in Mexico; the health card program in Indonesia; and the nutrition projects in Senegal and Madagascar. What these examples have in common is that health outcomes were improved and that poor as well as better off children were reached. Such promising approaches to address socioeconomic disparities in child health outcomes should be replicated in other settings and countries. Identifying strategies that work on a global level is an important component of informing health policy to ensure that health goods and services reach poor children.

Second, the evidence base on which to construct programs to reduce socioeconomic disparities in child health should be expanded and enhanced. Better evidence is needed on how well programs are reaching poor children, and how far they are improving poor children’s health. It is unrealistic to expect every program to analyze the socioeconomic distribution of beneficiaries and evaluate impact for different socioeconomic groups. But more needs to be done. Evidence is also needed on the influence of contextual factors on program targeting and impact. No program operates in a vacuum. IMCI, for example, is reliant on a variety of health system supports to work, and if these supports are weaker in poorer areas, as they undoubtedly are, the ability of IMCI to narrow socioeconomic inequalities in child health is compromised. These supports do not appear like manna from heaven. They are linked to a variety of contextual factors, which seem likely to include the policy environment, the quality of governance, implementation capacity, resources, and the degree to which the system is focused on and responds to results. We need a better understanding of what these contextual factors are, and how they affect the ability of child health programs to combat child health inequalities.

Chapter Endnotes


Grant, J. (1994), Statement to Third Committee of 49 UN General Assembly, New York.


UNICEF (1990), *Goals for Children and Development in the 1990s.*


World Health Organization (2003), *Website for the Multi-country Evaluation of IMCI*.


Inequalities in Child Health

Are We Narrowing the Gap?

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