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Reaching The Poor Program Paper No. 9

Brazil: Are Health and Nutrition Programs Reaching the Neediest?

Aluísio J.D. Barros, Cesar G. Victora, Juraci A. Cesar, Nelson Arns Neumann
and Andréa D. Bertoldi

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Health, Nutrition and Population (HNP) Discussion Paper

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Paper prepared for the Program on Reaching the Poor with Effective Health, Nutrition, and Population Services, organized by the World Bank in cooperation with the William and Melinda Gates Foundation and the Governments of the Netherlands and Sweden.

Abstract:

Background: Brazil has one of the greatest income concentrations in the planet. Most adverse health outcomes are more common among the poor. The Family Health Program (PSF) was introduced in the 1990s to provide high quality primary health care specially to the poorest.

Study Objectives: To assess the PSF in terms of coverage and focus, and estimate the actual use of the program by people from different economic levels.

Methods: A cross-sectional study was performed in areas covered by the PSF in Porto Alegre (South Brazil). Information on utilization of health services and socioeconomic and demographic conditions was obtained. Also, data on PSF utilization by under-five children and on antenatal care from a cross-sectional study carried out in the State of Sergipe (Northeast Brazil) were analyzed.

Results: In Porto Alegre, 11% of total population and 19% in poorest quintile were covered by PSF. Program focus was 36% for the population registered, and 41% for those actually using it in the previous 6 months. Overall access to health services was high, without socioeconomic differences, but utilization patterns were markedly different in terms of motive and type of service sought. The richer and those covered by private health insurance were less likely to use primary health care. In Sergipe, PSF coverage was higher (55% among the poor) and focus lower (27%). Despite high coverage, the proportion of mothers not attending antenatal care was higher (21%) in the poorest quintile than in the wealthiest quintile (4%). Similarly, inadequate antenatal care was more common among the poorest (50% vs. 19%).

Conclusions: PSF seems to have an important role guaranteeing access to the poor. However, the program is not well focused, and coverage among the poor is still inadequate. Findings from this study will be fed back to policy makers to help improve the program.

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, its Executive Directors, or the countries they represent.

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FOREWORD

This discussion paper is one in a series presenting the initial results of work undertaken through the Reaching the Poor Program, organized by the World Bank in cooperation with the Gates Foundation and the Governments of Sweden and the Netherlands.

The Program is an effort to begin finding ways to overcome social and economic disparities in the use of health, nutrition, and population (HNP) services. These disparities have become increasingly well documented in recent years. Thus far, however, there has been only limited effort to move beyond documentation to the action needed to alleviate the problem.

The Program seeks to start rectifying this, by taking stock of recent efforts to reach the poor with HNP services. The objective is to determine what has and has not worked in order to guide the design of future efforts. The approach taken has been quantitative, drawing upon and adapting techniques developed over the past thirty years to measure which economic groups benefit most from developing country government expenditures.

This discussion paper is one of eighteen case studies commissioned by the Program. The studies were selected by a professional peer review committee from among the approximately 150 applications received in response to an internationally-distributed request for proposals. An earlier version of the paper was presented in a February 2004 global conference organized by the Program; the present version will appear in a volume of Program papers scheduled for publication in 2005, *Reaching the Poor with Effective Health, Nutrition, and Population Services: What Works, What Doesn't, and Why*.

Further information about the Reaching the Poor Program is available through the “Reaching the Poor Program” section of the World Bank’s poverty and health website:

<http://www.worldbank.org/povertyandhealth>

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INTRODUCTION

Social inequalities are a major problem in Latin America. As pointed out in the Human Development Report 2003 (UNDP 2003), 6 of the 12 highest ranking countries in terms of income concentration are from the region; the other 6 are in Africa. Among the Latin American countries, Brazil, Nicaragua, Honduras, Paraguay, Chile, and Colombia presented, in this order, the highest Gini coefficients, ranging from 60.7 to 57.1.

Health inequalities are also acknowledged as “the leading health problem” in the Americas by Pan American Health Organization (PAHO 1998). Reducing such inequalities, however, is not a simple task. There is an important gap in knowledge about the impact of health interventions on health inequalities. In fact, some interventions may actually increase inequalities instead of reducing them (Victora et al. 2000).

One often-tried strategy is implementing health programs targeted at the poorest people. Nutritional supplementation programs are classic examples of this strategy: milk supplementation programs, family ration distribution, school meals in poor neighborhoods. In Brazil, such programs were popular until about 10 years ago. But, beset by difficulties in the management and distribution of food, they have given place to programs that offer money allowances to the poorest families, conditional upon keeping their children in school and bringing them to health facilities regularly.

Health service strategy, on the other hand, has been heading toward universal coverage and away from targeting specific groups since the creation of the Sistema Único de Saúde (SUS, Unified Health System) by the 1988 Constitution. The SUS now offers free and comprehensive health care for anyone, independent of contribution or affiliation. In a country with such huge social disparities, the SUS has been an important mechanism for equalizing access to services, as shown, for example, by comparing health services and dental services (Barros and Bertoldi 2002), which are not widely offered within the SUS.

PROGRAMS STUDIED AND HYPOTHESES

In this study we evaluate how four current Brazilian health programs cover the neediest people. The programs were selected for their importance, national coverage, and availability of data. They are: the national immunization program; the national antenatal care program; the Family Health Program (PSF in Portuguese); and the Pastorate of the Child Program. The first two are universal programs intended for the whole population. The third is also a universal program, but it was designed to start by reaching the poorest people first and then expand gradually. Unlike the first three programs, operated by the government, the Pastorate of the Child Program is run by a nongovernmental organization (NGO) linked to the Catholic Church. The Pastorate of the Child Program is the only strictly targeted initiative, directed at very poor families or at families with malnourished children.

NATIONAL IMMUNIZATION PROGRAM

The National Immunization Program was created in 1973 with the objective of eradicating vaccine-preventable diseases. By 1988 vaccine coverage for illnesses included in the official list was slightly above 60 percent. Efforts were made to improve the program, and in 1991 coverage was officially reported to be 90 percent or more for measles, DPT and BCG, with polio lagging behind with around 76 percent coverage (de Miranda et al. 1995). From 1994 to 2002, the total number of doses went from nearly 31 million to more than 162 million. Coverage of individual vaccines is high, above 95 percent for all vaccines in the official calendar (data from Datasus obtained through <http://tabnet.datasus.gov.br/cgi/pni/dpnimap.htm>).

Since 2000, in addition to polio, measles, BCG and DPT, vaccines against *Haemophilus influenzae* B, hepatitis B, mumps and rubella have been made available through the public health services. The vaccines are freely available in public health centers and policlinics for routine vaccination of children and the elderly. Also, national immunization campaigns are organized regularly, with vaccination places scattered in health facilities, supermarkets, shopping malls and community centers.

Despite this effort, full coverage of immunization has not yet been achieved. Data from the Brazilian Demographic and Health Survey (DHS) of 1996 indicate that only 75 percent of children between 12 and 23 months had received all doses of the vaccines prescribed by the basic immunization calendar (1 BCG, 3 DPT, 3 polio) (author's unpublished data). Very similar results were found in a study carried out in the city of Porto Alegre (de Miranda et al. 1995). In Ceará, a state where strong efforts were directed to child health, coverage for all the vaccines prescribed for the first year was 89 percent in 1994 (Victora et al. 2000).

NATIONAL ANTENATAL CARE PROGRAM

In 1984 the Brazilian Ministry of Health launched the Program of Integral Assistance to Women's Health (PAISM). Antenatal care was already implemented in the primary care system, but it was felt that it had to be strengthened. With the creation of the Sistema Único de Saúde, the conditions were laid for the antenatal care program to be offered widely. The local health authorities are responsible for the program, and services are delivered at primary health facilities. The basic guidelines for the local programs recommend a first antenatal visit in the first three months of pregnancy and additional visits every four weeks thereafter (for uncomplicated pregnancies). The visits should include, at least, a check for edema and the measurement of blood pressure, uterine height and fetal heart frequency. A few laboratory tests are also routine, plus immunization against tetanus, if necessary. Antenatal care coverage is high: more than 90 percent of women have at least one attendance and an average of more than six consultations (Coutinho et al. 2002; Monteiro et al. 2000; Trevisan et al. 2002). On the other hand, the same studies show variable prevalence of adequate care, defined on the basis of a first consultation in the first 20 weeks of pregnancy and at least 6 consultations. In Juiz de Fora (Minas Gerais state), 26.7 percent of the women had adequate antenatal care (Coutinho et al. 2002), in Caxias do Sul (Rio Grande do Sul state), 35.2 percent (Trevisan et al. 2002), in Pelotas (Rio Grande do Sul

state), 37 percent (Silveira et al. 2001), while in São Paulo City (São Paulo state), it was found to be 69 percent (Monteiro et al. 2000).

FAMILY HEALTH PROGRAM

Since the 1994 creation of the Family Health Program (PSF) by the Ministry of Health, the primary health system in Brazil has been undergoing a reform designed to bring it closer to households. To this end, there has been a shift from the traditional static health center (a primary health facility typically staffed with a pediatrician, an obstetrician and an adult clinician plus nurses and secretarial personnel) to family health teams responsible for outreach as well as passive service. This shift has been gaining momentum in recent years.

The PSF was created to reorganize primary health care (PHC), by instituting teams comprising a general practitioner, a registered nurse, a nurse assistant, and four community health workers. Each team is in charge of up to 1,000 families, or 4,500 individuals. The rationale behind the PSF is to offer health care that assigns priority to preventing disease and promoting health, in addition to providing curative care. Services are delivered either at health facilities or, whenever necessary, through home visits. The composition of the PSF team was defined to encourage bonding with the people covered in order to foster a sense of mutual responsibility toward health (the program website is available at http://portal.saude.gov.br/saude/visao.cfm?id_area=149).

In most municipalities, the rationale behind the implementation of the program is to start in the poorest areas and in areas not yet covered by PHC. The Ministry of Health offers incentives to municipalities that attain coverage of more than 70 percent of the population, paying approximately US\$20,000 per team per year, compared to US\$10,000 for municipalities with coverage below 5 percent. If this policy is maintained, the PSF should replace the traditional health centers in a few years. As of October 2003, according to data from the national program coordination, the Northeast region, with 49.8 percent of the population covered by the program, had the highest coverage. Coverage for the Midwest, South, North, and Southeast regions was 38.9, 33.7, 31.0, and 26.0 percent, respectively.

THE PASTORATE OF THE CHILD

The Pastorate of the Child (Pastoral da Criança) was launched in 1983. It was an initiative undertaken by the Catholic Church in order to work directly with families in their homes, promoting such cultural values as fraternity, social co-responsibility, and ecumenism; aiming to reduce malnutrition, infant mortality and social marginalization; and contributing to integrated child development.

The touchstone of the program are the pastorate “leaders”—women (mostly) who, working as volunteers, visit the enrolled families with information on suitable infant feeding strategies, especially breastfeeding, and monitoring growth by measuring and weighing all children monthly. Additionally, the leaders teach families about immunization and use of oral rehydration therapy. As they gain experience, the volunteers also help with respiratory infections and

prevention of domestic accidents. The work done is always voluntary, and most leaders devote one day a month to the Pastorate.

Pastorate leaders are recruited from the local community to work with up to 15 neighborhood children. The leaders are trained for their main duties, described in the Pastorate Leader's Guide. Because an information system was developed to monitor and evaluate the activities promoted by the Pastorate, not only can the tasks performed be quantified, but a health profile of the communities assisted can also be drawn.

According to data from the Pastorate management (www.pastoraldacrianca.org.br), in the year 2000, 100 percent of the 27 states and 61 percent of all parishes were served by the Pastorate. In total, 3,555 municipalities are covered by 133,134 leaders. According to their data, an average of 1.6 million children under 6 years of age are seen by the program each month (roughly equivalent to 10 percent of the Brazilian population). The Pastorate also runs literacy projects and income-generation programs for adults and broadcasts a weekly radio program over 1,343 stations.

Available data on this program are limited, suggesting a less optimistic situation. In Criciúma (Santa Catarina state), less than 5 percent of the families were covered by the Pastorate, and drop-outs were frequent (Neumann et al. 1999).

RESEARCH QUESTIONS

Our main hypotheses are that coverage of universal programs (such as immunization and antenatal care) is high in overall terms but lower among the poorest, especially when the quality of service is taken into account. We also hypothesize that targeted programs assist mostly the poorest, but there is a fair degree of *leakage* (i.e., coverage of nonpoor), and coverage among the extremely poor is limited.

Using existing information from surveys, as well as new data collected from PSF-covered areas in Porto Alegre (Rio Grande do Sul state), we intend to assess the performance of the four health programs described above in relation to their coverage of the poor and in relation to focus. Where suitable data are available, mainly from the Porto Alegre PSF study, the reasons for the observed results on coverage and focus are explored.

METHODS

The analyses performed are intended to describe how the benefits of the programs assessed were distributed across the population, classified in terms of wealth. One indicator used is *focus*, that is, the percentage of the benefit going to the poor, *benefit* in our case represented by program coverage (Habicht et al. 1984). To give a more complete picture of program performance, the full distribution of economic status for the population covered by the programs studied is presented in the results.

Also, coverage was calculated, both for the whole population and by economic strata. By *coverage*, we mean the proportion of the population assisted by the program. These two indicators can be directly estimated from the datasets based on cross-sectional surveys that are representative of the whole population. Inequalities in coverage can be assessed by ratios of differences between the poorest and the richest (typically comparing the 20 percent poorest with the 20 percent richest).

Inequalities were also evaluated by measures of coverage *concentration* derived for each program. These measures have the advantage of including the whole distribution under study instead of only the extreme groups, as in ratio and difference measures (Kakwani et al. 1997). The *concentration index*, a Gini-like measure, is defined as twice the area under a Lorenz-type concentration curve. This curve is obtained by plotting the cumulative distribution of an outcome against the respective percentile of the population ordered by income (or other socioeconomic indicator). A very clear and practical approach to concentration curves and indices is available at the World Bank Poverty and Health website: Quantitative Techniques for Health Equity Analysis: Technical Notes (<http://www.worldbank.org/povertyandhealth>).

Economic classification is a critical issue in equality analysis. The approach used here was based on information on household assets, which was available from each study. Using this information, asset index scores were developed for each household. The technique used in constructing the index scores was principal components analysis, as proposed by Filmer and Pritchett (2001) and applied in several other studies (e.g., Gwatkin et al. 2000). After the asset score was created, the households were divided into quintiles. The whole process took into account the sampling strategy of each study, and thus included weighting, stratification, and correction for clustering, as necessary. The results are expressed as quintiles of households; and because there are more people per household in some of the quintiles (especially the poorer ones) than in others, the number of individuals can vary from quintile to quintile of households. Our focus population (the poor) was defined as the households in the study population in the first (poorest) quintile, or the individuals living in these households.

A criterion for assessing adequacy of the antenatal program was needed, and the Kessner criterion (modified by Takeda) for adequate antenatal care was used. Care was classified as adequate whenever the mother attended at least six consultations, starting in the first 20 weeks of pregnancy (Silveira et al. 2001). This criterion has been tested against other approaches and presented a better performance (Delgado-Rodriguez et al. 1997).

For immunization, a simple criterion, already used in other studies (de Miranda et al. 1995), was applied. Children aged 1 year or more were considered fully immunized if they had received at least one dose of BCG, and three doses of polio and DPT vaccines.

All the analyses were performed with Stata release 8 (StataCorp. 2003).

DATA SOURCES

Data from four cross-sectional studies were used in this work. One was a large national survey, and the other three included specific population groups in different Brazilian cities. The authors carried out the latter three studies. A brief description of each is given below.

BRAZILIAN DHS SURVEY (1996)

DHS surveys are designed to collect information on fertility and family planning, maternal and child health, child survival, and other reproductive health topics. The DHS program was developed by Macro International, and funded by a number of international donors. The surveys include modules on the household, on women of reproductive age, and on the children born to these women. Health status outcomes and access to health services for specific conditions include incidence and/or prevalence of some diseases of infancy and childhood, mortality under 5 years of age (including neonatal, post-neonatal, and infant mortality), nutritional status of children and mothers, access to antenatal and delivery care, breastfeeding, family planning, and fertility. The surveys do not, however, include modules on household consumption and income. In Brazil, the DHS survey done in 1996 included 13,283 households, a sample designed to be representative of the whole country (except the rural area of the Northern region). The results can be disaggregated up to the state level and some metropolitan areas, such as São Paulo, Rio de Janeiro, and Porto Alegre. This survey was carried out by BEMFAM (*Sociedade Civil Bem-Estar Familiar no Brasil*), and supported by the U.N. Population Fund (UNFPA), U.N. Children's Fund (UNICEF), the Brazilian Ministry of Health, the Brazilian Institute of Geography and Statistics (IBGE), and the U.S. Agency for International Development (USAID). Its official name is *Pesquisa Nacional sobre Demografia e Saúde, PNDS*. Full details about this and other DHS surveys can be found in the DHS+ Home website (www.measuredhs.com). DHS data were analyzed to assess the antenatal and immunization programs.

CRICIÚMA STUDY (1996)

This study was carried out by N.A. Neumann and colleagues in Criciúma, state of Santa Catarina, South Brazil, in 1996, funded by the Pastorate of the Child. The sample included 2,208 children under three years of age, selected using a stratified two-stage sampling scheme. The overall coverage of the Pastorate in Criciúma was 17 percent. Extensive information on family characteristics (including family income and ownership of a variety of goods) and utilization of health services was collected from the mothers. Especially, coverage by the Pastorate, and characteristics of the assistance being provided were carefully recorded (Neumann et al. 1999). This dataset was used to assess the Pastorate of the Child as well as the governmental antenatal care program.

SERGIPE STUDY (2000)

This study was carried out in 2000 in the state of Sergipe, Northeast Brazil, by J.A. Cesar and colleagues, and funded by the World Health Organization (Dept. of Child and Adolescent

Health). The survey was based on a two-stage sample designed to be representative of households in the state with at least one child under 5 years of age. The study included 1,785 children from both urban and rural areas. Extensive information on family characteristics (including family income and ownership of a variety of assets) and utilization of health services was collected from the mothers. Also, qualitative data were gathered from mothers, health workers, nurses, and doctors (e.g., using focus group discussions, in-depth and expert interviews), relative to the PSF and other health-related initiatives. This study provided data for assessing the PSF, immunization, and antenatal care programs.

PORTO ALEGRE PSF STUDY (2003)

This was a cross-sectional study carried out in the city of Porto Alegre, capital of Rio Grande do Sul state, between July and September 2003. The study was carried out by A.J.D. Barros, and funded by the World Bank through the Reaching the Poor program. According to the 2000 Brazilian Demographic Census (IBGE) the municipality of Porto Alegre has approximately 1.3 million people. It is one of the richest cities in Brazil, and yet it is encircled by poor neighborhoods, where part of the population is deeply deprived.

At the time of the study, there were 56 PSF units in the city that had been operating for more than six months. The population covered by these units, that is, living in their catchment area, was estimated at 143,000. A sample of 900 households was selected by two-stage cluster sampling. The primary units were the areas covered by each PSF unit (45 areas selected) and the secondary units were the households (20 selected in each area). Through standardized interviews, information on household assets and infrastructure was collected together with information on access and utilization of health services, health expenditure and financing, and satisfaction with health services. All individuals living in the selected households were included in the study.

The economic classification of the sample was done using the wealth index (named the IEN) proposed by Barros and Victora (2004). Data from the 2000 Brazilian Census sample was used to develop an asset score through principal components analysis, and its deciles were calculated for each capital, state, and region in Brazil. The scores, calculated for each household in the sample under study, were then classified according to the reference quintiles obtained for Porto Alegre (referred to in the text as IEN/POA). The strategy allowed the sample that included only households in areas covered by the PSF to be classified into the wealth quintiles relative to the population of the whole city (as opposed to dividing the sample internally in quintiles).

FINDINGS ABOUT DISTRIBUTION

The description of how the four programs assessed are distributed in the population is shown in the following sections, with emphasis on population coverage and focus on the poor. All the results presented are original, the product of analyses performed on the datasets described above.

NATIONAL IMMUNIZATION PROGRAM

Both the DHS and Sergipe studies indicated that around 20 percent of children aged 1 to 4 years had not received all the basic immunization doses (1 BCG, 3 DPT, 3 polio). Table 1 shows significant differences across wealth quintiles only for the DHS study, where incomplete immunization was more than twice as frequent among the poorest than among the richest. The concentration index was -21.8 , indicating a concentration of incomplete immunization among the poor. Though not significant, data from Sergipe also pointed to a higher prevalence of incomplete immunization among the poorest. For this study the concentration index was -10.8 . Lower inequality in the Sergipe study compared to the DHS is linked to the much wider national coverage of the latter study, thus including both the richest and the poorest regions in the country.

Table 1: Prevalence of incomplete immunization among children 12 months and older, by asset quintiles and concentration indices for DHS/Brazil (1996) and Sergipe Study (2000)

Wealth quintiles	DHS (1996) n = 3827	Sergipe (2000) n = 1436
1	33.4	28.0
2	16.4	20.4
3	14.2	20.6
4	11.9	15.5
5	15.3	17.8
All	19.3	20.5
	p < 0.001	p = 0.176
	CI = -21.8	CI = -10.8

DHS Demographic and Health Survey; CI Concentration indexes.
Sources: BEMFAM, DHS/Brazil 1996 and J.A. Cesar, Sergipe Study 2000.

In the DHS data, 21 percent of the fully immunized children were from the poorest quintile of households (focus), which included 26 percent of all children. In Sergipe, 17.8 percent of fully immunized children were from the poorest group (which included 19.7 percent of all children). Given that the immunization program is universal, high focus was not expected. However, coverage is clearly lower among the poorest, contrary to the idea of program universality.

ANTENATAL CARE

The availability of data about antenatal care in three of the studies we used is an indication of the program's importance in Brazil. It is certainly one of the most traditional programs delivered through the primary care network. The quality criterion used, proposed by Kessner, is widely accepted and, as mentioned, performs better than other criteria.

Table 2: Proportion of mothers receiving inadequate antenatal care (Kessner criteria) by asset quintiles and concentration indices for three studies

Wealth quintiles	DHS (1996)	Sergipe (2000)	Criciúma (1996)		
			All	SUS users	Percentage of children using SUS
1	70.0	49.1	37.8	38.7	93.8
2	43.5	48.3	27.9	29.2	89.4
3	27.4	35.3	24.6	29.3	77.4
4	19.1	30.2	21.0	26.5	65.1
5	13.6	18.7	15.9	24.6	37.1
All	38.4	35.7	25.9	30.7	74.3
	p < 0.001	p < 0.001	p = 0.003	p = 0.166	p < 0.001
	CI = -31.7	CI = -18.3	CI = -16.2	CI = -0.09	

DHS Demographic and Health Survey; SUS Unified Health System; CI Concentration indexes. Sources: BEMFAM, Brazil/DHS 1996; NA Neumann, Criciúma Study 1996; JA Cesar, Sergipe Study 2000.

In the three studies, the overall proportion of mothers having inadequate antenatal care varied from 25.9 percent in Criciúma to 38.4 percent in the whole country as assessed through the DHS (Table 2). Specifically in Criciúma, the children that used the SUS as their primary source of health care could be broken out. In this group, the prevalence of inadequate antenatal care was 30.7 percent.

Inequality across the wealth quintiles was again evident from the data. As expected, the DHS, which includes a much wider area, showed the highest concentration index of inadequate care — 31.7. Lack of coverage was around five times higher in the poorest quintile than in the richest. The Sergipe study yielded the second highest concentration index, -18.3, close to the -16.2 found for Criciúma. This town, located in a wealthy part of the country, presented the lowest prevalence of inadequate care. The degree of inequality, however, was comparable to Sergipe in terms both of the concentration index and the poor-to-rich ratio. On the other hand, when only SUS users from Criciúma were considered, the concentration index was -0.09, and no significant difference across the wealth quintiles was found. The lower degree of inequality was achieved through higher prevalence of noncoverage in the richest quintiles. Wealthy SUS users presented antenatal care coverage similar to the middle quintile of the whole sample. SUS users are a minority in the richest quintile (37.1 percent), while in the poorest they are the absolute majority (93.8 percent).

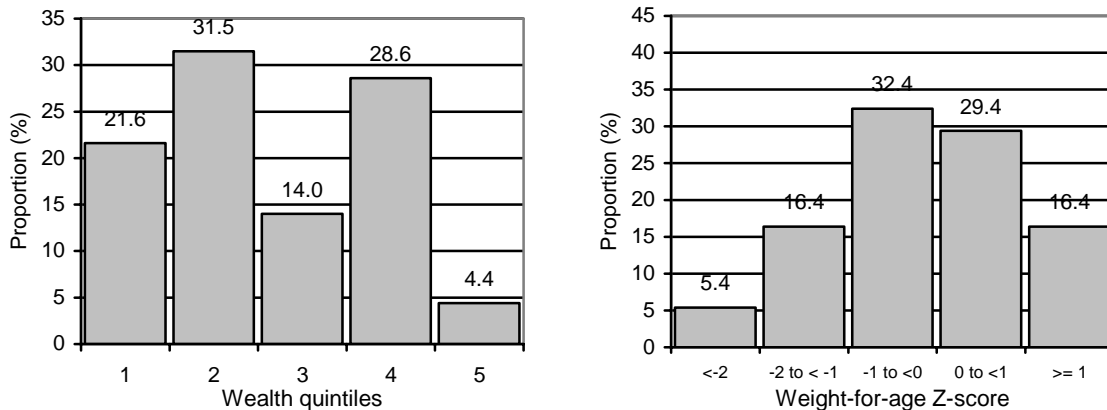
The proportion of poor children among those receiving adequate antenatal care (focus) was 13.1, 13.6, and 17 percent, respectively, for DHS, Sergipe, and Criciúma, while their proportion in the whole sample was 26.9, 20.4, and 20 percent, respectively. Again, we find low focus, bearing in mind that this is a universal program.

PASTORATE OF THE CHILD

The Pastorate of the Child is the only fully targeted program analyzed in this work. As explained earlier, the objective of the program is to concentrate on undernourished children and on those from the poorest families. Measuring program focus is, therefore, more relevant than for the programs discussed above. Figure 1 shows program focus in terms of wealth and nutritional status. Among the children covered by the program, 21.6 percent were from the poorest quintile of households, while almost 32 percent were from the second quintile. The distribution of nutritional status among covered children is also shown in Figure 1. It follows closely the distribution of the total population (presented in Table 3), suggesting that the program fails to concentrate on malnourished children.

Coverage of the program was low, at 4.5 percent of the whole population (Table 3). Only the richest quintile presented a distinctly lower coverage, but with borderline significance. The highest coverage was achieved in the second quintile. No significant difference was found for coverage of the different groups by nutrition status. In absolute terms, the severely malnourished children had the lowest coverage, and the best nourished had the highest coverage.

Figure 1: Distribution of the population covered by the Pastorate of the Child in terms of wealth quintiles and weight-for-age Z-score, indicating program focus (benefit incidence). Criciúma, 1996



Sources: NA Neumann, Criciúma Study 1996.

Table 3: Coverage of the Pastorate of the Child by wealth quintiles and by children's weight-for-age Z-score

Program coverage by wealth quintiles			Program coverage by children's weight-for-age Z-score		
Wealth quintiles	N (percent)	Coverage	Z-score	N (percent)	Coverage
1	555 (20.0)	4.8	<-2	140 (5.4)	2.7
2	598 (26.6)	5.3	-2 a <-1	377 (16.4)	3.3
3	366 (16.0)	3.9	-1 a <0	711 (32.4)	5.2
4	394 (20.1)	6.4	0 a <1	615 (29.4)	4.2
5	260 (17.3)	1.1	>=1	311 (16.4)	5.5
All	2157 (100)	4.5	All	2154 (100)	4.5
P = 0.049			p = 0.169 ^a		

a Trend test.

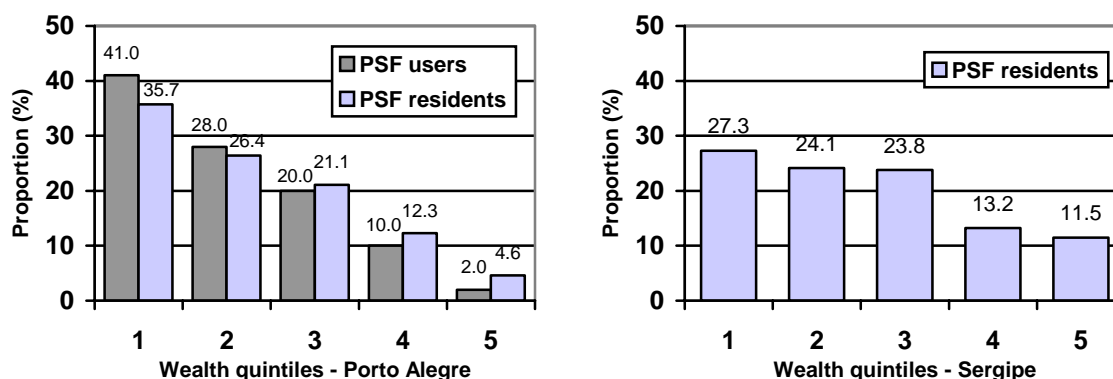
Sources: NA Neumann, Criciúma Study 1996.

FAMILY HEALTH PROGRAM

PSF is in different phases of implementation in various places in Brazil. We have studied it in the city of Porto Alegre, where it is relatively new, and in the state of Sergipe, where it has been much more widely implemented. Though not targeted explicitly toward the poor, PSF implementation is planned to start in the poorest areas and in those not yet covered by a primary health unit. The potential program beneficiaries are all residents of the unit catchment areas (referred to as PSF residents). But, because a number of such individuals will never use the public service, we also did some of the analyses with service users in Porto Alegre, that is, those who reported having used the PSF at least once in the previous six months (referred to as PSF users).

In Porto Alegre, the program focus was estimated at 36 percent, the proportion of the population living in the catchment area of PSF facilities that belonged to the poorest 20 percent of the city's residents. Considering only the actual users of the PSF, focus was 41 percent. An additional 28 percent of PSF users came from the second-poorest 20 percent of the population. Thus, in all, nearly 70 percent of people using PSF services belonged to the poorest 40 percent of the population. The full distributions are shown in Figure 2. Total PSF coverage in the city was estimated at 10.8 percent, and the coverage of the poorest 20 percent was 19.3 percent. Table 4 shows coverage for all strata.

Figure 2: Distribution of wealth status for individuals residing in catchment areas covered by the PSF (Porto Alegre and Sergipe) and for PSF users (Porto Alegre only)



PSF Family Health Program.

Note: Values for the first quintile indicate program focus on the poor.

Sources: JA Cesar, Sergipe Study 2000, AJD Barros, Porto Alegre PSF Study 2003.

In Sergipe, focus was lower than in Porto Alegre: there, 27 percent of the residents of areas served by the PSF were in the poorest 20 percent of the population, compared with 36 percent in Porto Alegre (Figure 2). However, coverage was higher: more than 55 percent of the poorest 20 percent of Sergipe residents were in areas where the PSF was active, compared with only 19 percent in Porto Alegre. The same was also true at the middle and higher economic levels: in Sergipe, 25 percent of all people in the highest 20 percent of the population lived in PSF-served areas, a figure 10 times higher than in Porto Alegre (Table 4).

The differences observed are likely due to the different stages of implementation of the program in the two sites. At the beginning, coverage is low and focus is high, as observed in Porto Alegre. Later on, with increased overall coverage, focus decreases, but coverage is still higher among the poor.

Table 4: Family Health Program (PSF) coverage by wealth quintile for Porto Alegre (2003) and Sergipe (2000)

Wealth quintiles	Porto Alegre (2003) n = 3,827	Sergipe (2000) n = 1,436
1	19.3	55.1
2	14.3	49.2
3	11.4	42.6
4	6.7	31.1
5	2.5	24.9
All	10.8	41.1

Sources: JA Cesar, Sergipe Study 2000, AJD Barros, Porto Alegre PSF Study 2003.

REASONS FOR THE DISTRIBUTION

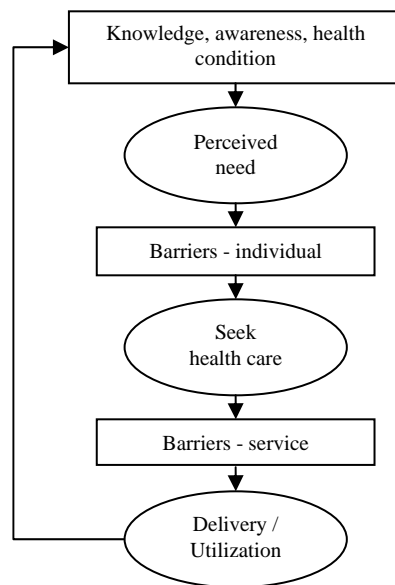
The programs studied presented markedly different profiles of their distribution in the population. Further data on the programs were explored to establish, to the extent possible, why that is the case.

IMMUNIZATION AND ANTENATAL CARE PROGRAMS

The universal preventive programs (immunization and antenatal care) studied here showed similar patterns: reasonably high coverage of the whole population and low focus on the poor. This is what is expected from universal programs. But when coverage was stratified, with decreasing wealth, the result was a consistent reduction in coverage.

Barriers to the utilization of these services by the poor may be present at one or more levels in the path leading to the actual use of preventive health services (Figure 3). Poorer people may be less aware of the benefits of the programs because they are less likely than the better-off to be reached by educational messages. Also, given their harsh living conditions, they may assign less importance than the better-off to preventive care. Even if the poor perceive a need for preventive care, they may fail to seek it due to personal barriers such as lack of money or transportation, or to a negative perception of health services (e.g., frequent rescheduling and expectations of long waiting times). Finally, obtaining access to the desired program or service may be limited by service-related deficiencies—such as already fully booked service rosters, long waits, and difficulties in obtaining laboratory exams. Below we discuss the evidence obtained on each group of possible obstacles to service utilization.

Figure 3: Simple model of health service utilization.



Starting with the barriers closest to utilization—those related to the service itself—our data suggest that access to health services is not an important problem. Among those who sought health care (either curative or preventive), only 6 percent failed to get medical attention, although this was more common among the poor ($p = 0.02$),

Figure 4) than among the better-off. About a third of those who failed to get care reported the service being fully booked as the reason. Other common reasons were that the doctor was unavailable, waiting time was too long, and that the specialized service or doctor needed was not available at the facility sought. The high access to health services is confirmed by other studies based on the 1998 PNAD (National Household Sample Survey) carried out by IBGE, where access to health services in general was found to be around 97 percent (Barros and Bertoldi 2002; IBGE 2000).

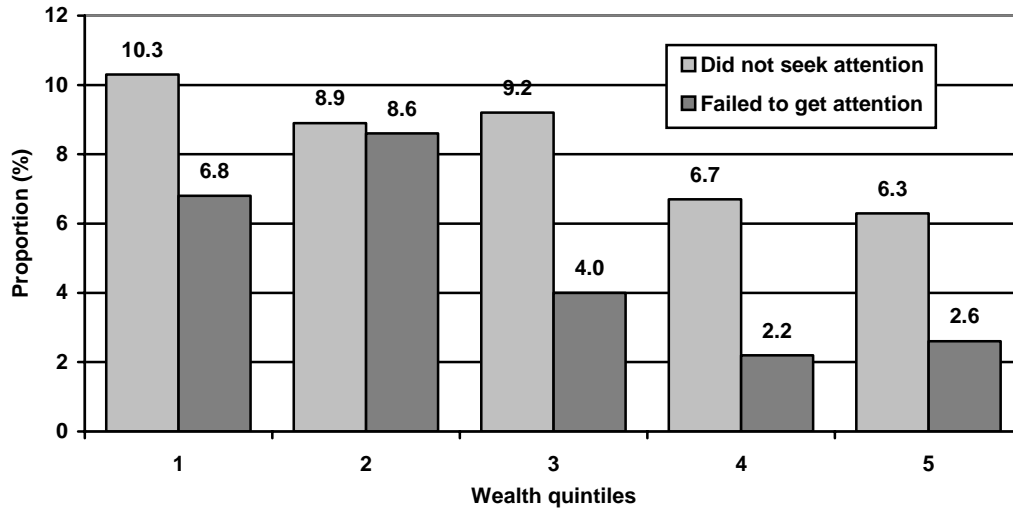
Access to referral services, however, was lower. In the Porto Alegre study, 12 percent of the individuals reported that they failed to get the laboratory exams requested, and 23 percent did not obtain access to a specialist doctor when referred by the generalist.

Another indication of service availability is that 27 percent of the sample in the Porto Alegre PSF study received medical care in the 15 days before interview, with no significant difference by wealth quintile. Despite similar utilization, there was a clear difference in the motive for the consultation across economic groups. Among the worse-off, illness was more commonly (65 percent) cited as a motive than among the better-off (16 percent). Conversely, prevention was more common among the 20 percent richest (51 percent vs. 23 percent for the 20 percent poorest).

In terms of personal barriers to use of health services among those reporting a need for medical attention in Porto Alegre, 9 percent did not seek care (no significant difference between wealth quintiles, see Figure 4). More than a third of the respondents blamed lack of time. Other reasons reported included negligence about their own health, the time required to book an appointment (including getting in line early in the morning) and other difficulties with scheduling appointments.

We do not have data on barriers related to knowledge, awareness, or motivation (the first box in Figure 3). However, a study of antenatal care in Caxias do Sul (near Porto Alegre) in 2000 (Trevisan et al. 2002) showed that the main reported motive for not attending antenatal care was lack of information about its importance (however, only 5 percent of mothers failed to attend). Still on this topic, negative perceptions of the quality of public health services could reduce utilization. However, studies consistently show high levels of user satisfaction with health services, public and private alike. In a study to assess user satisfaction with antenatal care within the Brazilian public health system (Ribeiro et al. 2004), 86 percent of users rated the service as good (22 percent) or excellent (64 percent). Satisfaction with health services in general was also high (86 percent good and very good) in the national survey done in the 1998 PNAD (IBGE 2000). In the Porto Alegre PSF study, we found a similar proportion (84 percent) of users rating the service as good or very good.

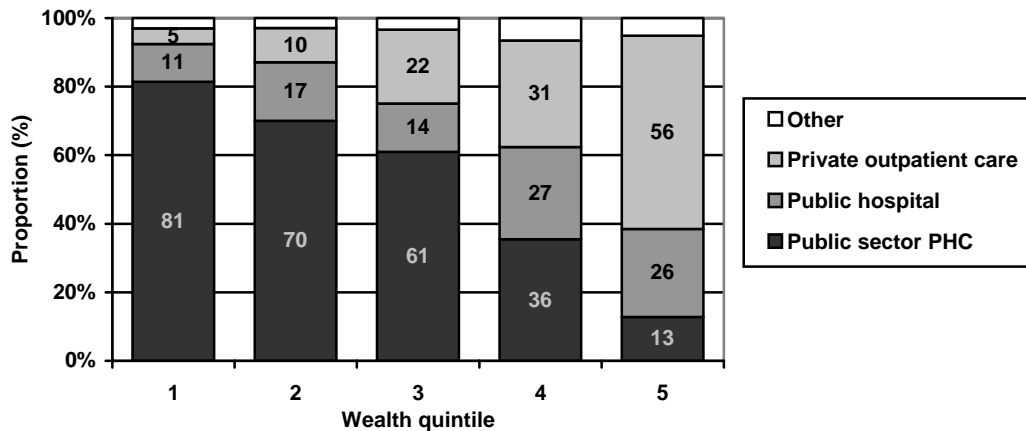
Figure 4: Percentage of the population that failed to seek or to get medical attention on the first attempt, by wealth quintile



Source: AJD Barros, Porto Alegre PSF Study 2003.

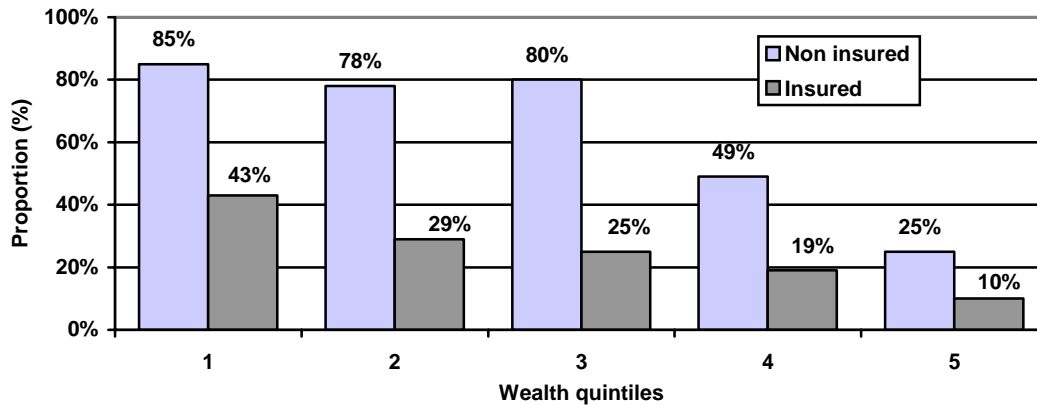
Contrasting with this picture of high access to and high satisfaction with the public health services, we found in the Porto Alegre study a strong association between economic level and type of service used. Figure 5 shows a steep decrease in the use of public sector PHC with increasing economic well-being. Conversely, use of private services (private health insurance or direct payment) increased with economic level ($p < 0.001$). Increased utilization of public hospital outpatient and emergency services was also observed among the better-off.

Figure 5: Distribution by where health care was sought first in the previous 15 days, by wealth quintile



Note: χ^2 test $p < 0.001$.

Figure 6: Use of primary health care among users of some health service in the previous 15 days, by wealth quintile and health insurance coverage



Note: both variables = $p < 0.001$).

Source: AJD Barros, Porto Alegre PSF Study 2003.

Important differences in the use of public-sector primary health were present according to coverage by health insurance (Figure 6); insured individuals were less than half as likely as the uninsured to use government services in all wealth quintiles.

Using a Poisson regression model with PHC utilization as the outcome, we assessed the effect of health insurance coverage after adjusting for the effect of wealth (Barros and Hirakata 2003). Having private health insurance reduced the use of PHC by 63 percent ($RR_{adj} = 0.37$; $CI_{95\text{ percent}} = 0.26-0.52$). There was no interaction between health insurance and wealth. Coverage by private health insurance was 6.5 percent in the poorest quintile, increasing to nearly 70 percent among the richest ($p < 0.001$).

Putting the evidence together, the low coverage of preventive programs among the poorest does not seem to be caused by difficulties in delivering services, considering the high access and utilization of services in general. On the other hand, the high rates of self-exclusion from public services observed among the wealthy and privately insured individuals indicates that important problems are perceived by users but are not clearly captured by the available studies. These problems are probably related to waiting times, hours of operation, and limitations in access to specialized services and complementary exams (laboratory and imaging).

User awareness may also pose problems at the distal end of our model. Poor patients may not be aware or convinced of the importance of immunization and antenatal programs, as reported in the Caxias do Sul study (Trevisan et al. 2002). Or perhaps they do not even know about the recommended immunization schedule or number and frequency of antenatal consultations. This possibility is supported by a study showing that low maternal schooling was the main factor associated with incomplete immunization in the Northeast of Brazil among public health service users, even after controlling for family income (da Silva et al. 1999).

FAMILY HEALTH PROGRAM (PSF)

Unlike the first two programs, PSF showed higher coverage among the poor. But the reason is likely related to the factors discussed above. Better-off individuals and the privately insured migrate to private services for both primary care from general physicians and for specialist care. Our study was not designed to investigate in detail why this happens. Still, despite a general preference for private services, PSF and public services play an essential role in providing health care to the poorest and manage to offset the advantage of the better-off, resulting in similar access rates for both rich and poor.

The same program may differ in terms of focus and coverage along its life span. In its initial stages, the PSF in Porto Alegre presented high focus and low coverage. In Sergipe, with much higher coverage, focus was lower. The results are very much in accordance with the proposed targeted implementation of the PSF.

PASTORATE OF THE CHILD

Finally, the Pastorate of the Child, a program whose importance is recognized worldwide and the only targeted program studied here, failed to give priority to the neediest as defined by economic or nutritional criteria. Neumann and associates (1999) identified an important problem of drop outs. Among mothers who had participated in the Pastorate at some point, 70 percent had left the program, mainly because of migration, lack of time, or interruption of visits by the Pastorate leader. But it is unlikely that this can explain the low focus.

An alternative explanation for the low focus found is program efficacy. If covered children experience improved growth, they would shift to higher Z-score groups giving the impression that covered children are better nourished than the rest. It is unlikely, though, that this could fully explain the results.

The dependence of the program on the leader's volunteer activities can work as a limiting factor for focus and coverage of the poorest, because the most deprived communities may be those where recruiting leaders is more difficult or where their work is less intensive or regular. Improved targeting and better incentives to keep children under surveillance are needed.

LIMITATIONS

National data and data from several locations were used. Even so, only a fraction of current health programs and services were studied, and Brazil's wide regional diversity was not fully reflected. The consistency of the results, however, suggests that, despite temporal and regional variations, the picture presented is credible.

The search for solutions to social, economic, and health inequalities involves the documentation of such inequalities, but the reasons behind them also have to be uncovered. Long-term, complex social processes are at play as well as real or perceived health service deficiencies. We have

explored this issue within the limits of the available information. For a better understanding, specific quantitative and qualitative studies will have to be done. For example, a qualitative study carried out in Pelotas (Southern Brazil) showed that the public saw public health facilities in the city's periurban slums as poor substitutes for good quality, private health care used by the wealthy (Behague et al. 2002). Also, in-depth assessment of quality of care is important to ensure that equality is not measured only by how much services are used, but also in terms of how well people are served.

IMPLICATIONS

We have shown that health care coverage among the poor is lower than that observed among the wealthy for the two universal programs studied: immunization and antenatal care. The Pastorate of the Child, the only targeted program studied, also showed low coverage, as well as low focus and a high drop-out rate. Coverage of the poor by the PSF was higher than coverage of the wealthy, due to its targeted implementation. But this higher coverage was also due to self-exclusion by the better-off: the wealthier the individuals, the less they used the service. We also showed that coverage by private health insurance reduced the use of the PSF by more than 60 percent. Asked why people would choose to use the PSF, most mentioned the proximity of the facility, and very few brought up quality of care.

Interpreting the results requires some caution because the programs studied are directed at different populations and involve very different approaches. The immunization program, for instance, requires the presence of the child for a very short time on a limited number of occasions. Antenatal care involves medical consultations, laboratory exams, and so on. PSF utilization, on the other hand, encompasses preventive activities but most frequently is related to treatment of illness.

The differences may also be revealing. The immunization program is widely seen as good quality, and the vaccines reliable. Although we did not have data on where children received their vaccines, private immunization clinics are known to be few and seldom used. Most children, rich and poor, get their vaccines at the health centers. Nevertheless, for a program perceived as being of good quality, highly accessible, and free, coverage among the poor was much lower. The Brazilian experience in successful immunization is globally recognized. For example, the last case of polio in Brazil was in 1989, and the disease was officially declared eradicated in 1994. Also, for the past two years no autochthonous measles cases have been reported.

The record of the immunization program is in clear contrast with general PSF utilization, where constraints related to quality or ease of access put the wealthier off. The results we presented are in agreement with the conclusions of the qualitative PHC study from Pelotas (Behague et al. 2002), where people voiced their distaste for the units. Paradoxically, several quantitative studies among users have shown high reported satisfaction, but one may wonder whether subjects provide valid answers when interviewed at a service site by someone who looks like a government official (IBGE 2000; Trad et al. 2002).

All told, action on several fronts seems necessary to improve public health services for the poor. These actions are:

- Empower the users, especially the poorest, by informing them about the importance of each program, what is expected from the user, and what the user should expect from the service—and create channels for complaints to be heard.
- Instead of simply expanding PHC by increasing the number of service units, improve accessibility to the service by reducing waiting times, the need to line up very early in the morning, and other inconveniences.
- Improve access to referral services such as laboratory exams and specialists.
- Continue to monitor and evaluate programs with an equity lens, by repeating and expanding exercises such as the present study to cover other health programs.
- Feed back results of equity studies to decision makers and to the general population.

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