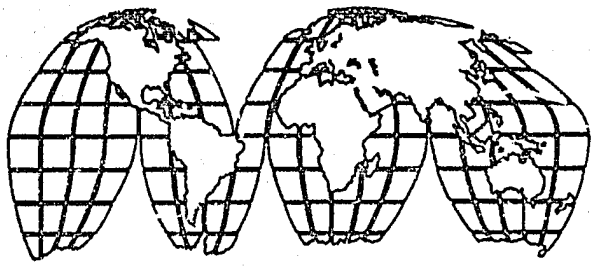
A.I.D. Technical Report No. 5

Center for Development Information and Evaluation



Evaluation of A.I.D. Child Survival Programs

Bolivia Case Study

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Evaluation of A.I.D. Child Survival Programs

Bolivia Case Study

Team Members

Richard R. Martin
Team Leader and Assessment Manager
Office of Evaluation, Center for Development Information and Evaluation, Directorate for Policy

Patricia O'Connor
Health Officer, USAID/Guatemala
Agency for International Development

Oleh Wolowyna
Health Statistician
Research Triangle Institute

Enrique Duarte, M.D.
Health Officer, USAID/Guatemala
Agency for International Development

Clark Joel
Economist
Research Triangle Institute

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Preface

This Center for Development Information and Evaluation (CDIE) Technical Report presents one in a series of six country case studies that are being undertaken to describe and evaluate the Agency for International Development's (A.I.D.) worldwide Child Survival Program. The other five countries in the series are Egypt, Haiti, Indonesia, Malawi, and Morocco.

The six country studies are intended to be representative of different geographic regions and of different programmatic approaches to Child Survival. Upon completion of the six country studies, CDIE will prepare a comprehensive synthesis which will summarize the Agency's experience with Child Survival. Following an approach designed for the A.I.D. "Administrator's Evaluation Initiative," the synthesis will assess overall program performance and will address policy and program issues of interest to Agency senior management.

The analysis in this Technical Report is somewhat different from the earlier field studies done in the CDIE Child Survival Assessment Series. First, this paper is longer and more detailed than previous papers in the series. Second, this Technical Report contains more economic and cost information than did previous papers. Third, the analysis done for this paper puts more emphasis on qualitative measurement of program performance than did previous reports in the series.

The intent of the Technical Report is to document aspects of the A.I.D. Child Survival Program in Bolivia that are particularly relevant to Agency policy and program concerns in the Child Survival area. The CDIE assessment team did not attempt to evaluate the Bolivia country program in the sense of making judgments about its strengths and weaknesses or recommendations for changing it. Also, the Technical Report does not try to describe all aspects of all A.I.D.-supported Child Survival activities in Bolivia. Of the many different A.I.D.-supported Child Survival activities in Bolivia, the CDIE team selected three important clusters of activities for analysis. These clusters, or "initiatives," were selected because of their relevance to important Agencywide policy concerns, their relatively large size, and their representativeness of a range of contrasting approaches and methodologies.

In addition to statistical information, the Technical Report contains observations, insights, and conclusions of the CDIE evaluation team, some of which may be controversial. Although the team attempted to be rigorous, accurate, and fair, any errors of fact or interpretation are the responsibility of the CDIE team, and specifically of the CDIE team leader. Backup information substantiating the text of the Technical Report is available in CDIE files in Washington.

The CDIE assessment team spent 4 weeks in Bolivia researching and preparing this Technical Report. Interviews were held with 45 key informants in the Bolivian Government, in the private sector, in donor organizations, and in the A.I.D. Mission to Bolivia. The CDIE team visited 17 different project-related public health facilities in 11 communities, representing a range of linguistic, urban-rural, and public sector-private sector conditions under which the A.I.D. Child Survival Program in Bolivia operates. Twenty focus groups were held with mothers of young children to determine their perceptions and experiences with regard to A.I.D.-supported Child Survival services. While not statistically representative of the population of Bolivia or of all beneficiaries of the A.I.D. program, these "rapid appraisal" techniques nevertheless produced much insight and surprisingly consistent results. The CDIE team therefore is confident that this Technical Report presents an accurate overall picture of the nature and performance of the A.I.D. Child Survival Program in Bolivia.

Summary

This Center for Development Information and Evaluation (CDIE) Technical Report presents one in a series of six country case studies that are being undertaken to describe and evaluate the Agency for International Development's (A.I.D.) worldwide Child Survival program. The purpose of the Technical Report is to document aspects of the A.I.D. Child Survival Program in Bolivia that are particularly relevant to Agency policy and program concerns in the Child Survival area.

Infant (0-11 months) and child (0-5 years) mortality rates in Bolivia are the highest in South America, at 96 and 142 deaths per 1,000 births, respectively. This means that, on the average, almost 1 in 10 children born alive dies during the first year of life. Mortality of children under 5 years of age accounts for nearly half (43 percent) of all deaths in Bolivia. Among children under 5 who survive, 38 percent are chronically malnourished, 28 percent have recurrent diarrhea, and 20 percent suffer from acute respiratory infections. Diarrhea is the primary cause of death among children more than 1 month of age. The maternal mortality rate is 332 per 100,000 live births, a rate nearly 40 times greater than that found in the United States.

A.I.D.'s participation in Bolivia's Child Survival Program began in the late 1980s following political changes in Bolivia and designation of Bolivia as a Child Survival "emphasis country" by A.I.D. The A.I.D. Child Survival Program in Bolivia has expanded rapidly, now representing approximately 60 percent of the FY 1992 A.I.D. Development Assistance Budget for Bolivia. The program is diverse, combining support for delivery of basic health and Child Survival services with policy initiatives, experimental research and development (R&D) activities, and institutional-strengthening activities. There is a heavy emphasis on achieving sustainable services. Both public sector and private sector services are supported.

Three major A.I.D. Child Survival project clusters, or "initiatives," were evaluated. The first, the Community and Child Health project, is A.I.D.'s major activity with the Bolivian Government's Ministry of Health. The authorized A.I.D. contribution to the project is $16.5 million. The project supports immunizations and oral rehydration therapy on a national scale. It also supports services dealing with acute respiratory diseases, nutrition, growth monitoring, water and sanitation, community promotion and health education, and decentralized health administration on a smaller, pilot project scale in four rural health districts.

The second initiative, the Self-Financing Health Care projects, has created a private sector primary health care organization (PROSALUD) which recovers its

costs by charging fees to low-income users. PROSALUD is receiving A.I.D. support from two projects over a 10-year period. A.I.D. funding totals $8.8 million, and has provided everything needed for the establishment of PROSALUD as a modern private sector health provider, including initial operating expenses, infrastructure, training, and technical assistance. Following 5 years of operation, PROSALUD is functioning effectively and recovering almost all of its costs in the Santa Cruz region of Bolivia. Under its second project, it will expand coverage and test the applicability of the cost-recovery model under different, more difficult, socioeconomic conditions.

The third initiative, *Programa de Coordinación en Supervivencia Infantil* (PROCOSI), has developed a coordinating organization for health private voluntary organizations (PVOs) which is expected to become self-financing using an endowment created through a debt-for-development swap. A.I.D. support of $9.7 million for PROCOSI is being provided through two consecutive projects covering 10 years. In addition to the endowment, the two A.I.D. grants have provided funding for PVO health services, technical assistance, training, and institutional support for PROCOSI.

A.I.D. also has a number of other activities that contribute to meeting Child Survival objectives, including a new AIDS project, a reproductive health project, and a radio-based health education program for primary schools.

In terms of *effectiveness*, the Bolivian national Child Survival Program has successfully expanded coverage of some basic primary health care services to large numbers of Bolivians. Coverage of basic immunizations has grown from less than 10 percent in 1986 to around 55 percent in 1991. As a result, the incidence rates for three preventable diseases—diphtheria, measles, and pertussis—have declined to very low levels, and polio has disappeared. Although A.I.D. did not begin providing support on a large-scale national level until around 1989, it is now providing about one-third of the total resources for the national immunization program, and it is reasonable to attribute a substantial portion of Bolivia's present and future progress to A.I.D support.

Control of diarrheal diseases, on the other hand, has not been an effective program to date. A.I.D. provided oral rehydration salts to the Ministry of Health, which proved unable to distribute them nationally. As a result, diarrhea continues to be the number one killer of children under 5. A.I.D. and the Ministry of Health are modifying the program, providing additional A.I.D. support for logistics and distribution in an effort to strengthen this critical activity.

Other A.I.D. support to the Ministry of Health is helping improve community-level health delivery. This experimental program is currently functioning in four districts and is starting up in a fifth.

Private sector Child Survival activities—PROSALUD and PROCOSI—are effective in supporting good-quality services to relatively small numbers of clients. Both are making major strides toward achieving sustainability. Although their coverage is not on a national scale, they are endorsed by the Ministry of Health as contributing significantly to the national program. PROSALUD is effective both in improving coverage of basic services in the areas where it works and in providing good-quality services at low costs.

In terms of *efficiency*, analysis of cost data in Bolivia confirmed the low cost and effectiveness of preventive services compared with curative services. A comparison of public sector (Ministry of Health) services with comparable private sector services (PROSALUD) showed that the private sector provides substantially better quality services at somewhat lower costs than does the public sector.

The big breakthrough in Bolivia is the achievement of *sustainability* of Child Survival services in several different projects. PROSALUD has shown that it is feasible to recover the costs of providing high-quality primary health care, even to low-income clients, through user fees. The Ministry of Health, encouraged by PROSALUD's success, is also collecting user fees. Another important innovation is the creation of an endowment, funded through an A.I.D. debt-for-development swap, that will generate interest income for PVO health activities on a permanent basis.

With regard to *impact*, the infant mortality rate in Bolivia has been declining steadily for a number of years, demonstrating the efficacy of primary health care services. A.I.D. arrived late on the scene and cannot take credit for historical progress. However, there is convincing evidence that the A.I.D. program is now making a difference. If A.I.D.'s program makes planned adjustments in its activities, especially in its support for oral rehydration therapy, it is possible that the infant mortality rate could decline even faster, from 96 deaths per 1,000 live births in 1991 to somewhere between 76 and 55 deaths per 1,000 births by the year 2000, an improvement of up to 28 percent. Much of this improvement in the performance in the national program will be due to A.I.D.'s recent and continuing support.

In Bolivia, it was found that the educational attainment of mothers was powerfully associated with sound health behaviors, utilization of modern health services, and significantly lower mortality and morbidity.

A.I.D.'s strong in-country technical staff and its ability to string together sequences of projects to provide continuous support for periods of 10 years were major factors in its ability to perform effectively in complicated areas such as policy reform, sustainability development, research and development, and institutional-strengthening.

Conclusions of the Bolivia field case study, which may have broader importance for the A.I.D. Child Survival Program worldwide, include the following:

- Child Survival services should be encouraged to evolve away from single vertical services toward permanently institutionalized integrated services. Initial, politically popular vertical services, such as vaccination campaigns and Chagas' disease control in Bolivia, create favorable conditions for later integration with other health services and permanent institutionalization.
- The fact that Child Survival is a Washington-mandated program has not resulted in overfunding or excessive haste in programming A.I.D. resources in the field.
- Constructive, collaborative policy-related activities such as research, publications, high-level presentations, and workshops are effective mechanisms for policy dialog in sensitive areas such as reproductive health.
- A.I.D. Child Survival programs pay a high price—in time, money, and political credibility—for A.I.D.'s burdensome administrative requirements.
- Permanent professional field staff is A.I.D.'s comparative advantage. Trained and experienced technical officers are needed to develop sound Child Survival Program strategies, engage in policy dialog and in-house advocacy, evaluate and report on progress, and manage project implementation to reduce vulnerability and get results.
- Better health management information systems are needed to plan, manage, and evaluate Child Survival services.
- Local sustainability of Child Survival services is attainable if it is a serious program objective.

Glossary

A.I.D.	Agency for International Development
altiplano	highlands
ARI	acute respiratory infection
BCG	bacillus calmette-guérin (tuberculosis vaccine)
CCH	Community and Child Health project
CDC	Centers for Disease Control
CDIE	Center for Development Information and Evaluation
CONAPO	National Population Council of the Ministry of Planning
DDF	Debt for Development Foundation
DHS	Demographic and Health Survey
DPT	diphtheria, polio, tetanus vaccine
EPI	Expanded Program of Immunizations
FSN	Foreign Service national
GDP	gross domestic product
HHR	Bolivia Office of Health and Human Resources
IDB	Inter-American Development Bank
IEC	information, education, and communication
IMR	infant mortality rate
KAP	knowledge, attitude, and practices

llanos	lowlands
LOP	life of project
MSI	Management Systems International
NGO	nongovernmental organization
ORS	oral rehydration salts
ORT	oral rehydration therapy
PAHO	Pan American Health Organization
POL/CDIE/E/POA	Directorate for Policy, Center for Development Information and Evaluation, Office of Evaluation, Program and Operation Assessments Division
PL	Public Law
PROCOSI	Programa de Coordinación en Supervivencia Infantil, A.I.D. Child Survival PVO Network
PROSALUD	A.I.D. Self-Financing Health Care project
PVO	private voluntary organization
R&D	research and development
RDC	Regional Development Corporation
RTI	Research Triangle Institute
SNIS	Bolivian National Health Information System
TAACS	technical adviser for AIDS and Child Survival
TFR	total fertility rate
UNDP	United Nations Development Program

UNFPA	United Nations Family Planning Agency
USAID/Bolivia	U.S. Agency for International Development's field Mission
USDH	U.S. Direct Hire
valles	valleys

Map of Bolivia

The Bolivian Context

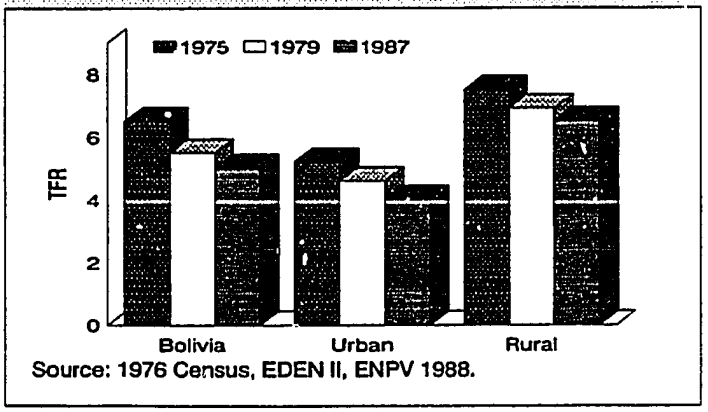
Background

Bolivia became a republic in 1825. It is divided into nine Departments (La Paz, Oruro, Potosí, Cochabamba, Chuquisaca, Tarija, Santa Cruz, Beni, and Pando) and 99 provinces. There are three major ecological regions: the highlands or *altiplano* (roughly composed of the Departments of La Paz, Oruro, and Potosí), the valleys or *valles* (roughly composed of the Departments of Cochabamba, Chuquisaca, and Tarija), and the lowlands or *llanos* (roughly composed of the Departments of Santa Cruz, Beni, and Pando). The average altitude of the altiplano is 3,700 meters. This region includes the capital city of La Paz and the major mining areas of the country. The valles region consists of small areas of flat valleys and mountains. The major coca-growing region, Chapare, is located in the Department of Cochabamba. The llanos area is below an altitude of 500 meters.

With approximately 7 million inhabitants and an area of 1.1 million square kilometers, Bolivia's population density is about 6.4 inhabitants per square kilometer. Compared with other countries in South America, Bolivia has a very low population density. The national average is misleading, however, because the population distribution is very uneven among the three major regions. The altiplano region has 50 percent of the country's population and occupies only 23 percent of the land area; the valles region has 28 percent of the population and 27 percent of the land area; the llanos have half of the total land area and only 22 percent of the population.

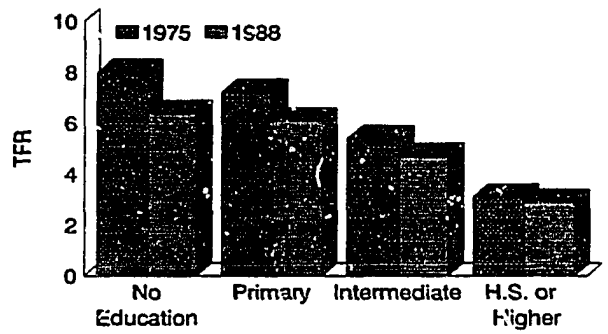
Bolivia has experienced a moderate fertility decline in the last 15 years, from an average of 6.5 children per woman in 1975 to 5.0 children per woman in 1987. Although a decline has occurred both in urban and rural areas, fertility in rural areas is still a high 6.5 children per woman (Figure 1). Education is one of

Figure 1. Total Fertility Rates for Bolivia and Urban and Rural Areas, 1975, 1979, and 1987



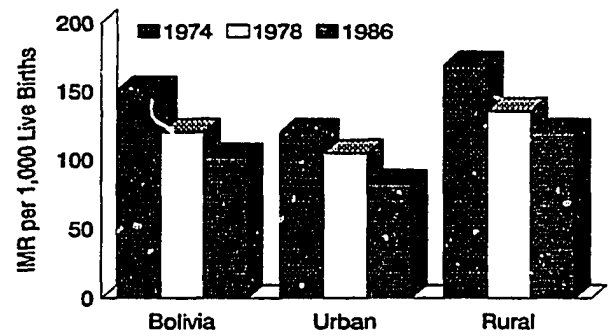
Source: 1976 Census, EDEN II, ENPV 1988.

Figure 2. Total Fertility Rates for Bolivia by Level of Education, 1975 and 1988



Source: 1976 Census, ENPV 1988.

Figure 3. Infant Mortality Rates, Bolivia and Urban and Rural Areas, 1974, 1978, and 1986



Source: 1976 Census, EDEN II, ENPV 1988.

the most important factors related to fertility. In 1988, women with no education had an average of 6.4 children, while women with more schooling had fewer children (Figure 2).

Bolivia has the highest infant mortality rate (IMR) in South America. Between 1980 and 1985, the officially reported IMR was 124 infant deaths per 1,000 births. This compares unfavorably with Bolivia's neighbors. Peru had an IMR of 82 per 1,000 births and Argentina had an IMR of 43. In the last 15 years, progress has been made in reducing infant mortality. At the national level, the IMR in Bolivia declined from 151 infant deaths per 1,000 births in 1974 to 102 in 1986. In urban areas, the IMR declined from 120 to 83, and in rural areas the reduction was from 169 to 120 (Figure 3).

There are significant variations in the regional levels of infant mortality. According to 1985 estimates, the Department of Santa Cruz has the country's lowest infant mortality rate—78 infant deaths per 1,000 births. Potosí, on the other hand, has an IMR of 145. In smaller areas, levels of IMR of more than 200 have been observed.

About half of the population lives in communities with fewer than 2,000 inhabitants. A large proportion of those live in dispersed areas, in communities with fewer than 500 inhabitants. During the 1980s, the pace of urbanization increased. In

1976, 58 percent of Bolivia's population lived in rural areas (areas with less than 2,000 inhabitants). By 1988, the percentage of the population living in urban communities surpassed the percentage of the population that is rural. In 1976, only two Departments had more than 50 percent of their populations living in urban areas. By 1988, five Departments had more than 50 percent of their inhabitants living in urban areas.

Recent urbanization is reflected in the very rapid growth of some cities. Once part of the city of La Paz, the city of El Alto has experienced extraordinary growth and is now a separate municipal entity. If current rates of growth are sustained, El Alto will double its population in 7 years. The cities of Santa Cruz, Cochabamba, and Sucre are expected to double their populations within 14 years. This accelerated process of urbanization has serious consequences for the health sector, with shortages of adequate housing, water, and sanitary facilities in these cities contributing to poor health conditions.

The current rate of growth of Bolivia's population is about 2 percent per year. The high levels of fertility have determined a young age structure. It is estimated that more than 40 percent of the total population was under 15 years of age in 1991.

Social and Cultural Characteristics

In 1976, Bolivia's national adult illiteracy rate was 37 percent. In rural communities, the adult illiteracy rate was greater than 50 percent. In 1988, the national illiteracy rate decreased to 19 percent, and the rural rate declined to 31 percent. In both urban and rural areas, male/female differentials in illiteracy are quite high. In urban areas, 3 percent of adult males and 12 percent of adult females are illiterate; in rural areas, 19 percent of males and 43 percent of females are illiterate. A high proportion of children still do not attend school in rural areas. In some Departments almost half of children aged 6 to 19 years do not attend school.

Bolivia has a significant indigenous population. The two major groups are Aymara and Quechua, concentrated mainly in the altiplano and valles regions. Although the official language and the language of schooling is Spanish, about 7.5 percent of persons aged 5 years or more do not speak any Spanish at all. Many more speak only very minimal Spanish. Inability to speak Spanish is strongly associated with low levels of education, extreme poverty, high child mortality, and high morbidity.

About 23 percent of households do not have access to drinking water. Fifty-three percent of urban households and 86 percent of rural households lack sewage systems. These extreme conditions in water and sanitation, especially in rural areas, have a strong negative influence on the health and survival of children.

The Health Sector In Bolivia

This section provides an overview of the Bolivian health sector in general terms, focusing on primary and preventive services that are available. Topics covered in the section are as follows: (1) the administrative structure of health care, (2) Government of Bolivia health priorities, (3) health care financing, and (4) health conditions related to Child Survival.

Administrative Structure

Institutions that deliver health services in Bolivia can be divided into three categories: (1) national public sector organizations, including the Ministry of Health and the Social Security System; (2) regional and local government services; and (3) private sector health services, including nongovernmental organizations (NGOs), commercial for-profit services, and traditional medical services. Each of these three is described briefly below.

National Public Sector Health Institutions

The Bolivian Ministry of Social Welfare and Public Health serves about 38 percent of the population, mostly in cities. The Ministry includes Subsecretariats of Public Health and Social Security. The Public Health Subsecretariat includes 12 "sanitary units" and approximately 90 health districts. The Ministry system has 101 general and regional hospitals, 418 health centers, and 910 health posts.

Regional and district hospitals are responsible for ambulatory and in-patient care, and provide comprehensive curative and preventive services in specialties relevant to the District. Health centers provide integrated curative and preventive health care. In rural areas, health centers provide beds for hospitalization. Health posts are the lowest elements of the institutional health structures. They are located almost exclusively in rural areas and, besides providing curative and preventive health care, engage in outreach activities.

The Bolivian Social Security system provides curative care for households of insured wage earners employed in industry, commerce, mining, and government services. Benefiting only about 26 percent of the population, this system rarely reaches the poor.

Regional and Local Government Health Facilities

Other public sector units providing health services to Bolivians include Regional Development Corporations (RDCs) of which there is one per Department, municipalities, local water and sanitation utilities, and universities. A few municipalities and RDCs are active in the health sector, although generally less than 1 percent of their budgets are used for health-related services. In the larger cities, municipal governments own almost as many health facilities as the Ministry, but the municipal governments normally do not operate the health facilities themselves. Regionally, the wealthier RDCs (e.g., Santa Cruz) have played a limited role in planning, executing, and maintaining health facilities, principally in rural areas.

Nongovernmental Organizations, Private Institutions, and Traditional Medicine

The Ministry estimates that the private nonprofit health care delivery system covers 5 percent of the total population, mostly in periurban and rural areas. The Ministry estimates that there may be as many as 500 NGOs, if local community organizations are included, providing health services. Of these, about 200 are registered in some fashion with the Ministry. Accounting for approximately 28 percent of total national health expenditures in 1988, these NGOs contributed nearly $20 million to the health sector. Funded primarily from North America or Europe, only a few NGOs have national coverage. Most are limited to the financing and management of a single or a few service centers.

The private for-profit sector serves a small portion (no more than 5 percent) of the population. The number of beneficiaries of for-profit medical services has decreased in recent years with the general impoverishment of segments of the population, particularly in rural areas.

Traditional medicine is the only recourse of large segments of the population, particularly in rural areas. About 25-30 percent of the total population has no access to modern health care services at all.

Government of Bolivia Health Priorities

Until recently, Bolivia lacked well-defined official health policies for dealing with the country's long-standing health problems. As in many developing countries, Ministry and donor efforts to strengthen the health sector emphasized construction of hospitals and the provision of curative services. A few donors supported primary

health care and rural health service delivery, but weak interagency coordination resulted in sporadic and unfocused design.

Recent Government policy statements reveal a shift in priorities away from hospitals and toward decentralization and primary health care. However, the financial and programmatic shift away from urban hospital-based services toward primary health care programs for society's most vulnerable groups is slow. Health personnel and hospital beds are still disproportionately concentrated in urban areas.

Health Care Financing in Bolivia

Changes in the proportion of the national budget used to support health services are shown in Table 1. As a proportion of the total budget, funding for health decreased during most of the 1980s, a period of economic crisis in Bolivia. By 1991, however, health spending was back up to 4.25 percent. Projections for 1992 put health spending at 4.43 percent. According to data compiled by Management Systems International, the Ministry's per capita expenditures for health declined from US $17.47 in 1980 to only US $6.59 in 1987, a decline of 62 percent.

Table 1. Health Budget as a Percentage of the Total Government Budget, 1980-1992

Year	Percent
1980	4.38
1981	3.47
1982	3.53
1983	3.36
1984	3.36
1985	2.87
1986	2.11
1987	2.01
1988	3.53
1989	3.41
1990	3.62
1991	4.25[a]
1992[b]	4.43

Source: For 1980-1987, Management Systems International 1990, p. 59 (citing Ministry of Health and the World Bank as its source); for 1988-1992, data obtained directly from the Ministerio de Previsión Social y Salud Pública.

[a]Refers to the "reformulated" or amended health budget.

[b]Projected.

A significant national economic recovery occurred between 1987 and 1991, with the Ministry share of the Government budget increasing by 120 percent. Between 1988 and 1992, per capita expenditures on public health increased by 85 percent. The evolution of the Government health budget for the period 1988-1992 is presented in Table 2. Although the increase in the overall Government health budget appears significant when viewed in nominal terms, it is far less so when the health budget is reduced to constant 1988 Bolivianos (see line 4 of Table 2). The

Table 2. Evolution of the Government's Health Budget, by Source of Financing, 1988-1992 (in millions of Bolivianos)

Allocation and Financing	Years				
	1988	1989	1990	1991	1992
Allocation					
1. To Ministry of Health	114.3	137.5	173.8	258.2[a]	270.0
2. To the Health Budget of the Social Security Service	113.3	111.4	121.8	164.3[a]	201.8
3. Total Health Budget (lines 1 + 2)	227.6	248.9	295.6	422.5[b]	471.9
4 Total Health Budget in constant 1988 Bolivianos	227.6	216.4	219.1	272.4	271.7[c]
Financing	227.6	249.3	295.6	422.5	471.8
5. From Central Government Budget	170.5	185.3	196.7	293.1	313.2
6. Own Funds (user fees)	25.3	39.1	36.3	41.3	44.5
7. Transfers (from Investment Corporations)	-	1.3	.3	1.2	8.4
8. Special Collections	-	-	.7	-	-
9. Foreign Loans	5.9	4.6	16.3	24.6	52.2
10. Foreign Donations	25.9	19.0	45.3	62.3	53.6
11. USAID's Contributions (included above)[d]	(N/A)	(7.3)	(8.4)	(22.1)	(N/A)

Source: Unpublished information from the Ministerio de Previsión Social y Salud Pública.

Note: Current Bolivianos unless otherwise indicated (line 4).

[a]Consultant's estimate. Actual data are not available.

[b]"Reformulated" or amended budget.

[c]Assuming a 12 percent increase in the consumer price index in 1992, which was used as deflator throughout.

[d]See Table 3 for a breakdown of A.I.D. health expenditures over the period 1989-1991.

health budget in constant Bolivianos remained approximately the same between 1988 and 1990, then increased by a significant 24 percent in 1991. It is projected to remain at approximately that level in 1992.

With regard to financing, the increased dependence of the health budget on external financing stands out. The sum of foreign loans and donations increased from 31.8 million Bolivianos in 1988 to 105.8 million Bolivianos in 1992, an increase of 233 percent. In constant Bolivianos, the increase is approximately 91 percent.

Other sources of finance did not increase significantly in real terms. Allocations from the central Government's national budget increased by 84 percent in nominal terms, but only by 5.7 percent in real terms. Similarly, user fees, or the institutions' own resources, increased from 25.3 million Bolivianos in 1988 to a projected 44.5 million (in current Bolivianos) in 1992, which means no change in real terms.

In summary, the overall Government health budget increased by 24 percent between 1990 and 1991, with no significant increase in real terms projected for 1992. Almost all of this increase, however, was financed by foreign loans and donations which grew substantially throughout the 1988-92 period. A.I.D.'s contribution tripled between 1989 and 1991, increasing from 7.3 million Bolivianos to 22.1 million Bolivianos over this period.

A detailed breakdown of A.I.D. health expenditures is provided in Table 3. Particularly dramatic is the increase in expenditures for Community and Child Health Services, which went up from $213,000 in 1989 to almost $4.3 million in 1991, while A.I.D.'s total health outlays went up from $2.4 million in 1989 to a little more than $6.2 million in 1991.

Available information on Government expenditures for primary health care and hospital operating expenses is presented in Table 4. No data are available for earlier years. Expenditures on primary care as a proportion of the total health budget are expected to increase from about 33 percent in 1990 to nearly 40 percent in 1992. The proportion of the health budget spent on hospitals is expected to remain approximately constant over this period at about 23 percent.

Members of the international donor community seem convinced that each year the Ministry devotes an increasing proportion of its budget to hospital operating expenses, leaving the costs of primary health care to the donors. In reality, however, budget allocations to hospitals are constant at about 23 percent for the period 1990-92 (Table 4). Allocations to primary care are somewhat variable for the same period, fluctuating between about 30 percent and 40 percent. The problem appears to be not a diversion of funds from primary care to hospitals, but rather a general

fiscal crisis which has affected the whole public sector, including the Ministry. This crisis is partly attributable to the general economic recession and partly due to the recent growth in personnel, diverting funds from supplies, drugs, and hospital maintenance to salaries.

Table 3. A.I.D. Expenditures on Health, Calendar Years 1989-1991 (US $000)

	1989	1990	1991
Community and Child Health	213	1,562	4,266
Child Survival PVO Network	310	699	478
Self-Financing Primary Health Care I and II	147	-	410
CARE Community Development	-	-	793
PVO Child Survival II	99	-	166
Child Survival and Rural Sanitation	1,635	-	-
Radio Health	-	-	40
AIDS Prevention and Control	44	207	57
Total	2,448	2,468	6,210

Source: A.I.D., Office of the Controller 1988, 1989, 1990, and 1991.

Table 4. Expenditures on Primary Health Care and Hospitals as a Percentage of the Total Health Budget, 1990-1992 (in millions of current Bolivianos)

	1990	Percent	1991	Percent	1992	Percent
Expenditures on Primary Care	98.7	33.4	121.2	28.7	187.7	39.8
Expenditures on Hospitals	68.7	23.2	91.8	22.7	108.2	22.9

Source: MPSSP 1992.

Ministry officials also emphasize that the Government is aware of the need to channel additional public sector resources to primary health care and is committed to allocating an increasing proportion of available resources to that sector in future years. The objectives of the 1989 Bolivian National Maternal and Child Health Plan

include the reduction of infant and maternal mortality by 50 percent and perinatal and child mortality by 30 percent by 1993.

Health Conditions of Children: Child Survival

Mortality of children under 5 years of age accounts for nearly half (43 percent) of all deaths in Bolivia. Fourteen percent of Bolivian children die before reaching their fifth birthday. Among the children under 5 who survive, 38 percent are chronically malnourished, 28 percent have recurrent diarrhea, and 20 percent suffer from acute respiratory infections (ARI).

Infant (0-12 months old) and child (0 to 5 years old) mortality rates in Bolivia are the highest in South America, at 96 and 142 deaths per 1,000 births, respectively. Infant deaths account for approximately 70 percent of all deaths among children under 5 years. About 18 percent of deaths among children under 5 occur during the first week of life. According to the Demographic and Health Survey (DHS), diarrhea is the primary cause of death among children more than 1 month of age.

The maternal mortality rate is estimated from DHS data at 332 per 100,000 live births, a rate nearly 40 times greater than that found in the United States and among the highest in Latin America.

Principal Causes of Infant and Child Deaths

Cause-of-death statistics for children under 5 years of age in Bolivia are spotty and incomplete. Registration data have a high level of underreporting. Some hospitals and specific projects maintain statistics on cause of death, but these data are not generalizable to the general population.

The 1989 DHS provides the best available estimates of the major causes of child death using a method called verbal autopsy. This method provides two measures of cause of death: (1) the mother's perception of cause of death (a direct question) and (2) the mother's recall of the presence and duration of certain symptoms during the 2-week period preceding the child's death.

Table 5 shows causes of death as reported by mothers for different age groups. Almost half of neonatal deaths (deaths that occur during the first month of life) can be attributed to delivery problems, prematurity, tetanus, and congenital abnormali-

ties. The second leading cause is respiratory illness (17 percent), followed by diarrhea (13 percent).

Table 5. Percent Distribution of Deaths Under 5 Years of Age, According to Mothers' Reports of Main Causes, 1984-1989

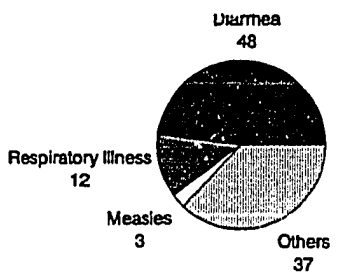
Cause of Death	Age at Death in Months			Deaths Under 5 Yrs. of Age
	<1	1-11	12-59	
Birth-related	47	7	2	17
Diarrhea	13	39	64	36
Respiratory Illness	17	26	16	21
Measles	0.2	2	1	1
Others	23	26	17	25

Source: Demographic and Health Survey 1989.

In postneonates (children 1 to 11 months), diarrhea accounts for 39 percent of deaths, followed by respiratory illness (26 percent) and measles (2 percent). For children between 1 and 4 years, 64 percent of deaths are caused by diarrhea and 16 percent are due to respiratory illness. Overall, about 17 percent of all deaths occurring during the first 5 years of life are related to birth problems, and more than one-third are due to diarrhea, about 20 percent to respiratory illness, and 1 percent to measles.

The second measure, mother's recall of symptoms, gives slightly different results. Diarrhea, ARI, and measles are still the primary causes of death, but the proportion due to diarrhea increases to nearly 50 percent (Figure 4).

Figure 4. Main Causes of Death (excluding neonatal death), Diagnosed by Symptoms, Among Children Aged 1-59 Months, 1984-1989

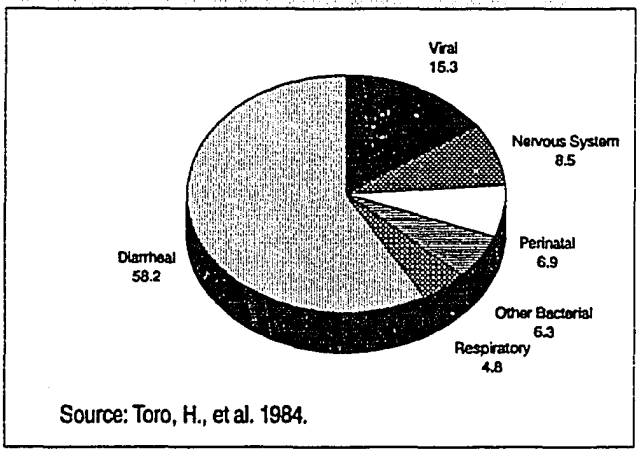


Source: Demographic and Health Survey 1989.

The indirect methods used in the DHS survey are fairly consistent with the findings of a 1983 Ministry prospective study on cause of child death. The study tracked for 1 year a representative sample of children under 3 years of age and of pregnant women living in urban areas of at least 6,000 inhabitants. The cause of death of each infant was certified

by a physician. As indicated in Figure 5, 58 percent of the deaths among children under 3 years of age were caused by diarrheal disease.

Figure 5. Percent Distribution by Cause of Deaths Among Children Under 3 Years, in Urban Areas of at Least 6,000 Inhabitants, 1982-1983

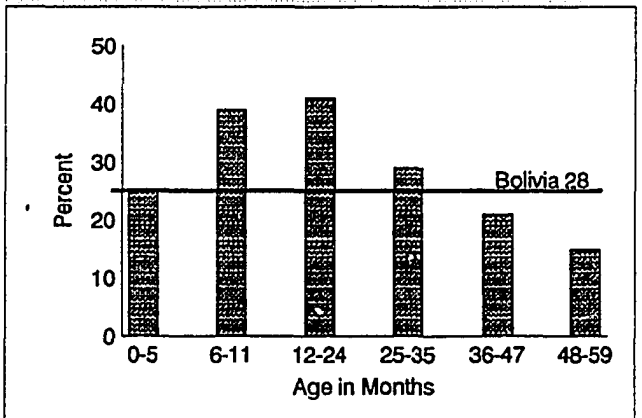


Source: Toro, H., et al. 1984.

Diarrhea

The DHS included a question about symptoms of diarrhea during the 2-week period before the survey. According to the mothers, 28 percent of children under 5 years experienced diarrhea during the recall period. As can be seen in Figure 6, incidence of diarrhea correlates strongly with age. This association between age and incidence of diarrhea is common in developing countries. When exclusive breastfeeding is common for the first 4 to 6 months of life, the infant is effectively protected from exposure to pathogens. Breastfeeding supplements (water and juice) introduce some risk of diarrhea during these early months. However, the use of weaning foods by 6 months introduces elevated risk of exposure to pathogens and, therefore, increased risk of diarrhea. Risk of exposure increases further as the child learns to crawl and walk at around 9-24 months.

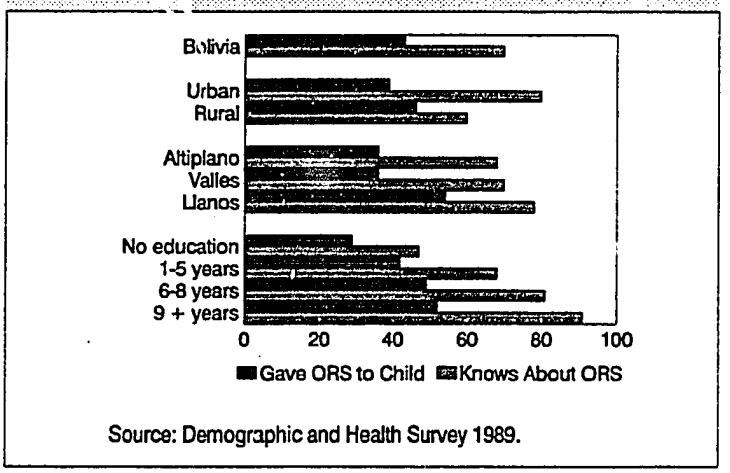
Figure 6. Percentage of Bolivian Children Under 5 Years Who Had Diarrhea, by Age, 1989



Source: Demographic and Health Survey 1989.
Note: Data are for the 2 weeks preceding the survey.

Prevalence of diarrhea by rural/urban residence and geographical region shows little variation in Bolivia. Mother's education has little effect on the prevalence of diarrhea, except at the highest educational level. The presence of piped water and

Figure 7. Knowledge and Use of ORS Packets Among Women With Children Under 5 Years, 1989



Source: Demographic and Health Survey 1989.

flush toilet in the household have a significant effect in reducing the prevalence of diarrhea in small children.

Overall, 92 percent of mothers who were breastfeeding their child continued to do so during the diarrheal episode. Almost half the mothers reported increasing the amount of liquids given to the child, but 11 percent cut back on liquids. Thirty-two percent reduced the amount of solid foods given to the child. Oral rehydration salt (ORS) packets were given to one-fourth of the children who had diarrhea in the past 2 weeks, and homemade sugar and salt solutions were used in another 11 percent of the episodes. Mothers used oral rehydration for an average of 3 days. About 80 percent of the women who used ORS received free packets and the other 20 percent paid about US $0.35 per packet. Figure 7 summarizes patterns of ORS knowledge and use by region and by mother's educational level.

About 25 percent of the children with diarrhea, according to the DHS survey, were taken to a health facility—29 percent in urban communities and 19 percent in rural areas. Only 14 percent of mothers with no education took children who were sick with diarrhea to a health facility for treatment, compared with 41 percent of mothers with 9 or more years of schooling. This means that a large proportion of children with diarrhea neither received ORT nor were taken to a health facility.

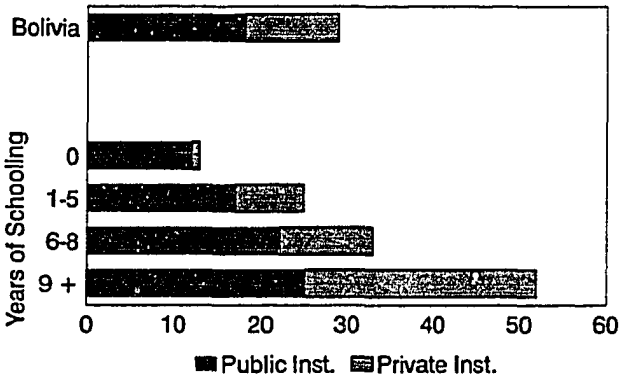
Acute Respiratory Infections

About 21 percent of children under 5 years of age were reported to have a cough with breathing problems in the 2 weeks before the DHS survey.

Almost 30 percent of children with coughs and breathing problems were taken to a medical facility for treatment, with 37 percent in urban and 20 percent in rural areas. As is the case in other interventions, mother's level of schooling is strongly related with the probability of taking the child to a medical facility (Figure 8).

For the whole country, more children were taken to public than to private facilities (Figure 8). For mothers with no education, practically all children were taken to public facilities. For mothers with 1-8 years of schooling, twice as many children were taken to public than to private facilities. For the 9 or more years of schooling category, slightly more children were taken to private than to public facilities.

Figure 8. Mother's Education and Relation to Place of Treatment for Children With Cough and Respiratory Problems, 1989



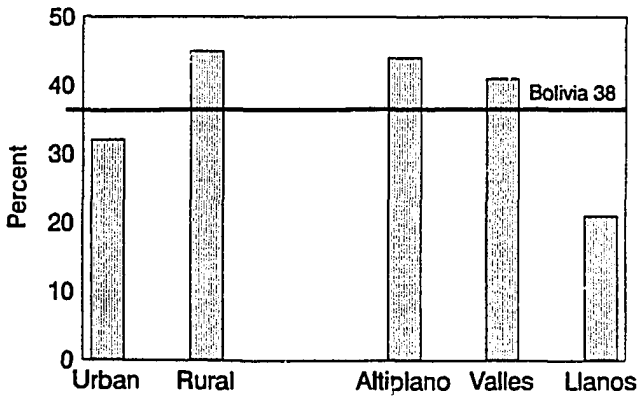
Source: Demographic and Health Survey 1989.

Note: Data are for the last 2 weeks before the survey.

Nutrition and Breastfeeding

In the DHS, children aged 3-36 months were measured and weighed. Acute malnutrition was not a serious problem among Bolivian children, but chronic malnutrition (stunting) was common. For the whole country, 38 percent of children under 3 years were stunted (height for weight), with 32 percent in urban areas and 45 percent in rural areas (Figure 9). The percentage stunted was much higher in the altiplano and valles regions than in the llanos.

Figure 9. Percentage of Children Aged 3-36 Months, Classified as Stunted, by Urban, Rural, and Regional Areas, 1989



Source: Demographic and Health Survey 1989.

Malnutrition among children is strongly correlated with risk of mortality. Children with severe malnutrition were almost five times more at risk of dying than children with normal levels of nutrition.

Prevalence and period of breastfeeding are high in Bolivia. The mean duration for the whole country is 17 months, and it reaches 18 months in rural areas. The longest duration is found in the altiplano (20 months) and the shortest in the llanos (13 months). Both prevalence and duration of breastfeeding seem to be decreasing, however.

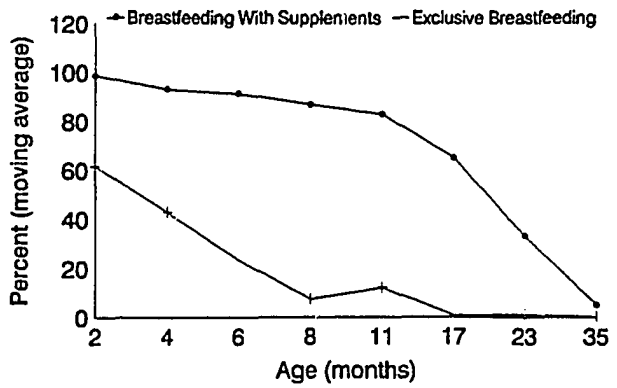
By the end of the second month of life, only about 60 percent of infants were breastfed exclusively (Figure 10). Some 37 percent were given breast milk and other supplements.

Incidence of Vaccine-Preventable Diseases

According to preliminary figures for 1991 from the Ministry's epidemiological database, reported cases of vaccine-preventable diseases for the entire country were the following:

Diphtheria:	4
Whooping cough:	11
Measles:	751
Neonatal tetanus:	34
Polio, infant TB:	0

Figure 10. Percentage of Breastfeeding and Breastfeeding With Supplements, by Age of Child, 1986-1989



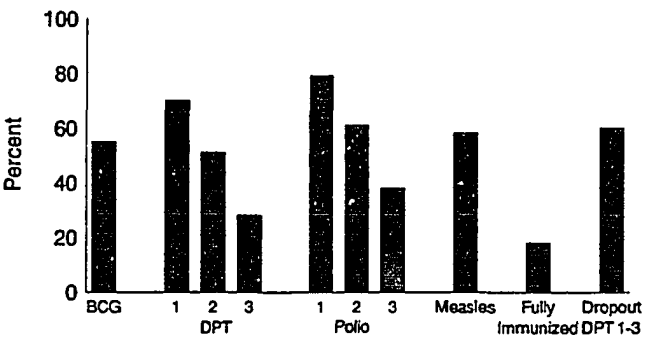
Source: Demographic and Health Survey 1989.

Although these figures reflect some underreporting, it is clear that the incidence of these vaccine-preventable childhood diseases has been reduced to very low levels. The section on "Effectiveness" reports the dramatic declines in these diseases over the past 15 years, revealing the impact of the national immunization program.

Figure 11 presents the 1989 DHS estimates of immunization coverage. For 1 year olds, the coverage for

both the single dose vaccines—tuberculosis (BCG) and measles—was slightly above 50 percent. However, coverage for the multiple dose vaccines is lower. Diphtheria, pertussis, tetanus (DPT) vaccine drops from 70 percent for the first dose to 28 percent for the third dose, a dropout rate of 60 percent. A dropout rate of a similar magnitude is observed for the polio vaccine. According to the DHS, in 1989 only 18 percent of children of 1 year of age were fully immunized with the four recommended vaccines. The Expanded Program of Immunizations has continued to expand with considerable support from A.I.D. and other donors. The planned 1993 DHS will probably show further strong increases in vaccination coverage and declining levels of infection by vaccine-preventable childhood diseases. If this is the case, these diseases will cease to be significant causes of infant and childhood mortality by the mid-1990s.

Figure 11. Percentage of Children 12-23 Months Immunized for Specific Vaccines, 1989

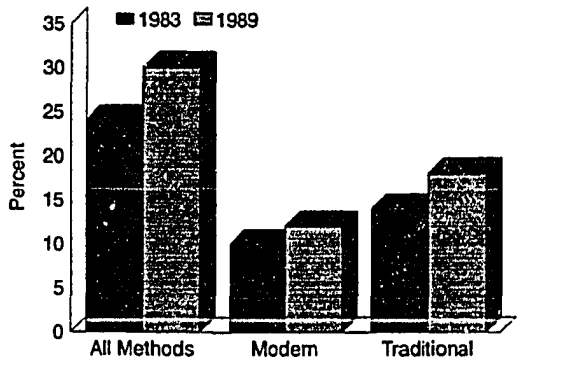


Source: Demographic and Health Survey 1989.

Family Planning

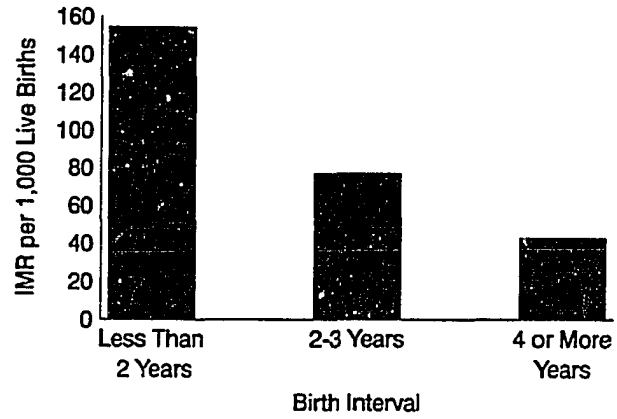
Use of modern contraceptive methods is very low in Bolivia. Among women in union, contraceptive prevalence rose from 24 percent in 1983 to 30 percent in 1989. About 10 percent of those practicing family planning used modern methods in 1983, compared with 12 percent in 1989 (Figure 12). One

Figure 12. Percentage of Married Women Using a Contraceptive Method, by Type of Method, 1983 and 1989



Source: Contraceptive Prevalence Survey 1983 and Demographic and Health Survey 1989.

Figure 13. Infant Mortality Rate, by Duration of the Previous Birth Interval, 1989

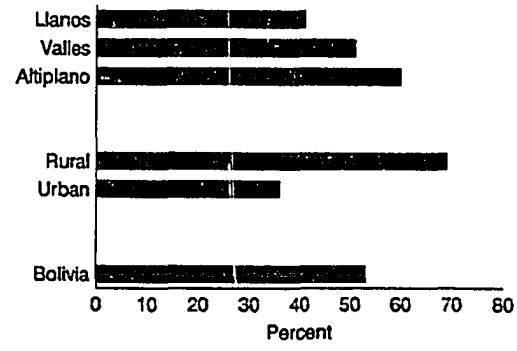


Source: Demographic and Health Survey 1989.

explanation of low contraceptive prevalence is lack of knowledge about modern contraceptive methods. Among currently married women of reproductive age, about two-thirds knew at least one modern contraceptive method; in rural areas this percentage drops to 50 percent. Knowledge of modern methods varies significantly by women's level of education.

It is well known that factors like mother's age, parity, and birth interval, which can be regulated with contraceptive methods, are related to infant mortality. Of these, the birth interval seems to have the strongest relationship with infant mortality in Bolivia; babies born less than 2 years after the previous birth have an infant mortality rate twice as high as those born within a 2-3 year interval, and more than three times higher than those born within a 4 or more year interval (Figure 13).

Figure 14. Percentage of Women Not Receiving Prenatal Care, by Area of Residence, Region, and Country, 1985-1989



Source: Demographic and Health Survey 1989.

Prenatal and Delivery Care

More than half of all pregnant women in Bolivia receive no professional prenatal health care. Two-thirds of rural women receive no monitoring during pregnancy. In the altiplano, 60 percent of pregnant women did not receive prenatal care, compared with 41 percent in the llanos (Figure 14).

When it occurs, prenatal care is usually provided by a physician. Only 20 percent of the women interviewed reported that they had received a tetanus toxoid injection during pregnancy. The other 30 percent who received prenatal care did not receive a tetanus toxoid injection, pointing to missed opportunities for vaccination. Coverage for tetanus toxoid is especially low in rural areas, where only 15 percent who gave birth received the vaccine.

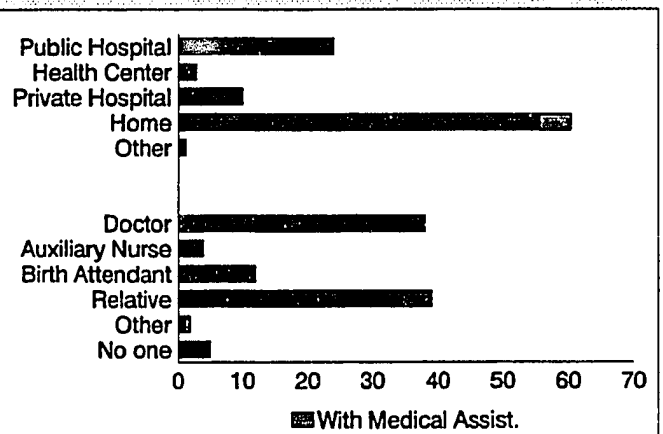
Sixty percent of all b ns in Bolivia are delivered at home. In urban areas, about 40 percent of births take place at home; in rural areas, about 80 percent take place at home. The majority of deliveries away from home were in public and private hospitals. Most hospital deliveries were attended by physicians, but home births were attended by relatives (usually the spouse). The percentage of births attended by nurses and birth attendants was quite small (Figure 15).

Chagas' Disease

Chagas' disease is a dangerous infection that can result in heart disease, encephalitis, and sudden death from cardiac arrest. It is transmitted by infected triatomine, or "kissing" bugs, through blood transfusion, or from mother to child during pregnancy. Infestation is high in rural areas in Latin America where housing conditions are poor. Widely applicable chemotherapy is not available because nothing eliminates the intracellular parasites.

Bolivia is the country most affected by Chagas' disease in the world. Eighty-three percent of the country is Chagas-endemic and almost 50 percent of the total population is at risk. A 1991 survey in 13 communities in three affected regions of the country found that 63 percent of the population was seropositive, including 39 percent of children under 10 years of age. Of individuals who become infected, the mortality rate is estimated to be around 13 percent. Often, a baby or child is bitten and infected inside his or her

Figure 15. Place of Delivery and Person Attending the Delivery, 1985-1989



Source: Demographic and Health Survey 1989.

home and becomes ill with flu-like symptoms within 3 weeks. He or she then apparently recovers, but the parasite slowly damages the heart, colon, and/or esophagus muscles over the next 10 to 15 years, resulting in debilitating illness and death when the individual is a young adult.

The A.I.D. Child Survival Country Strategy

The overall goal of the A.I.D. program in Bolivia is "to support the achievement of broadly based sustainable economic growth." The rationale for A.I.D.'s "family health" strategic objective in this context is that the population needs to be healthy if it is to contribute all it can to economic growth. Furthermore, the high costs associated with preventable illness—expensive curative medical care and lost productivity—are detrimental to economic growth.

A.I.D.'s strategic objective in the health sector in Bolivia is "to improve family health throughout Bolivia." Since 1988, the A.I.D. Mission in Bolivia has designed and implemented a broad portfolio of health-related activities, supporting diverse health interventions and institutions. The common focus that unifies most of A.I.D.'s varied activities in the health sector is an effort to reduce child and maternal mortality and morbidity, with emphasis on the socioeconomically disadvantaged.

A.I.D.'s "family health" strategy in Bolivia identifies four crosscutting emphases that transcend specific projects and characterize the whole A.I.D. health effort in Bolivia. The first element of the strategy is improvement of health policy. The A.I.D. health program intends to influence legislative, regulatory, and budgetary constraints to effective health care services. The second element is improvement of institutional capabilities. A.I.D. is supporting improvements in the administration, logistics, supervision, human resources, and finances of the public sector Ministry of Health and of a number of private organizations that offer health services. The third element in the strategy is improving the health-related knowledge, attitudes, and practices (KAP) in the Bolivian population. All A.I.D. health activities in Bolivia contain information, education, and communication (IE&C) components designed to lead to informed, sustained health behavior changes on the part of clients of health services. Finally, the fourth element in the strategy is improved community health infrastructure. A.I.D. supports the development of health infrastructure, such as potable water systems and latrines, only at the local community level. Community awareness, participation, and initiative are essential to the proper utilization, permanent maintenance, and long-term financial sustainability of health infrastructure.

Table 6 shows the performance indicators and targets that will be used by A.I.D. to measure progress toward achieving the "family health" objective.

		Baseline[a]	1991 Targets[b]	1991 Actual	1992 Targets[b]	1993 Targets[b]
Strategic Objective	***Performance Indicators***					
Improve family health throughout Bolivia.	1. Infant mortality rate. (per 1,000 live births)	151[c] (1972; Census)	91	102[d] (1990; UNICEF)	89	85
	2. Child mortality rate. (per 1,000)	252[c] (1972; Census)	128	160[d] (1990; UNICEF)	125	120
	3. Maternal mortality. (per 100,000)	373[a] (DHS)	470	600[d] (UNICEF)	480	440
	4. Contraceptive prevalence: Figure in ( ) represents modern/ traditional methods.	26[a] (DHS)	31.9% (12.7/19.2)	30%[d] (UNICEF)	32.7% (12.8/19.8)	35% (13/22)
Program Outputs	***Program Indicators***					
1. Improve the development and implementation of health policy.	1. Qualitative assessment of progress toward establishing and implementing norms.[e]					
2A. Improve institutional capabilities of public and private sectors to deliver preventive and curative health services.	1. Percent of diarrheal disease cases appropriately treated by ORT.	23.4%[a] (DHS)	35%	60%[d] (1967-9; UNICEF)	36%	41%
2B. Increase health knowledge, attitudes, and practices (KAP) among the Bolivian population.	2. Percent of 1 yr old children immunized against					
	• Polio	15%[d]	60%	50%[d]	65%	68%
	• DPT	13%	60%	41%	65%	68%
	• Measles	17%	75%	53%	76%	81%
	• TB	30%	65%	48%	66%	71%
	• Percent of women immunized against TT	2% (1966-7; UNICEF)	25%	20% (UNICEF)	30%	31%
	3. Percent of 24-59 month olds with moderate or severe stunting.	38% [d] (UNICEF)	N/A	51%[d] (UNICEF)	48%	45%
3. Improve community health infrastructure.	1. Number of					
	• Water systems	N/A	150	161	90	195
	• Latrines	N/A	1,500	2,064	5,500	12,840
	• Gardens constructed with USAID assistance.	N/A	0	0 (HHR/ USAID)	800	1,500

[a]All baseline data are from the 1989 Demographic Survey (DHS), unless otherwise indicated.
[b]All targets are set by HHR Office, USAID/Bolivia.
[c]Information from 1976 Census. In all cases, the estimates from a census or survey do not correspond to the year the census was taken. The estimates are always retrospective and refer to several years back. Thus the estimate from the 1976 census applies to actual 1972 figures.
[d]Actual 1991 data taken from UNICEF's Estado Mundial de la Infancia, 1992, unless otherwise indicated. This is the most updated data reported; however, this publication is not always accurate, since UNICEF's sources do not always report accurate information. This accounts for the inconsistency in data. Also, 1987-89 rate for appropriate treatment of diarrheal disease cases is considered to be seriously overestimated.
[e]These norms will be qualitatively assessed through evaluations and long-term reporting.

A.I.D.'s Health Sector Activities in Bolivia

Although A.I.D. has historically supported health activities as part of its program of bilateral development assistance in Bolivia, the magnitude of the program has increased dramatically since 1988. Factors influencing the rapid escalation of the A.I.D. Child Survival Program in the mid-1980s in Bolivia included (1) progress toward consolidating democracy in Bolivia through free elections, (2) a strong and successful economic reform program, (3) U.S. Government interest in supporting the Government of Bolivia because of its role in coca eradication, (4) extremely poor health conditions in the country, (5) in-house analysis by the local A.I.D. Mission showing health conditions to be a major constraint to development, and (6) designation of Bolivia by the Agency as a Child Survival "emphasis country."

Appendix B contains tables illustrating the size, diversity, and growth of the A.I.D. health portfolio in Bolivia. The appendix lists ongoing, terminated, and projected A.I.D.-supported health activities in Bolivia, by year, from 1980 to 1995.

There are three important general features of the A.I.D. Child Survival Program in Bolivia that distinguish it from other A.I.D. country programs. First, the program is large. The Health/Child Survival portfolio makes up approximately 60 percent of the total projected FY 1992 A.I.D. Development Assistance Budget for Bolivia. A second characteristic of A.I.D.'s Child Survival in Bolivia is its diversity. The Mission Health and Human Resources Office has chosen to depart from the approach often associated with Child Survival of concentrating resources on a small number of high-impact interventions run by special vertical implementation units. Instead, A.I.D.'s Child Survival Program in Bolivia supports a broad range of health interventions and gives preference to delivering multiple services together in an integrated fashion. A third general characteristic of the program is its focus on research and development (R&D). Child Survival, as a worldwide initiative, typically concentrates on directly delivering a few simple, proven health services to large numbers of mothers and babies, producing quick and dramatic impact. The A.I.D. Child Survival Program in Bolivia, although not neglecting the quick impact interventions (immunizations and oral rehydration therapy [ORT]), is supporting a number of experimental activities. In the area of sustainability, for example, the program is experimenting with a debt-for-development swap, an endowment, and services designed to become self-financing through user fees. In the area of institutional development, the program is working with government decentralization, local control of health services, with a government-PVO franchising arrangement. In the area of technology, the program is providing two-way radios to improve health

administration in the field and interactive radio learning in primary schools to improve health education.

Working with such unconventional and experimental approaches carries some important risks and trade-offs. More demanding in terms of design effort, management time, technical assistance, and evaluation, R&D activities reduce the amount of money available for the more traditional "quick impact" interventions, resulting in less of the dramatic impact on health indicators that makes Child Survival such a popular program based on political and humanitarian factors. Also, R&D activities carry a high risk of failure, disappointment, and slow progress. The long-term payoff of the R&D focus, if it succeeds, will be in the development of more cost-effective services, in sustainable organizations, and in permanent institutionalization of essential services. It will not be possible to judge the wisdom of A.I.D.'s strategic choice to program a considerable portion of its Child Survival resources for experimental activities and long-range objectives for at least another 5 to 10 years.

Three Major A.I.D. Child Survival Initiatives in Bolivia

For the purposes of this Technical Report, it was decided to concentrate on three major A.I.D. Child Survival Program clusters, or "initiatives," rather than on the entire program. The three initiatives were chosen because they represent the largest portion of A.I.D.'s funding commitment to Child Survival in Bolivia, because they are relevant to important A.I.D. worldwide policy concerns in the Child Survival area, and because they include innovative approaches that will enlarge the collection of approaches and experiences documented in other country case studies in this Child Survival Assessment Series. The three major initiatives are the following:

- The Community and Child Health project (CCH). This is A.I.D.'s major Child Survival project in the public sector. The CCH project is a mixture of quick impact Child Survival interventions and long-range institutional strengthening activities.
- The Self-Financing Primary Health Care projects. These are two sequential projects that have created and expanded a private health care service organization which is becoming self-financing through fees it charges low-income clients for health services.

- The Child Survival PVO Network projects. This is a sequence of two projects designed to help PVOs strengthen and coordinate their Child Survival activities.

In the remainder of this section, these three initiatives will be described in more detail. Subsequent sections examine different aspects of these three initiatives: effectiveness, efficiency, sustainability, impact, relevance, policy dimensions, and management information systems.

The Community and Child Health Project

The CCH project was authorized in July 1988. It represented A.I.D.'s principal public sector Child Survival Initiative. The initial authorization provided $16.5 million of A.I.D. funds. The counterpart budget was to be $5.5 million, mostly from Bolivia's Public Law (PL) 480 local currency. Subsequently, a Chagas' disease control component and $2.5 million in Government counterpart funds were added to the project and the project assistance completion date was extended to July 1994. As of March 1992, a total of $10.4 million (63 percent) of A.I.D. funds had been expended or committed for project activities.

Previous A.I.D. assistance to the Ministry had ended in 1980. For a number of years, political, economic, and social conditions caused A.I.D. to turn to NGOs for health sector activities, and the program was small. The stage was set for a major new A.I.D. health initiative with the Government in 1986, when a new national health plan was approved by the Government giving high priority to health services for mothers and children.

Much of the CCH project's effort is concentrated in a small number of rural "health districts" surrounding the three major cities of Cochabamba, Santa Cruz, and La Paz. Under the Government's administrative decentralization program, the country is divided into 12 large "sanitary units." The sanitary units roughly coincide with Bolivia's nine Departments, or states. Each sanitary unit, in turn, includes a number of health districts. The 12 sanitary units contain about 90 health districts nationwide. Under a division of labor among donors established by the Ministry, A.I.D. works principally in rural health districts that are contained within the three departmental sanitary units of Cochabamba, Santa Cruz, and La Paz. The World Bank concentrates on the urban health districts in the same three departmental sanitary units. Other donors are assigned other departments. The CCH project design, then, provides for special concentration of many of the project activities in up to 11 health districts, located in three different sanitary units in the Departments of La Paz, Cochabamba, and Santa Cruz.

According to the original project design, the CCH project has three major components. The first two—National Immunization Program Support and National Diarrheal Disease Control Program Commodity Support—are straightforward in design and provide services on a national level. The third component—District Integrated Child Survival Program—is designed to work on a pilot scale in up to 11 health districts. A fourth component dealing with Chagas' disease has been added through an amendment, and additional activities dealing with the recent outbreak of cholera are planned in the near future. The following description follows the original project design.

Component 1: National Immunization Program Support ($3.3 Million). This component provides support to the Expanded Program of Immunizations (EPI) at the national level. The national EPI receives technical and financial support from an Interagency Coordinating Committee which includes A.I.D., the Pan American Health Organization (PAHO), UNICEF, the Rotary Club, and the Ministry. The planned A.I.D. contribution to the Ministry for the immunization program is $3.3 million over 5 years under this project. The project is designed to strengthen vaccination services at health centers, giving priority to children below the age of 1 year. Operational staff are being trained, supervision is being strengthened, and public information activities are being improved. Massive vaccine campaign strategies with community participation are used to complement permanent ongoing vaccinations given at Ministry health facilities, although the frequency of campaigns is declining as the cold chain to rural areas is improved. Rural populations and groups living in precarious socioeconomic conditions, such as seasonal migrants and the unemployed, are especially targeted. Tetanus typhoid vaccination for women in the 15 to 45 year-old age group, infant BCG and polio, DPT, and measles coverage are being expanded, in most cases working through integrated service facilities rather than through special campaigns. A.I.D.'s support under this component consists principally of commodities.

Component 2: National Diarrheal Disease Control Program Commodity Support ($1.5 Million). Under this component, the CCH project is providing approximately 2 million packets of ORS per year to the Ministry for use within the National Oral Rehydration Program. Many packets are distributed through the more than 4,000 ORT units which have been established by the Ministry since 1984. The Ministry will also distribute some of the ORS packets to NGOs which are conducting their own ORT programs. A.I.D. purchases the packets through A.I.D. central procurement arrangements and ships them to the Ministry in La Paz. The Ministry, in turn, is responsible for all storage, transportation, promotion, and distribution of the packets. Projected coverage of this component is 140,000 children aged 0 to 5

years, averaging five episodes of diarrhea per year, during the 5-year life of the project.

Component 3: District Integrated Child Survival Program ($11.7 Million). This component is designed to work intensively in up to 11 predominantly rural health districts contained in the three sanitary units of Santa Cruz, Cochabamba, and La Paz. The component provides a set of "service delivery outputs" designed to directly support, expand, and improve primary health care services. It also contains a set of experimental "institutional outputs" designed to improve the human resources and administrative apparatus of the Ministry units functioning in the project areas, with special emphasis on decentralizing important management and administrative functions.

Chagas' Disease. Following a series of studies and meetings that dramatized the seriousness of Chagas' disease in Bolivia, A.I.D. negotiated an amendment to the CCH project adding a fourth component to begin to deal with Chagas' disease. The amendment reprogrammed $500,000 of CCH project funds and added $2.5 million of PL 480 local currency for operations research in a number of affected communities. Combinations of community mobilization, upgrading of houses, and spraying with insecticides are being developed and tried in an effort to find the most cost-effective means of dealing with Chagas' disease in rural Bolivian communities where children are most at risk.

District Service Delivery Outputs

Immunizations. Component 3 of the CCH project is strengthening immunization services in project-supported health districts. The project provides supplies, logistic support, and operating expenses for 5 years in up to 11 districts. The project is concentrating on public information and on improvement of the district systems' ability to offer an integrated and continuous program of immunizations along with other services. This component is designed to provide the full cycle of vaccinations to 80 percent of infants under 1 year of age in pilot districts, a total of 30,000 infants. It also plans to reach 80 percent of women aged 15 to 44 years with tetanus typhoid vaccinations.

Diarrheal Disease Control. The project is supporting development and use of an integrated approach to diarrheal disease control, combining promotional and educational activities with modern and traditional medicine. At the end of the fifth year, it is expected that the project will cover 80 percent of the diarrheal episodes among infants and children under 5 years of age of the target population of 1 million inhabitants in the pilot areas. This means that 140,000 infants and children under 5

years of age will be covered, each having five diarrheal episodes per year, giving a total of 700,000 episodes treated.

Nutrition. The project is providing nutrition services, including education, growth monitoring, breastfeeding and weaning, food practices promotion, and supply of elements such as iron and iodine to avoid anemia and goiter. Emphasis will be placed on the use of health cards.

Acute Respiratory Infections. DPT, measles, and BCG immunizations will be provided, and an institutional system for detection and treatment of ARI with antibiotics will be supported in the pilot health districts.

Maternal Health. The project is incorporating traditional midwives into the health system by giving them training and support. Professional services will be directed to high-risk births, dystocial births, and complicated births. By the end of the project, it is planned that 80 percent of pregnant and nursing mothers and deliveries in the CCH pilot areas will be served by the system.

Water and Sanitation. The project is providing technical assistance, equipment, and funding to install 160 community water systems in four districts, benefiting approximately 200,000 people. Approximately 1,150 shallow wells with hand pumps will also be provided in more dispersed communities, benefiting approximately 70,000 persons. In addition, almost 15,000 household latrines will be built.

District Institutional Outputs

Staff Training. The project is providing training to strengthen Ministry staff, mainly at local levels in the CCH pilot project areas. It is planned that training will include long-term scholarships for supervisory personnel (14 2-year master of public health programs), 66 8-month scholarships for auxiliary nurses and water and sanitation technicians, and 11 1-month scholarships for social workers. Also, local continuing education will be provided to 491 auxiliary nurses in health education, treatment of specific Child Survival diseases, and water and sanitation.

Community Efforts. Two thousand community health workers and 800 midwives will be trained in the CCH pilot areas. In addition, 230 local health committees and 150 water and sanitation committees will be strengthened or formed. Training will be accomplished through 3 weeks of intensive courses and will be followed up by three annual 5-day workshops with heavy emphasis in communication skills and health education.

Staff Positions and Administrative Subsystems. Employees funded by the project will become permanent employees of the Ministry by the end of the project.

Furthermore, the capabilities of district health offices to do their own local programming of activities, to manage statistical and management information, to supervise, to manage personnel, and to manage case referrals will be strengthened in CCH project areas.

The CCH project is management-intensive. At the central level, a Project Management Unit was created inside the Ministry. Bolivian technical consultants were hired to work as an administrative coordinator, Child Survival coordinator, water and sanitation coordinator, and health education adviser. An A.I.D. technical adviser for AIDS and Child Survival provides overall guidance and liaison between the Ministry and A.I.D. An institutional contractor provides technical assistance and training services and supports administrative activities, including commodity procurement.

At the local level, each participating pilot district will have a project team with an administrator, health education specialist, a water and sanitation technician, and a medical director.

Self-Financing Primary Health Care Project

A.I.D.'s cost recovery initiative began with the Self-Financing Primary Health Care project. The original Project Agreement was signed in November 1983, in the amount of $1.1 million. The project design required a close working relationship among three different health cooperatives. From the outset, however, the design proved unworkable, and in the second year a redesign became necessary. A new organization, PROSALUD, was created and a more entrepreneurial approach was developed with market surveys, promotional campaigns, and a fee-for-service structure. This change in strategy opened up the project to a wide range of beneficiaries within periurban and rural areas of Santa Cruz and proved to be key to generating demand and revenues.

A project amendment was signed in April 1987, which added $1 million in funding and extended the life-of-project 3 years. This enabled the project to grow and provided the necessary continuity for broader health care coverage and a greater degree of financial self-sustainability. Health care services were expanded to new communities and project beneficiaries increased from 37,000 to 68,000.

A second amendment was signed at the end of 1988, which increased funding by $200,000 and extended the project activities for an additional 12-month period. As a result, the project was able to make greater advances toward achieving the objective of full sustainability for the PROSALUD system, including cost coverage of the management support unit. Conclusions and recommendations of the first

project's final evaluation, and those provided by public and private sector health care officials during an international conference held in Santa Cruz in 1990, supported the idea of replicating the PROSALUD model in other Departments of Bolivia.

"Self-Financing Health Care II" is a 5-year project. A.I.D. funding consists of $6.5 million. Counterpart funding of $1.6 million and in-kind and operational support counterpart contributions of approximately $2.4 million will be provided by the Government and other donors. The total project cost is $10.5 million. The project goal is to improve the health status of populations within poor urban and periurban areas of Bolivia, with particular emphasis on reducing maternal and infant mortality rates. The purpose of the follow-on project is to improve the access, quality, coverage, and sustainability of health care services provided to undeserved populations in the cities of El Alto, La Paz, and Santa Cruz. The second project will also strengthen the health care network in Santa Cruz through reference hospital services. Reference hospital services may be added to El Alto during the later years of the project, with the cost of hospital construction and equipment financed under a World Bank health care project.

With the development and adaptation of the PROSALUD primary health care network and management support unit in El Alto and La Paz, the project will be capable of providing health care services to 160,000 low-income persons in these areas. Recovery of all operational costs of PROSALUD in El Alto and La Paz is expected by the end of the project. Likewise, the project will build upon the already established PROSALUD primary health care network in Santa Cruz by providing stronger health care coverage to approximately 180,000 residents in periurban and rural areas. For the PROSALUD system in Santa Cruz, self-financing of both operational and management support unit costs is planned by the end of the project.

About 80 percent of PROSALUD's budget comes from the sale of its products and services. The other 20 percent comes from special projects, including overhead from services provided to other A.I.D. projects; sale of technical assistance in Bolivia and in other countries; research contracts for surveys in Bolivia; and courses in management and community training. To generate income and still serve low-income people, PROSALUD uses a system of cross-subsidies. Sales of medications and curative health services generate surplus revenues. Preventive services, including immunizations, family planning, and nutrition education are mostly free to users and are subsidized by the other revenue-generating services. There are three different kinds of cross-subsidies: subsidies among different services, subsidies among different geographical areas, and subsidies of poorer by wealthier individuals.

PROSALUD's health services are integrated, not vertical. About 50 percent of its services are preventive, and it considers maternal/child care its core service.

However, PROSALUD is convinced that offering Child Survival services alone would not lead to self-sufficiency. In general, curative services are profitable and preventive services are money-losers. Thus, packaging the different services together in an integrated fashion permits the cross-subsidy concept to work.

The PROSALUD program operates in some health districts something like a fast food franchise, with the Government owning the building and PROSALUD operating it under a formal agreement with the Government. PROSALUD rehabilitates the facility, staffs it, and operates it. In general, PROSALUD has a much better relationship with the Ministry than do other health PVOs in Bolivia. In addition to the franchise arrangement, the Ministry and PROSALUD cooperate on events such as vaccinations. PROSALUD is not seen by the Government as a privatization program because it does not own its health centers or replace the public system. PROSALUD likes to think of itself as a "health system support organization," not as a health PVO. PROSALUD officials express little enthusiasm for other health PVOs, which they view as inefficient, paternalistic, dependent, and antagonistic to the Government.

With regard to charging fees for its health services, PROSALUD has two systems that work well and has abandoned one other arrangement that failed. Health management organization-style prepayment is the system that failed, apparently because people in PROSALUD's major target group—the "working poor"—are unwilling or unable to prepay. Also, there was fraudulent abuse of prepayment privileges by many clients. One of the two systems that works well is fee-for-service, which accounts for about 93 percent of PROSALUD's business. The other successful payment scheme is the "Deferred Payment Plan." Under this arrangement, employees of participating companies are given PROSALUD coupons by their employers when they require medical services. The employees cash the coupons in for the medical attention they need at PROSALUD. At the end of the month, PROSALUD sends the employer a bill. After some initial difficulties collecting payment, PROSALUD has learned to eliminate companies that do not pay promptly, and the payment of bills by participating companies is now quite reliable. Employers like this system because employees miss less work time due to illness. Employees like it because PROSALUD's service is faster and better than the service that they normally receive from the national Social Security System.

PROSALUD does market research and feasibility studies to determine the feasibility of recovering its costs prior to initiating services in a new community. Its cost recovery model does not work just anywhere. However, by adapting the structure of its facilities and services, it believes that it will be able to serve many dispersed rural populations and poor urban communities in the future. The follow-on A.I.D. project represents an effort to adapt PROSALUD's services to poorer and

more urbanized clients than those it serves in Santa Cruz without sacrificing its self-financing capability.

The Child Survival PVO Network Projects

The third A.I.D. Child Survival initiative in Bolivia consists of two sequential projects that are developing a network of U.S. and Bolivian PVOs to implement coordinated Child Survival interventions. A.I.D.'s "Programa de Coordinación en Supervivencia Infantil" (PROCOSI) began formally in January 1988, with the awarding of a $1.7 million Operational Program Grant to Save the Children Foundation to provide support to a newly organized network of nine U.S.-based PVOs and one Bolivian PVO. The purpose of the grant was to improve and strengthen the basic health and Child Survival services provided by the PVOs. The project was designed to increase the coordination among the PVOs, the Ministry, indigenous PVOs, and other bilateral and multilateral organizations working in Child Survival. The grant also provided funding and technical assistance to PROCOSI to establish itself legally as an institution.

During the early and mid-1980s, A.I.D. had worked in the health sector exclusively through PVOs because, for political reasons, it was unable to work with the Government. As a result, in 1988 A.I.D. had a portfolio of eight centrally funded Child Survival grants to different PVOs. Even when it became possible to resume working with the Ministry, there was a rationale for continuing to support PVO health activities. The Ministry effectively covers less than 38 percent of the population. PVOs can complement Ministry of Health services by covering additional communities. Also, it is widely believed that PVOs are more community-oriented, innovative, and efficient than is the Ministry. However, there were also problems associated with working individually with multiple PVOs. There was large-scale duplication of services. Their educational messages sometimes provided conflicting information, confusing clients in some areas. Their reporting and statistics were inconsistent and incompatible. The PVOs did not exchange information about their successes and problems. Many of the PVOs developed very hostile relationships with the Ministry.

The first PROCOSI project had the following five components:

- Subgrants ($851,000): PROCOSI awarded 18 subgrants to its member organizations. Most of the grants were for studies and for specific institutional-strengthening activities.

- Technical Assistance ($650,000): Technical assistance was provided to member organizations for both technical and managerial activities. Thirty-four training workshops were held.
- Equipment, Materials, and Supplies ($81,000): The project provided office equipment and supplies for PROCOSI Secretariat office operations.
- Project Monitoring and Evaluation ($125,000).
- Project Administration ($454,000): The project provided salaries and operating expenses for the PROCOSI Secretariat.

The PROCOSI working unit, called the Secretariat, has a general secretary and four different units that provide technical assistance and other services to member PVOs.

A final evaluation of the PROCOSI I Project declared it a success. PROCOSI was able to define and put into practice a set of operating procedures. It has steadily assumed most administrative and management functions. In January 1991, its Assembly formally adopted statutes and bylaws. In April 1991, PROCOSI became legally incorporated as a Bolivian PVO, and in June 1991, it began the formal PVO registration process with A.I.D./Washington. This permitted A.I.D. to directly award PROCOSI a new grant under a follow-on "Child Survival PVO Network II" project, without having to go through an intermediary.

A major weakness of PROCOSI, identified in the final evaluation of the initial project, was its complete dependence on A.I.D. for its operations and survival. While the member PVOs have grown to trust PROCOSI and make use of its services, they do not have the resources to operate it on a significant scale themselves. Another problem is the low level of participation in terms of numbers of PVOs. Of an estimated 120 PVOs working in health in Bolivia, only 10 are members of PROCOSI. All but 1 of the 10 are U.S.-based PVOs.

The project does not dictate technical requirements to members regarding activities, except indirectly through its screening of proposals for subgrants. As a result, the project does not have preestablished targets regarding particular Child Survival interventions or coverage. Coordination among the member PVOs is voluntary, and each organization is free to use its own preferred approaches and to set its own targets and priorities. As a general rule, the PVOs use community development approaches, and typically their health interventions include all of the standard Child Survival interventions except reproductive health. The major division of labor among them is simply based on the geographical areas in which activities take place.

The initial PROCOSI project, after a difficult start, proved moderately successful in getting the 10 PVOs to coordinate activities better, cooperate with the Ministry, and make use of shared technical assistance and training resources. The recently launched $8 million follow-on PROCOSI II project continues most of the activities of the initial PROCOSI I project through September 1996, with a few changes in emphasis. First, since the heaviest institution-building activities have been completed, emphasis will shift to providing more subgrants to members. It is planned that 98 subgrant projects will be funded under PROCOSI II. A second area of greater emphasis is recruitment of new PVO members. The project objective is to expand membership from 10 to 32 members. Third, and most important, the PROCOSI II project is placing strong emphasis on PROCOSI's achieving financial sustainability by 1996.

"Sustainability," in this case, is defined as being able to continue operations permanently without requiring further A.I.D. financial support. A.I.D.'s strategy for helping PROCOSI to achieve sustainability is, first, to firmly establish the institution's administrative and technical capability to operate soundly on its own, and second, to establish a local currency endowment which will generate interest income to support operations on a permanent basis. For this purpose, $5 million of the $8 million life-of-project A.I.D. budget for PROCOSI II is designated for disbursement through a "debt-for-development" swap which will increase its value to the equivalent in local currency of $7.5 million. This amount will then be deposited in interest-bearing instruments in Bolivia, generating as much as $900,000 per year to cover PROCOSI's operations. This mechanism is addressed in greater detail in the discussion of "Sustainability."

In terms of A.I.D. internal management, PROCOSI represents an effort to consolidate and streamline the project portfolio. Where there used to be eight separate grants, now there is only one.

PROCOSI officials report that getting PVOs to work together is not always easy. While health-oriented PVOs share humanitarian objectives, there is also an element of competition and suspicion among the members of the PVO community. Every PVO has its own special philosophy and methodology. The PVOs are drawn to PROCOSI by the subgrants, technical assistance, and training it offers. However, programmatic collaboration among them and sharing of data are not happening as quickly or as broadly as they might, and PROCOSI has not been able to assert strong leadership in these areas because it does not want to alienate any of its members.

Other A.I.D. Child Survival Activities

There are other bilateral and centrally funded A.I.D. Child Survival activities in Bolivia. Two deserve special mention, although they will not be further evaluated in this Technical Report. The first is the Reproductive Health Services project. This $9.3 million grant includes support for establishing and expanding reproductive health and family planning services in Bolivia. Bolivia's extremely low contraceptive prevalence rate and high fertility rate have serious consequences for infant, child, and maternal mortality and morbidity. Due to the lack of family planning services, many people believe that infanticide is a significant cause of child deaths and that illegal abortions cause many maternal deaths. A.I.D. has insistently worked to raise this issue at different policy levels and has progressed to the point where the Government is now willing to begin to institutionalize reproductive services in its public health services. The Reproductive Health Services project responds to this opening with a series of activities—staff training, administrative support, commodities and supplies, technical assistance, IE&C, establishment and expansion of services, and policy research and development activities. The project also provides for a number of private sector activities such as contraceptive social marketing and for various population R&D activities in Bolivia by centrally funded A.I.D. population projects.

A second recent addition to the A.I.D. Child Survival Program in Bolivia is radio education. Interactive radio education has been developed and tested in Bolivia with A.I.D. support for 5 years, successfully teaching mathematics to children in primary school classrooms in grades two through five. The cost-effectiveness of this instructional technology has prompted A.I.D. to expand its use to other content areas, one of which is health. Beginning in July 1992, broadcasts to schoolchildren in classrooms began to deal with health topics such a cholera, hygiene, diarrhea, and vaccinations. It is anticipated that these broadcasts will change the knowledge and practices of the schoolchildren themselves. It is also expected that the schoolchildren will transmit some of the information about important health practices back to their siblings and parents. This approach may have two important kinds of impact. The first is an immediate impact on health-related knowledge, attitudes, and practices of schoolchildren and, indirectly, of their family members. The second is a long-range enhancement of the strong effect of girls' primary education attainment on their health practices when they become adults. This important relationship is discussed in more detail in the section on "Women's Education and Child Survival."

The A.I.D. project portfolio contains still other projects that also support Child Survival objectives. One, the Urban Development Initiative in El Alto, is working with PROSALUD to initiate self-financing primary health care services on a pilot basis in the urban community of El Alto near La Paz. Another new project, AIDS Prevention and Control, is intended to complement Child Survival objectives by reducing the spread of sexually transmitted diseases and by trying to prevent an epidemic of neonatal AIDS in the future.

Effectiveness

Effectiveness is the extent to which services are reaching the intended beneficiaries. In this report, effectiveness has two dimensions. The first is the coverage of services, a quantitative measure of program performance. The second dimension of effectiveness is the quality of services, describing how well A.I.D.-supported services meet the needs of beneficiaries. The analysis in this section focuses on two major A.I.D. Child Survival initiatives—the public sector Community and Child Health (CCH) project and the private sector PROSALUD program.

An additional issue discussed in this section is attribution of effects to A.I.D. In Child Survival activities in Bolivia, A.I.D. is one player in a large cast. Because Child Survival in Bolivia is an integrated national program in which a number of entities have joined forces, it is not easy to isolate specific, discrete effects that are attributable to A.I.D., independent of the other players. Another difficulty with identifying A.I.D.'s effectiveness is that the A.I.D. Child Survival Program in Bolivia did not begin to operate on a large scale until the late 1980s. Because measures of effectiveness often lag behind events in the field, there has not been enough time for A.I.D.'s effects to show up in statistical sources like the Demographic and Health Survey (DHS) and national service statistics. Despite these problems, however, this section tries to identify A.I.D.'s contributions as clearly as possible.

Coverage of A.I.D. Child Survival Services

One of the key indicators of effectiveness of a particular health intervention is the physical coverage it is able to achieve. This section discusses how A.I.D. has contributed to expansion of coverage of Child Survival services through two major projects. The first is the CCH project, which works through the Ministry. The second is the private sector PROSALUD project. The CCH project has two overlapping coverage areas. Two components—immunizations and control of diarrheal diseases—have national coverage. The third component is a mix of R&D and service delivery activities and is being implemented in only a small number of health districts. A.I.D.'s CCH project is just one of many contributors to the Government's national program of Child Survival services, so A.I.D. must share the credit for improvements in coverage with other entities. PROSALUD, on the other hand, has received almost all of its support from A.I.D., so A.I.D. can take credit for all of its

coverage. However, PROSALUD, unlike the Ministry, has a restricted geographical coverage.

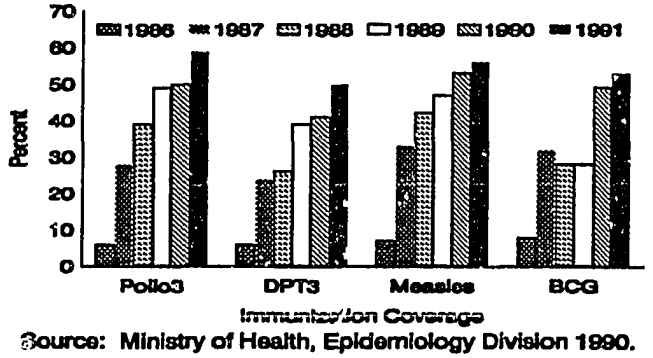
Community and Child Health Project Coverage

Immunizations. There is consensus in Bolivia that the child immunization program is the most successful health program implemented by the Ministry. A.I.D. has made a very important contribution to this program, and a significant portion of program impact can be attributed to A.I.D.

The DHS is probably the most reliable source of statistical information on immunization coverage, although it was conducted 3 years ago. The Survey findings varied considerably from the official Ministry coverage statistics based on health facility reports. The greatest differences were found in estimates of the third dose of DPT. At the time, the Ministry reported three times the coverage of DPT 3 in 1-year-old children than was found in the DHS sample.

The DHS findings are more consistent with the results of the 1990 immunization survey commissioned by the Epidemiology Division (Table 7). The coverage levels for measles are quite similar, but estimates of BCG coverage ranged from 58 percent in the DHS to 64 percent in the Ministry survey. Of course, part of the difference could be attributable to real improvements in coverage taking place between 1989 and 1990. The differences on the two vaccines with three doses, on the other hand, are quite large. According to DHS results, only 38 percent of children aged 1 year had the third polio dose, but the respective percentage according to the immunization survey was 61 percent. The dropout percentages between the first and third doses were 51 percent according to the DHS survey and only 29 percent according to the immunization survey. Similar differences are observed for the DPT vaccine.

Figure 16. Immunization Coverage of Children Under 1 Year of Age, Bolivia, 1986-1991



Source: Ministry of Health, Epidemiology Division 1990.

Figure 16 shows Ministry data indicating a progressive increase in coverage among children under 1 year of age, from 1986 to 1991, for the four vaccines of the program. BCG coverage increased from 8 percent in 1986 to 53 percent in 1991.

Similarly, measles coverage increased from 7 percent to 56 percent for the same years. Polio 3 coverage increased from 6 percent in 1986 to 59 percent in 1991, and DPT 3 coverage increased from 6 percent to 50 percent for the same years.

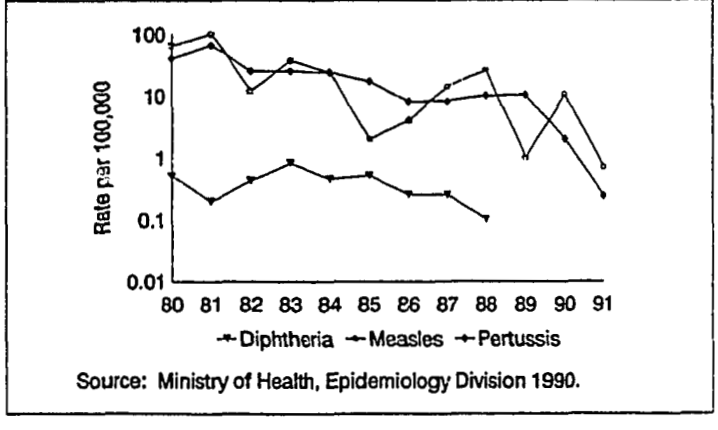
Table 7. Comparison of Immunization Coverage of Children 1 Year of Age According to Immunization Survey, 1990, and DHS, 1989

Vaccination	Survey*	Dropout % 1st-3rd doses[a]	DHS[b]	Dropout % 1st-3rd doses
Polio3	61 (86)[c]	29	38 (79)[c]	51
DPT3	61 (86)[c]	29	28 (70)[c]	60
Measles	59	—	58	—
BCG	64	—	58	—

Source: Ministry of Health, Epidemiology Division 1990; Demographic and Health Survey 1989.
[a]May-July 1990
[b]March-June 1989
[c]( ) First doses coverage

Overall, the evidence of the effects of the immunization program is clear. Figure 17 shows trends in incidence rates for three preventable infectious diseases: diphtheria, measles, and pertussis, for the period 1980-1991. All three diseases show a significant decline, and by 1991 their incidence is very low. Figure 18 compares trends in Polio 3 coverage and trends in incidence rates for polio. This graph shows very clearly that after the polio epidemic in 1979, incidence rates show a steady decline which is closely associated with the increase in coverage. Since 1989 there has been no confirmed case of polio in Bolivia.

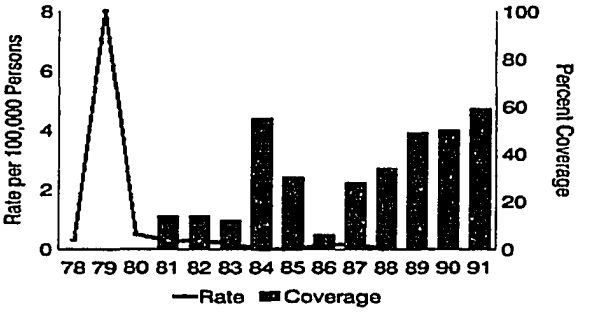
Figure 17. Incidence Rate, per 100,000 Persons, of Selected Preventable Infectious Diseases, Bolivia, 1980-1991



Source: Ministry of Health, Epidemiology Division 1990.

A.I.D.'s objective under the CCH project is to provide immunizations, in

Figure 18. Incidence of Polio and Polio 3 Coverage for Children Under 1 Year of Age, Bolivia, 1978-1991



Source: Ministry of Health, Epidemiology Division 1990.

conjunction with the Ministry and other donors, for 900,000 infants and 1.16 million women. Through January 1992, around 340,000 infants (38 percent of the planned life-of-project total) and 670,000 women (58 percent of the planned total) had been vaccinated with project support.

The immunization program has been effective. It has practically eradicated polio in Bolivia and has reduced drastically the incidence of the other diseases. Furthermore, a significant proportion of this success can be attributed to A.I.D. A.I.D. budgeted $3.3 million for the immunization program for the 1988-1993 5-year period. This figure constitutes about 30 percent of the total budget of the national immunization program for this period. If the counterpart contribution provided through the PL 480 program is counted as an A.I.D. input, then the A.I.D. portion of the total program increases to 38 percent. A.I.D.'s contribution constitutes about 55 percent of all the donor contributions to the immunization program. Considering that a good part of the budget from one of the other major donors—PAHO—comes from other A.I.D. sources, A.I.D.'s contribution to the national immunization program in real terms is even greater.

A conservative estimate, then, is that A.I.D. is providing at least one-third of the total cost of the national immunization program in Bolivia for the 1988-1993 period. The bulk of A.I.D.'s contribution consists of vaccines and syringes, cold chain commodities and refrigerators, communication equipment, and jeeps and boats. These commodities have made an invaluable contribution to the national effort.

Given that A.I.D's contribution was concentrated on only some of the elements of the immunization program, it is difficult to estimate what percentage of infant lives saved, or what percentage of the incidence rate declines, can be attributed to A.I.D. If it is simply assumed that the proportion of effects that can be attributed to a particular donor is equivalent to the proportion of the total budget provided by the donor, then it could be concluded that about one-third of the improvement in coverage rates and decline in incidence of vaccine-preventable diseases is attribut-

able to A.I.D. It may be, given the importance of the elements provided by A.I.D., that A.I.D.'s contribution is even greater. By any measure, A.I.D. is clearly making a significant contribution to the reduction and eradication of preventable diseases in Bolivia.

Oral Rehydration Therapy. Both coverage statistics and focus group interviews with mothers revealed that utilization of ORT to treat diarrhea in infants and children is quite low. According to the 1989 DHS, 70 percent of mothers knew something about ORT but only 26 percent used ORT during the most recent episode.

The Government of Bolivia has opened more than 4,000 village ORS distribution points to try to improve access nationwide to ORT. The A.I.D. CCH project has promised to provide 10 million packets of ORS over a 5-year period. This amount is intended to meet most of the need for salts nationwide and the entire need for salts in the special 11-district CCH project area.

To date, near the CCH project midpoint, only 7 percent of the planned ORS deliveries have been made. Both A.I.D. and the Ministry acknowledge that this activity has not been effective. The poor performance of the diarrheal disease control component is tragic in light of the low cost and proven effectiveness of ORT and the fact that diarrhea is by far the major killer of infants and children in Bolivia. In part, the disappointing performance of this component is due to A.I.D. procurement delays. However, the main problem is the Ministry's inability to distribute the salt packets and promote their use. In the CCH project design, A.I.D. agreed only to import the salt packets; the management and logistical services to deliver the packets to users was left up to the Ministry. Experience has shown that the assumption that the Ministry could handle distribution was in error. A.I.D. is now moving to correct this situation by amending the CCH project to add new resources for logistical support to get the salts delivered to mothers throughout the country. Furthermore, indications that women are misinformed about ORT point to the need to strengthen IE&C activities.

Water and Sanitation. The A.I.D. CCH project plans to construct about 120 community water systems and 8,840 latrines. The planned coverage of this activity is in the limited geographical area of 11 pilot health districts. To date, only about 2 percent of the planned facilities have been constructed—two water systems and 175 latrines. These activities have been substantially delayed by Government contracting and procurement problems. A decision has now been made to accelerate implementation by contracting PVOs for engineering and construction services rather than having the Ministry provide these services itself.

Nutrition. Component 3 of the CCH project is beginning to implement nutrition-related services. Originally, it was planned that 60 percent of infants and

children under 5 years of age—105,560 children in the 11 pilot health districts—would have received project-supported nutritional supplements and growth monitoring by the end of the 5-year project. About 41,000 women (80 percent of the target population) would have had prenatal, perinatal, and postnatal care, including a dose of ferrous sulphate with folic acid. Approximately 600,000 persons aged 0 to 40 years would receive at least one dose of iodine oil, representing 80 percent coverage in the pilot areas. These CCH coverage projections were based on the original design, which planned on working intensively in 11 health districts. Focus groups demonstrated that growth monitoring, nutrition education, and supplementation are beginning to take place and are benefiting clients. However, slow progress has meant that the CCH project has so far provided those services in only one district. Two more districts are just beginning to function. The project is currently analyzing its objectives and will soon revise its coverage targets down. It is likely that A.I.D. and the Ministry will decide that approximately 6, rather than 11, districts will receive intensive CCH project interventions. Coverage targets will be reduced accordingly.

Acute Respiratory Infections. Originally, the CCH project expected to establish a system that would detect and treat 80 percent of ARI cases in CCH project districts by the end of the 5-year project, a total of 560,000 cases in children under 5. As in the case of other services that are supported by Component 3 of the CCH project, this component was designed to implement and test a model system in 11 health districts. To date, effective services have begun to function in only 1 of the 11 districts, and the number of districts to be served will likely be reduced.

Summary of the Community and Child Health Project Coverage. The CCH project is A.I.D.'s only Child Survival project in Bolivia which has as a principal objective the expansion of coverage of Child Survival services on a national level. The project's support for the national immunization program is demonstrably making a major direct contribution to expanding the coverage of immunizations and reducing the incidence of vaccine-preventable diseases nationwide. Roughly one-third of Bolivia's progress in these areas beginning around 1989 can be attributed to A.I.D.

The CCH project's contribution to the national diarrheal disease control program has not effectively increased the program's coverage to date because of logistical bottlenecks in the Ministry. This component of the project is being strengthened by A.I.D., and it is hoped that performance will improve in 1993.

Other elements—ARI, nutrition and breastfeeding, and prenatal and delivery care—were designed to have effects only in 11 health districts where the project is developing and testing an integrated package of administrative and service delivery

innovations, and thus are not having measurable effects on national coverage levels. Focus groups showed that these services are beginning to function and to reach clients in the one district where the project is now up and running. Quantities of beneficiaries could not be determined, but the numbers are small. Implementation problems are forcing A.I.D. and the Ministry to lower coverage targets, probably from 11 health districts to about 6. It is important to point out that the objective of this component of the CCH project was to test new ways of delivering primary care rather than to directly and immediately improve national coverage levels.

A.I.D. completed a midterm evaluation of the CCH project in January 1992. The midterm evaluation was mainly an internal administrative review that examined implementation problems and did not examine the appropriateness of the project design or look for indications of impact. It did identify a number of constraints to project effectiveness. On the positive side, it found that project-funded commodities are arriving in country, albeit behind schedule, and are being used. The project's support for the national EPI is regarded as effective and is being noticed and appreciated nationwide. Commodity support for control of diarrheal diseases, on the other hand, is not being effectively utilized due to logistical and administrative weaknesses in the Ministry. The project's pilot-scale institutional-strengthening activities (Component 3) are considerably behind schedule and are not yet producing much in the way of visible results.

Two factors are slowing implementation of the institutional-strengthening component. First, several informants reported that there is a degree of vagueness with regard to objectives and specific implementation responsibilities in the project design documents, resulting in some confusion, conflict, and delays in implementing initial project activities. Second, A.I.D.'s onerous procurement and disbursement regulations have resulted in the purchase of expensive and inappropriate commodities and in long delays in project activities. For example, it took 2 of the project's 5 years simply to procure the services of an institutional contractor, without whom few of the planned project activities could get started. This delay caused inactivity, frustration, and a loss of project credibility within the Ministry and the health districts. Complicated vouchering requirements for the PL 480 counterpart funds have stymied the project's access to local currency funds for operating expenses, holding up field activities. A.I.D. source-origin requirements resulted in purchase of U.S.-made two-way radio transceivers which, according to many accounts, were considerably more expensive than other better-performing radios available from other sources. On its side, the Government has failed to make satisfactory progress filling vacant positions and absorbing new personnel at the district level.

Whether or not there is insufficient specificity in the project design documents, leading to subsequent implementation problems, is a matter of judgment. The CCH

Project Paper is not highly detailed compared with many other A.I.D. Project Papers. This is because A.I.D. wished to utilize a flexible, evolutionary approach to project implementation. However, several informants felt that somewhat greater specificity and clarity with regard to objectives, activities, and responsibilities, especially with regard to Component 3, would have led to faster and smoother implementation of project activities. With the benefit of hindsight, it would have been better to have clearer and more precise specification of planned objectives, beneficiaries, and implementation responsibilities in the Project Paper, while at the same time establishing a schedule for periodically reviewing the project and reprogramming as necessary.

For the project to have greater impact on infant mortality, the ORT component of the project needs more attention and priority. Diarrhea is the number one cause of infant mortality. The successful EPI is nearing a point of diminishing returns in terms of measurably reducing mortality. A shift of emphasis to more effectively controlling diarrheal diseases should accelerate the decline in the national infant mortality rates over the next 5 to 10 years.

Based on the midterm evaluation, changes are being incorporated into CCH project activities. An amendment will be signed during 1992 adding money for logistic support for ORT (Component 2), expanding EPI (Component 1), adding funds for the pilot Chagas' disease component, and adding a cholera activity.

PROSALUD Coverage

Four years after the creation of PROSALUD, a study (Hartman 1990) was commissioned to evaluate PROSALUD's impact on the coverage of Child Survival services.

The population was divided into two groups: project areas (with health centers managed by PROSALUD) and nonproject areas (with health centers not managed by PROSALUD). The project areas were subdivided into two strata: areas with PROSALUD health centers which had been operating for less than 2 years and areas with PROSALUD health centers which had been operating for 2 or more years. Efforts were made to design the sample so that the populations in the project and in the nonproject areas were as comparable as possible. Sampling problems precluded analysis of remote, rural communities.

This section compares coverage levels of Child Survival services in communities with mature PROSALUD facilities, communities with new PROSALUD facilities, and communities with only Ministry of Health services. These findings are from the study of PROSALUD impact (Hartman 1990). Since PROSALUD at the time

of the study was working only around Santa Cruz, the figures from this study are presented to illustrate the kind of effectiveness improvements, in terms of expanded coverage, that can be expected using the PROSALUD private sector, fee-for-service model. Because PROSALUD has depended exclusively on A.I.D. for outside support, all the effects reported in this study can be considered attributable to A.I.D.

The study included an evaluation of health centers and a survey of residents in both project and nonproject areas. "Non-PROSALUD" communities in this study are periurban communities in the Santa Cruz area, generally comparable to the PROSALUD communities except that they are served by Ministry facilities instead of PROSALUD facilities. The following are some of the findings.

Infant Immunization. In general, immunization coverage of children under 2 years of age is fairly high, both for project and nonproject areas, as shown:

Vaccination	PROSALUD Centers		MOH Centers
	New %	Established %	%
DPT 1	57	74	67
DPT 3	38	57	49
Polio 1	54	70	63
Polio 3	35	52	46
Measles	40	53	48

The difference in coverage between new and old PROSALUD health centers is evidence of the effectiveness of PROSALUD in this intervention.

In the case of immunization coverage, there are data available for 1991, permitting an updated estimate of the effectiveness of these health interventions. The coverage reported in PROSAULD's database for 1991 is as follows: DPT 3, 94 percent; Polio 3, 126 percent; measles, 85 percent.

These percentages are not exactly comparable with the previous ones. Although they are for health centers in urban areas, they are for children under 1 year of age, not for children under 2 years of age. This is not a serious problem because coverage for children under 1 year of age is at most equal to the coverage for children under 2 years of age, and usually lower.

There is a significant increase in the coverage between centers with at least 2 years of activities in 1989 and all centers in 1991. The coverage for DPT 3 increased

from 57 percent to 94 percent, for Polio 3 from 52 to 126 percent, and for measles from 53 percent to 85 percent. In the case of Polio 3, the coverage level of over 100 percent is explained by the fact that many children from other areas come to PROSALUD centers to be immunized, and thus the number of immunized children does not correspond to the estimated base number of children in the area of influence of the PROSALUD health center.

Timeliness of the Vaccines. Only 6 percent of all children under 2 years of age immunized in recently established PROSALUD centers were immunized at the correct time. This number rises to 19 percent in the more established PROSALUD centers. In nonproject centers, 8 percent were immunized on time. Timeliness of vaccination increases by a factor of three, according to this finding, after a PROSALUD facility becomes firmly established in a community.

Utilization of Growth Monitoring Services. Only 10 percent of children under 2 years of age used growth monitoring services in newly established PROSALUD centers. This figure increased to 18 percent in the more established centers. Fourteen percent received growth monitoring in non-PROSALUD communities.

Treatment of Diarrheal Diseases. Professional treatment of children under 2 years of age suffering from diarrhea is highest in established PROSALUD facilities and lower in new PROSALUD and Ministry facilities, as shown below.

Treatment	PROSALUD Centers		MOH Centers
	New %	Established %	%
ORS packets	18	24	21
Homemade solution	7	11	6
More liquids	11	12	9

Number of Prenatal Visits by Pregnant Women. The percentage of pregnant women receiving frequent professional prenatal attention is higher at established PROSALUD facilities than at new ones.

Visits	PROSALUD Centers		MOH Centers
	New %	Established %	%
0	17	21	22
1-2	21	23	27
3-4	13	21	15
4+	19	35	35

The conclusion based on these indicators is that the PROSALUD project has been quite effective in terms of expanding the coverage of Child Survival services. In all the health interventions analyzed, effectiveness of the health center improves as a function of how long PROSALUD has been functioning in a community. Furthermore, the effectiveness of the more established PROSALUD health centers is superior to Ministry Health Centers.

Quality of A.I.D. Child Survival Services

The analysis of qualitative dimensions of A.I.D.-supported Child Survival services is based primarily on a series of 20 focus groups held with beneficiaries of the program, mothers of children under 5 years of age. Also, interviews were held with service providers—doctors, auxiliary nurses, promoters, technicians, and administrators—who staff the health facilities supported by A.I.D. Child Survival projects. The focus groups and interviews sought perceptions and experiences, favorable and unfavorable, about how useful and accessible A.I.D.-supported Child Survival services are.

Eleven communities with A.I.D.-supported Child Survival service delivery facilities were studied. Communities were selected to represent different characteristics that could influence the quality of services and/or the receptiveness of clients to the services. First, some communities were rural and others were urban. Second, in some communities the first language of the population was Spanish; in others the population was made up principally of indigenous families whose first language is Aymara. Third, some communities offered services under the A.I.D. private-sector PROSALUD project and others offered services under the A.I.D. public sector CCH project. Table 8 shows the distribution of communities, focus groups, and providers according to these characteristics.

Table 8. Characteristics of Focus Group Communities and Staffing of Service Delivery Facilities

Site	Project	Urban/ Rural	Language	No. of Focus Groups	Providers
La Morita	PROSALUD	Urban	Spanish	2	M.D., Nurse, Auxiliary, Promoter
El Pailon	PROSALUD	Rural	Spanish	2	M.D., Auxiliary
Puerto Pailas	PROSALUD	Rural	Spanish	1	Technician
El Alto	PROSALUD	Urban	Aymara	3	M.D., Nurse, Promoter, Supervisor
Sica-Sica	CCH	Urban	Aymara	2	M.D.
Calamarca	CCH	Rural	Aymara	3	M.D., Auxiliary
Colchani	CCH	Rural	Aymara	3	No service
Chiaraque	CCH	Rural	Aymara	3	No service
Samaipata	CCH	Urban	Spanish	1	Administrator
Machacamarca	CCH	Rural	Aymara	0	M.D.
Patacamaya	CCH	Urban	Aymara	0	Administrator; Auxiliary

The findings are presented in the following narrative sections: (1) the quality of preventive health services, (2) the quality of staff and facilities, and (3) overall perceptions of health conditions.

Quality of Preventive Health Services

Immunizations. In general, the qualitative research showed that mothers have poor understanding of childhood vaccinations. In almost every focus group, only a few mothers considered vaccinations really important. Mothers' most common reason for vaccinating their children was not the prevention of specific illnesses such as polio, measles, or whooping cough, but a generalized protection against all illnesses—either that the children will not get sick as often or that severity of illness will be reduced. For example, one mother's idea was expressed in all sessions:

"When a child is vaccinated, if he gets some disease—like a fever—it will pass more quickly."

This belief was motivation for some mothers to vaccinate their children, but it clearly led to disappointment for others. They had their children vaccinated, but the children continued to get sick.

"Even when they're vaccinated, our children die just the same."

"I vaccinated my child against something—ever since then he has been sick."

"I was never vaccinated and I am still alive. Why should I vaccinate my child?"

In all sectors (urban/rural, mestizo, and Aymara) mothers were usually not able to identify the childhood immunizations. They often distinguished vaccinations by body part—the one in the mouth, hip, and/or arm; the one that leaves a scar (BCG).

Clients of the PROSALUD clinics in Santa Cruz seemed more willing to participate in the national vaccination program. A few mothers actually reported active compliance with vaccination schedules; that is, by referring to the child's immunization card, the mother was able to report to the clinic on time. Most Santa Cruz mothers had a more passive approach to vaccinations. They were willing to allow their children to be vaccinated because the doctor or nurse said it was important, but they could not correctly articulate the benefits of vaccinations. In the altiplano, two common patterns were identified. First, some women actively resisted participation in the vaccination programs, at least until their children were older. They believed that infants should not be vaccinated because the immunization might cause a fever or pain (make the baby cry). Some women associated immunizations with slowed child development, that the child who was beginning to walk would revert to crawling after an injection in the hip. The second group included mothers whose children were incompletely immunized. Common reasons for incomplete coverage included (1) avoiding the clinic out of fear of being scolded for losing the child's immunization card, (2) side effects to the first vaccinations (fever, pain), (3) inconvenience and time limitations, and (4) reduced confidence in vaccinations because the child got sick even after being immunized.

Oral Rehydration Therapy. All of the participants in this series of focus groups knew about oral rehydration salts (ORS), but only a small subset of participants used the salts regularly when their children had diarrhea. Several women indicated they had tried them once, but would not use them again. *Mates* (herbal teas) were a universal remedy for diarrheal diseases. However, mothers sometimes combined teas with oral rehydration therapy (ORT). The use of home preparations was more common than the prepackaged salts. Knowledge of how to mix a sugar/salt solution and the ORS packets was consistently good. Most mothers who had tried salts felt

that the taste was not appealing to children, and for that reason many felt that home preparations were better. In one community, the mothers reported that since children disliked ORS, the mother could drink the solution and pass the benefits directly to her child by breastfeeding. In another, mothers indicated that ORS keep children healthy and should be given at lunchtime on a regular basis. And in a third town, the mothers believed that ORS would not harm a strong child but would make a weak child even worse.

Multiple explanations of why ORT is important were given. Some mothers felt that ORT stops or cures diarrhea. Others felt that ORT cleanses the stomach, a belief that was more common in the altiplano than in Santa Cruz. Others said that ORT prevents further fluid loss and makes children stronger.

Prenatal Care and Deliveries. Both the PROSALUD and CCH projects are promoting prenatal care and institutional births, but there are some important policy differences. Providers from both projects stressed the health reasons for promoting institutional births—to reduce unnecessary maternal and infant mortality due to complications and aseptic conditions. CCH physicians indicated that by increasing prenatal care, they could screen high-risk women and encourage them to seek appropriate institutional care when necessary. On the other hand, PROSALUD has a policy of universal promotion of institutional births. The PROSALUD system provides strong incentives to the physicians to implement the policy. The prepaid birth package (delivery, 2-3 day hospital stay, postpartum exam, and the newborn's physical exam) is one of the most important sources of income in the PROSALUD system, and the more funds each clinic generates, the higher the bonuses its staff receives.

Despite the emphasis of both programs on improving maternal and infant health, both programs are operating in a cultural context that discourages women from seeking the services. Prenatal care is very rare among all of the population groups studied. The urban *Crucenas* (women from Santa Cruz) sought prenatal care once or twice during their pregnancies. They usually went to a clinic if they experienced any abnormal pain or had experienced birth complications previously, not because they felt it was important to routinely monitor their pregnancies. Altiplano and rural Santa Cruz women consciously avoid prenatal care. They are embarrassed to think that the doctor might see them naked, because they are bound to have a future chance encounter with him/her in town. Being examined by a female doctor or nurse would not reduce the shame they would feel.

PROSALUD users reported a mix of preferences, but home births are preferred in the rural areas. A few women commented that if they opted for an institutional birth they would rather go to Santa Cruz than the local PROSALUD clinic which

they viewed as small and poorly equipped. "Santa Cruz hospitals have a lot of doctors, and rooms, and equipment. It's bigger and cleaner." Urban women in Santa Cruz seemed to have a slight preference for institutional births (especially insured women), although home births are still popular. Altiplano women voiced an almost universal preference for home births; the only exceptions were the few women with insurance policies.

> "When I went to the hospital, they told me the doctor wasn't there. I sat down and the baby just came out. I was frightened."
>
> "I had my first in the clinic. They told me the birth would be in the morning, but it didn't happen until eleven at night. And they shouted a lot."

Women who preferred home births were usually adamant that the home was better than a clinic. First, they consider it silly to pay for something that they already have—a bed and food. Second, upon entering a clinic, they lose control of their traditional practices. They cannot prepare and consume the right foods or herbal teas which are believed to facilitate the birth process. They are kept in bed throughout labor and delivery, without the ability to select the birthing position. They have to remove their clothes and are touched and seen by strangers. Sometimes nurses bathe the women, although local culture prohibits women from even touching water for a period of 2 weeks. They are far away from their mothers-in-law and other older women from the community who offer support and advice. Doctors and nurses in the clinic do not have the proper instruments to cut the cord (a piece of ceramic) or tie the cord (wool). Third, they get more rest in the familiar surroundings of the home than in a clinic. At home, the husband, older children, and other relatives help with child care, cooking, and laundry—under the supervision of the mother. The home-team is more nurturing and supportive than hospitals where the nurses "always yell and shout orders and get upset when they see blood on the sheets." And finally, a few women were fearful of hospital births because they associated the hospital with a cesarean operation: "If you go to the hospital, the chances are great that the doctor will perform a cesarean delivery."

Breastfeeding. In some populations, such as the indigenous Andean groups, inappropriate breastfeeding techniques are associated with elevated neonatal mortality. Exclusive breastfeeding for 4 to 6 months is not practiced. Either breastfeeding is not initiated immediately after birth because of taboos of giving the newborn the colostrum, or breastfeeding is supplemented with other fluids such as water, *mate*, urine, and powdered formula. The focus group data suggest that, although these customs are still widespread, appropriate breastfeeding techniques may be increasing among Aymara women. When discussing the topics covered by health

educators in their communities, several Aymara groups spontaneously mentioned breastfeeding and indicated that they had started the immediate initiation of exclusive breastfeeding after birth. They no longer withheld the colostrum and had stopped giving supplements. An even larger subgroup of the population noted the importance of continued nursing during episodes of diarrhea, a new behavior that goes against the centuries-old tradition of not offering fluids to infants with diarrhea.

Quality of Staff and Facilities

One of the objectives of the research was to obtain information on the users' judgments of quality of PROSALUD and CCH services. Quality is a multidimensional concept. Different populations/groups define quality differently and emphasize some aspects of quality more than others. Hence, the team decided not to ask a series of directed discussion questions on its preconceived definition of quality. Rather, the facilitators used three types of discussion questions to generate information on quality of care at a particular facility: why mothers did (or did not) use the services; what they liked and did not like about the services; and finally, mothers' suggestions for improving the quality of the services. The results show fairly consistent assessments of quality among the following three user groups: urban and rural PROSALUD users in Santa Cruz; urban Aymara users of PROSALUD services in El Alto; and Aymara, mostly rural, users of public sector CCH services.

PROSALUD in Santa Cruz

Mothers' Perspectives. The findings presented here reflect five focus group discussions at three facilities, one in Santa Cruz City and two rural health centers within 50 kilometers of the city. Although staffing, facilities, and services are more sophisticated at the urban facility, the findings across groups/facilities were fairly consistent. The urban facility was staffed by one full-time physician, assisted by a part-time pediatrician and a part-time gynecologist, a dentist, nurse, auxiliary nurse, receptionist/pharmacist, and a social promoter. The facility was equipped for deliveries with a labor and a delivery room. One of the rural facilities (El Pailon) was staffed by a physician and an auxiliary nurse, and the Puerto Pailas health post was staffed by a health technician. Both rural facilities were equipped for routine births.

Users of PROSALUD facilities in Santa Cruz were satisfied with most aspects of service delivery, especially when they compared PROSALUD with public sector services. PROSALUD staff were viewed as pleasant, dedicated, and hard working, and the users never complained about the outcome of the consultation (their children's symptoms improved). They frequently contrasted their positive PROSA-

LUD experiences with personal stories about how public sector incompetence actually led to a deterioration of their children's health.

Users of the Puerto Pailas health post were especially enthusiastic about the rapport they had established with the technician, particularly his willingness to make house calls. While lamenting the fact that he was not a physician, they gave no examples of his limitations as a healer other than his regular referrals to other PROSALUD rural centers that were better equipped and staffed by physicians (Cotoca and El Pailon).

PROSALUD users are comfortable paying for services and generally agreed that they paid fairly for both consultations and drugs. Public sector and PROSALUD fees are similar, but the overall cost of care is sometimes more expensive in the public sector for two reasons. First, PROSALUD providers do not charge for followup visits, and sometimes make free house calls (in the rural areas). Second, the participants claimed that one visit to a PROSALUD clinic was likely to lead to a cure, but in the public sector they often visited more than one clinic and bought more drugs. They said that PROSALUD clinics try to accommodate people who were less able to pay for services. For example, in El Pailon, mothers noted that the doctor allows some families to make small payments over time if they cannot afford a single, lump sum payment.

The urban groups noted that drugs are usually available right at the facility, a strong advantage over the public sector which they criticized for its poor drug supply. In contrast to other private sector physicians, they appreciated the savings of time and money they gained by avoiding a separate trip to a private pharmacy where drugs might be more expensive. On the other hand, rural PROSALUD users (El Pailon and Puerto Pailas) felt that the local facilities were not as well stocked with drugs as they should be.

All of the groups had good access to clinics; however, users of both rural clinics regretted that their facilities were staffed and equipped for only routine problems and that transportation to other facilities in Santa Cruz or elsewhere was difficult and costly.

When asked for ideas on how to improve quality of PROSALUD services, most of the groups focused on expanding the infrastructure (more rooms, more beds) and reducing economic barriers to care for the poor. They noted that not everyone can pay for services and some people do not know that PROSALUD providers use a sliding scale and/or payment over time. Rural users were most concerned about the lack of specialists and transportation difficulties, noting that ambulance services would be a great step forward.

Providers' Perspectives. The team conducted six provider interviews—two physicians, one nurse, two auxiliaries, and one technician—at three facilities in Santa Cruz. All of the staff felt that working in the PROSALUD system was better than working in the public sector because PROSALUD offered higher quality services to its clients and treated its staff well. In general, the interviewees felt that the clinics had competent staff and were clean and well equipped with supplies and drugs. They were proud of their efforts toward self-financing, reaching 90 percent in La Morita clinic in Santa Cruz city and 65 percent in the rural El Pailon clinic. In each clinic, progress toward self-financing is remunerated in the form of annual bonuses, providing strong incentives to exceed annual targets established in conjunction with central management.

In the rural areas, the staff felt the clinics were inadequate in terms of size and maintenance and, relative to their city counterparts, were limited by a lack of specialists. Staff in all clinics indicated that lack of a PROSALUD reference hospital was a flaw in the system because clients often did not want to go into the public sector. Most of the staff emphasized the ideal of good provider-client relations, stressing that use of health services was conditioned upon trust. In one clinic, the staff felt that community relations was an important element of quality, but felt they lacked a good relationship and had low service coverage. The staff felt the root of the problem was inappropriate local customs. Rather than adopting a proactive role in improving community relations through community meetings, home visits, and health education, they felt that town authorities should mandate use of services.

PROSALUD in El Alto

Mothers' Perspectives. PROSALUD recently initiated an effort to replicate its Santa Cruz model in the twin cities of La Paz and El Alto. In the several months preceding this assessment, PROSALUD opened its first seven clinics in El Alto. The team visited the oldest of these centers which had opened only 4 months earlier. El Alto is a sprawling urban community near La Paz. Respondents were principally women whose first language was Aymara. At the time of the visit, the facility was staffed by a physician, dentist, nurse, auxiliary, and receptionist/pharmacist. The majority of its clientele was recent Aymara migrants from surrounding rural communities, including former tin mining families from Potosi who were resettled in El Alto by the Government after it closed numerous mines.

The team conducted three focus group discussions with mothers who were familiar with PROSALUD (had used services at least once since November when PROSALUD took over the facilities). The findings revealed that attitudes toward the services were mixed (from fairly positive to strongly negative). One pattern,

however, seemed to emerge: women who were generally skeptical of modern, Western health services were critical of PROSALUD's services. Women who regularly used modern health services felt that PROSALUD's services were somewhat better than those in the public sector but were not necessarily the best in the private sector. Some women equated quality with cost and preferred to seek more expensive private practitioners.

> "Bolivian medicines don't help. They aren't strong. Imported [medicine] is better."

PROSALUD was seen most often as the second line of care, following home remedies. Rarely was PROSALUD judged the last resort, all other options, including traditional healers, having failed.

All of the participants were aware of recent changes at the facility. If not universally informed of the changes in ownership and management, they did know about the new *doctora* (woman doctor) and her staff. Some women shared very positive experiences about the staff's loving manner with children. They were especially impressed with the nurse, whom they considered kind, and the auxiliary nurse for her Aymara language abilities. Everyone agreed that the dentist offered an important service. When discussing their encounters with the doctora, they tended to be highly critical of her bedside manner, although some of these critics felt that she was nonetheless a good healer (succeeded in curing their children). The discussion revealed that most women felt that doctora thought highly of herself and viewed the Aymara as second class citizens. She tended to scold them for their poor child care skills:

> "The doctora says, 'Women in *polleras* [skirts worn by Indian women] don't watch their children; that's why they have diarrhea.'"

> "I am the doctor, not you. Now get home and take care of your crying child."

Another woman commented that, by always scolding, the new doctora actually encouraged women to keep their sick children at home. "Why should people pay a lot money just to be told how stupid they are?"

All of the groups were comfortable paying for services. A few women complained that the new doctora had just raised the fee and was less willing to negotiate a lower price than her predecessor (before PROSALUD took over the facility). However, they indicated that the higher price would not keep them away from the clinic. One group of mothers actually felt there was a direct relationship between costs and quality. They felt that PROSALUD fees and drug costs were too low and,

therefore, were of lower quality than other private providers. They noted that more expensive, imported drugs were more effective than national products. They were glad that El Alto offered a lot of options, allowing the mother to elect PROSALUD for less severe problems.

Mothers' judgments of the outcome of their consultations were also mixed. Some felt that the clinic offered excellent treatment for diarrhea, but others complained that their children were not cured.

All of the groups felt the clinic was accessible and well situated, although some women felt that the doctora should consider making house calls, especially when patients were seriously ill. The most common criticism of the clinic was a busy waiting room and having to wait for many hours on some days.

Providers' Perspectives. Like their much more experienced counterparts in Santa Cruz, the PROSALUD staff of the Villa Bolivar D clinic were highly motivated. One overriding goal was to make their clinic an appealing place to the local population. The team interviewed the physician/manager, nurse, auxiliary nurse, and receptionist/pharmacist, each of whom recognized that the most important goal was to improve provider-client relations, not an easy task given the historically poor relations between Western providers and Aymara clients. The staff also felt that PROSALUD had a competitive advantage over the public sector because of the integrated services offered—a pharmacy, dental services, a laboratory, and 24-hour care. They indicated that the greatest limitations were a lack of specialists (pediatrician, gynecologist) insufficient pharmaceuticals, a lack of appropriate educational materials, and not enough space/rooms to separate deliveries from other hospitalizations.

The Community and Child Health Project

Mothers' Perspectives. The team conducted 11 focus groups with Aymara users of four health facilities as follows: two in Sica-Sica and three in Calamarca, towns that have Ministry health centers staffed by a physician and an auxiliary nurse; and three in each of two communities that do not have health centers, but "belong" to the health center in Patacamaya. Sica-Sica and Calamarca are large towns on the major highway from La Paz to Oruro with approximately 1,500 and 1,200 inhabitants, respectively. Colchani and Chiaraque are small, rural communities of several hundred inhabitants and do not have health posts. The auxiliary nurse from the Patacamaya health center is supposed to visit the town regularly, and the Ministry expects residents to seek clinical care at the Patacamaya health center. Colchani is about 5 kilometers from Patacamaya and Chiaraque is 15 kilometers away and accessible by weekly bus service on Sundays only.

The most significant finding of this set of focus groups was that mothers from both towns without a health post rarely use modern health facilities. Those from more remote Chiaraque reported that they almost never left their village to visit a physician. When residents do leave either town to visit a doctor, they sometimes bypass the Patacamaya health center and go directly to La Paz. The women cited various reasons for avoiding health centers, including lack of financial resources, language barriers, transportation problems, long waiting periods, prejudice by doctors against Indians, poor outcomes (previous negative experiences when family members did not recover or even died), and competing responsibilities and demands on their time that prohibit them from taking sufficient time to travel to Patacamaya.

Mothers in the towns with health posts use the services, but never as a first choice. They always try home remedies first, then, depending on the symptoms and severity of each illness, move on to the health center or a traditional healer. Mothers from both Calamarca and Sica-Sica felt that the physicians assigned to the health posts were adequate healers, but complained about lack of good rapport. The physician in Sica-Sica had arrived only 2 months earlier, and, although he speaks Aymara, the mothers did not feel he was very knowledgeable about their local health problems. Despite her unusual situation of being midway through a 2-year assignment, the doctora in Calamarca has yet to gain the trust of the local people. She does not speak Aymara, and she is perceived to be more interested in her income than in people's health problems. Women in both towns expressed a great deal of faith in the auxiliary nurses, both of whom speak Aymara and are considered "affectionate" with children. One of their most highly valued skills is their ability to use a sliding fee scale for consultations and medicine. In general, women accept the idea of paying for services; however, they feel strongly that not everyone can pay all the time. An individual's ability to pay varies over time. Calamarca residents acknowledged that they wait until the doctora is not around so that they can have a free consultation with the auxiliary nurse, whom they fondly call "doctorita."

Residents of Calamarca and Sica-Sica positively value their local health facility, but they are quick to recognize its limitations. First, they point out that the physicians are often absent. Although they feel that the physicians are busy with other legitimate responsibilities, such as vaccination campaigns in nearby towns, the fact is that their facility is often unattended. Second, even when they are around, the doctors prefer to see clients at the facility. Mothers seem to prefer house calls, but do not feel that they should have to pay higher fees. And finally, the mothers do not approve of the Ministry's personnel/staffing system. They feel they get second class treatment by young *practicantes* (interns) who stay in the town for only a year. This situation clearly has caused problems in Sica-Sica. Last year, the doctora assigned to the health post was widely regarded as abusive because of her negative attitude with

Indians and for overcharging patients, including violating Ministry policies against charging for vaccinations. In Sica-Sica in particular, mothers indicated that they will visit the health center if their other efforts fail (home remedies and *curanderos*), but hope to avoid it.

> "It's not a complete hospital. They don't have X-rays or therapists. There aren't laboratories. If you need a test, you have to go to La Paz."
>
> "They take good care of our children. They weigh them and give them their shots."
>
> "We want a graduated doctor, not a medical student."

Providers' Perspectives. The team interviewed the district medical officer (the most senior Ministry administrator in the district), three physicians, and two auxiliary nurses at four facilities. All of the staff were highly motivated individuals whose goal was to provide high-quality services. All providers felt the performance of their individual clinics was constrained by the public health system. They indicated a desire to offer high-quality services defined as positive provider-client relations, strong diagnostic skills, sufficient equipment and pharmaceuticals to treat common health problems, cleanliness, and enough space to separate women delivering babies from other in-patients. However, they indicated various systemic limitations to the actual delivery of high-quality care including poorly stocked pharmacies, lack of supplies for deliveries, and small facilities. One of the clinics had no beds for in-patients. They indicated that provider-client relations were weak and should be improved. They acknowledged that cultural barriers were the cause of low service utilization, but lacked insight into ways to bridge that cultural gap and gain clients' confidence.

All of the staff interviewed were responsible for providing health services and/or supervising auxiliary staff in at least three or four additional communities. The new transportation (motorcycles and bicycles) provided by the CCH project improves access to other towns, but the system takes staff away from their own clinics several days per week.

Health Beliefs and Practices

Mothers' Beliefs About Child Health Conditions

It was evident from all of the focus groups that mothers consider themselves the primary guardians of their children's health. They place blame for illness on themselves, although they are resigned that their children will get sick on a regular basis. Children get sick because their mothers fail to take good care of them. Because of women's multiple responsibilities—cooking, farming, herding animals, they cannot watch their children constantly. And when they are not looking, children "get into trouble" and then get sick. For example, a child may get diarrhea from chewing on dirty fingers when the mother is not looking. A sudden rainstorm or drop in temperature can catch a mother unprepared and her child may get a chill leading to fever. The Aymara groups also mentioned that when the mother is not alertly watchful, her child may suffer *susto* (fright) or *demonio* (evil spirits), leading to physical problems such as diarrhea or fever. The only exception to mothers' responsibility for illness is diarrhea caused by teething which was mentioned by rural and urban groups as well as by Spanish and Aymara language groups.

Mothers identified a wide range of immediate causes of illness, including getting chills (leading to diarrhea, colds, bronchitis, and fever), getting wet, overheating, eating leftover food, and too much sun. The three most common childhood diseases are diarrhea, cough, and fever (including those caused by demonio and susto). Other common problems frequently mentioned were skin rashes and infections (*granos*), vomiting, colds and flu, bronchitis, and tonsillitis.

Providers' Perceptions About Child Health Conditions

Providers and clients similarly identify common health problems as diarrheal diseases and ARI (cough with fever). However, important differences emerge when one considers beliefs about etiology and treatment. When a mother "diagnoses" her child's illness, she looks far beyond the biological variables; why and how a child gets sick are important variables that influence her choice of treatment and provider. An anthropological study conducted as part of the CCH project found that mothers distinguish 16 different diarrheal diseases in three broad categories. There are eight types caused by changes in weather/temperature, including, for example, cold weather and hot weather diarrhea, eating hot foods, cold or warm breastmilk, side effects of a cold/flu, fever, and vomiting. The three psychobiological diarrheas include normal diarrhea associated with developmental stages, diarrhea from falling

on the buttocks, and diarrhea caused by satisfying food cravings (*antojos*). And finally, there are five cultural types: susto (fright), susto caused by a cadaver (lasting up to 3 years), evil spirits, diarrhea as a portent of death, and love-induced diarrhea. To the mother, diarrhea caused by evil spirits requires different treatment from diarrhea caused by impure water. To the doctor, the diarrhea has an underlying biological/physiological cause such as a parasite. These differing perspectives often lead to mistrust and misunderstandings in both directions when mothers visit modern health facilities.

Mothers' Use of Health Services

Mothers in developing countries have numerous options for health care when their children are ill, including their own home remedies, traditional healers and lay midwives, and "modern" providers from the public and private sectors. All focus group participants in this study (urban, rural, mestizo, and Aymara) draw first upon their rich knowledge of herbal teas and other medicinal plants (used in poultices and baths) to treat all common childhood illness symptoms, especially diarrhea, fever, and cough. If home remedies are not successful in relieving the symptoms, mothers then have to decide if they will seek services outside the home, either with a traditional healer or a modern provider (physician, nurse, or auxiliary). Although the focus groups confirm the presence of multiple case management strategies, they do not reveal the underlying rules governing utilization behavior for specific episodes of diarrhea or ARI. For example, the focus groups' methodology tells us that mothers identify various types of diarrhea (including normal diarrhea, infectious diarrhea, diarrhea with blood, diarrhea with fever, diarrhea with chills, and so forth). The data also reveal a variety of treatments but not necessarily the specific reasons for choosing one treatment over another. Some of the treatments mentioned included teas and other ritual foods, baths, over-the-counter/self-prescribed antibiotics purchased at a local pharmacy, and oral rehydration (prepackaged and home preparations).

Spanish-speaking clients of the Santa Cruz PROSALUD clinics were very likely to go to the health facility when home care failed. Occasionally, rural mothers chose to go directly to Santa Cruz to a public facility, not because they lacked confidence in the PROSALUD facility, but to take advantage of a multipurpose trip to the big city (health care and marketing). On the other hand, the Aymara groups served by both PROSALUD and CCH mentioned three different options—using the modern health facility, visiting a traditional healer, or, because of lack of faith or negative past experiences, avoiding both traditional and modern healers and doing nothing further. Multiple patterns of health-seeking behavior emerged within all subgroups (urban, rural, PROSALUD, CCH); even within the same community,

different women exhibited different patterns of behavior. For some mothers, home care is followed by a visit to the traditional healer, with the modern facility serving as a last resort, a place to be avoided unless absolutely necessary. Other mothers are willing to try the health post after home remedies fail. If still not satisfied, some go back to home remedies, others try a local healer, and others may seek additional care in the private or public sector in La Paz.

Discussion of Findings

The information collected during the focus group sessions confirms that mothers' perceptions of health and disease and their patterns of health services utilization vary by urban/rural residence, Aymara/mestizo ethnic group, and altiplano/llanos residence. Health beliefs, provider preferences (Western versus traditional), and previous experiences with the modern health sector influence users' perceptions of Child Survival programs. Clearly, design and delivery of maternal-child services to Spanish-speaking residents of Santa Cruz is easier than service delivery to rural Aymara populations.

The urban mestizo mothers in Santa Cruz are satisfied with the PROSALUD model. Prior to PROSALUD, they were already relying on the public sector for modern health care, at least when home remedies failed. When they compare PROSALUD's services to the public sector, they note vast improvements in quality—particularly in terms of provider-client relations, outcomes of consultations, availability of drugs, waiting time, physical appearance and cleanliness of clinics, and integrated services (specialists, laboratory, pharmacy). All of these dimensions were also mentioned by PROSALUD providers as important elements of quality. PROSALUD users and providers also feel that consultation fees and drug prices are fair. It seems clear that PROSALUD is filling a felt need for affordable, Western-style health services.

Urban Aymara users of PROSALUD services in the altiplano, on the other hand, are drastically different from their llanos counterparts. For the most part, they are recent arrivals in El Alto, having migrated from surrounding small rural communities. Their history with the "modern" health sector is briefer and largely negative, leaving them distrustful of Western-style providers. Isolated "success stories" about modern health services were shared by some mothers. These were usually one-time encounters with private sector physicians and pharmacists. On balance, however, negative experiences were far more common than positive ones. Given the very short time period that PROSALUD has been providing services in El Alto, it is difficult to assess mothers' perceptions of quality of PROSALUD services. It is clear from the focus group discussions that they know the new PROSALUD doctor and

her staff. Mothers' ratings of staff and services range from negative to fairly positive, but it is not clear that they are actually evaluating PROSALUD independent of other experiences with the modern (public) health sector. In sharp contrast to Santa Cruz mothers, in El Alto focus group participants were much less accepting of the fee-for-service concept. It is reasonable to conclude that replication of the Santa Cruz successes in El Alto will not be as easy as replication would have been in a Spanish-speaking urban community.

Like the urban Aymara in El Alto, the relationship between rural Aymara women and medical personnel is largely negative. In addition to poor provider-client relations and lack of shared beliefs about health and illness, the rural poor have limited physical and economic accessibility to modern health services. Mostly subsistence farmers, they participate less in the cash economy and feel that Western-style services and drugs are usually beyond their reach. Many rural communities do not have a health post and, when sick, residents have to travel to the nearest urban center to find a nurse or physician. Public transportation is very poor in rural Bolivia, sometimes linking villages to market centers only once per week.

Compared to PROSALUD, the CCH project operates in a much more difficult context. The target population of CCH is poorer, more disperse, and probably more traditional than either PROSALUD population. CCH efforts to improve coverage of remote areas through the provision of transportation and radios, and improved procurement of drugs and equipment, are appropriate, and could lead to some improvements in service delivery. From the user perspective, however, provider-client relations are the most important deficit in the current system. While CCH efforts to train staff about cross-cultural sensitivity are important, annual staff turnover sets the clock back at the beginning of each calendar year. Providers, who are new medical school graduates, do not have sufficient time to establish rapport with the users during their 12-month community service. Lack of civil service in the Government is a serious structural constraint to good service in the Ministry system because temporary staff simply working through a required field assignment often provide service that is qualitatively and/or quantitatively deficient.

Based on this small qualitative study, it is difficult to make blanket conclusions about the quality of Child Survival services provided by the PROSALUD and CCH projects. The statements provided below are intended as general summary comments about two of the Child Survival projects in Bolivia.

- *In Santa Cruz, the PROSALUD system demonstrates that self-financing and delivery of high-quality services are compatible goals.*

In fact, in the PROSALUD case, cost-recovery and service quality are mutually beneficial and reinforcing. High-quality services are appreciated and used by the clients, leading to good cost-recovery. On the other hand, good coverage and progress toward self-financing are recognized by PROSALUD management in the form of personnel bonuses, motivating staff to provide good services.

- *In El Alto, the PROSALUD project faces potential constraints in developing a self-financed, high-quality system because of strong cultural barriers against Western models of service delivery.*

  Although focus group participants had been exposed to the PROSALUD clinic, they tended to be critical of the services and skeptical of the providers. Further they are less accustomed to paying for services. Many of the beneficiaries' perceptions of problems are similar to those of their rural Aymara neighbors. They feel they are not well treated and that the clinic charges high fees. Failing to bridge the culture gap and promoting payment of fees are the important barriers to improving utilization and coverage.

- *The CCH clinics and providers suffer serious credibility problems from the perspective of the potential beneficiaries.*

  The public sector service delivery system suffers from understaffing, lack of pharmaceuticals and basic equipment and other supplies, accessibility problems of the rural population, and cultural and linguistic barriers. CCH project accomplishments to date include improvements in communications (radios), transportation (motorcycles), and equipment (refrigerators). From the perspective of the provider these may be considered necessary tools, but they will do little if anything to improve provider-client relations in a difficult cross-cultural setting. Longstanding distrust of Spanish-speaking, Western-style medical providers, dislike for the revolving practicante system, poor access to clinics, and cultural preferences for home births and home remedies inhibit better utilization. Staff training in cross-cultural communications and community-based educational programs could lead to important gains in health services quality from the beneficiary perspective.

- *Greater emphasis on health education could lead to significant gains in beneficiaries' understanding of the major Child Survival interventions (ORT, immunizations, prenatal care, and breastfeeding) and utilization of services.*

The intended beneficiaries of the Child Survival programs have various misconceptions of the principal Child Survival interventions that must be addressed head on if coverage/utilization rates are to improve. Ultimately, awareness and accurate understanding of health problems, services, and practices on the part of the public are essential to translating present program coverage into permanent impact on health conditions.

- *Unattended home births will remain the norm in all populations studied unless providers adopt more creative methods of bridging cultural barriers to professionally attended births. Some consideration should be given to community-based distribution of clean birth kits and/or training of lay midwives.*

Attribution of Health Effects to A.I.D.

The independent effects of A.I.D.'s Child Survival Program in Bolivia cannot be measured with precision. There are several reasons for this. First, improvement in health conditions is caused by many different factors, including improved education, improved economic conditions, migration to urban areas, and improved health care services. Determining the increment in improvement in health conditions that is the direct result of program interventions, including A.I.D.'s, is not possible because all the different causes of improvement are operating simultaneously. Second, health services in Bolivia receive resources of different kinds from many different sources, local and international. Nowhere in Bolivia is A.I.D. operating in isolation. A.I.D.-supported Child Survival interventions are, for the most part, parts of an integrated national program rather than separate, vertical services. Because results are produced as a consequence of jointly implemented activities, it is not possible to cleanly isolate "A.I.D.'s effects." Third, the A.I.D. Child Survival Program has only been operating on a large scale in Bolivia for 3 years, and there is a long lag in most health indicators. The most credible statistical indications of changes in maternal and child health normally come from the DHS, which is only undertaken once every 5 years.

Using a "triangulation" approach, however, A.I.D. effectiveness can be inferred based on converging indications from different sources. One estimate of the proportion of impact that can be attributed to A.I.D. can be made based on the proportion of the total Child Survival budget that is provided by A.I.D. Another method of estimating A.I.D.'s impact is to compare regions where A.I.D. resources are concentrated with regions not receiving A.I.D. assistance, inasmuch as some interventions

are geographically focused in Bolivia. A third source of corroborating information is the views of "key informants" on the question of A.I.D.'s contribution to overall national impact. A fourth source of information comes from focus groups of beneficiaries. Each of these techniques is discussed briefly below.

The first method for attributing impact to A.I.D.—estimating the amount of impact attributable to A.I.D. from the proportion of the primary health budget that is provided by A.I.D.—supported the notion that the A.I.D. Child Survival Program is contributing to the improvement of maternal and child health conditions in Bolivia, but it did not provide a completely defensible quantitative estimate of the magnitude of the contribution. As reported earlier, A.I.D. contributes at least one-third of the total cost of the national vaccination campaign. It also provides almost all of the ORS. It is reasonabe to conclude, then, that at least one-third of the present coverage of these services can be attributed to A.I.D. development assistance. Assuming that present trends continue, a similar proportion of future declines in the incidence of major child-killing diseases can also be attributed to A.I.D. However, because A.I.D. did not begin making major contributions on a national scale of ORT and EPI commodities until the late 1980s, A.I.D. cannot take credit for much of historical variance observed in these indicators.

The second method of attributing independent effects to A.I.D.—comparing A.I.D. regions with non-A.I.D. regions—gave inconclusive results. There are two reasons for this. First, the A.I.D. program is still too new to have produced measurable improvements in health conditions in the regions where resources of some of the CCH project components are concentrated. Second, non-A.I.D. regions get health resources from other donors, making them equivalent in many ways to the A.I.D.-supported regions.

The third method of attributing independent effects to A.I.D.—key informant estimates—produced positive results. A number of key informants, from both Government and A.I.D. staff, were asked for their estimates of how much of the current improvement in maternal and child health indicators could be attributed to A.I.D. An attempt was made to get respondents to supply an "order of magnitude" quantitative estimate. Informants were unable to provide quantitative estimates, but were all able to provide opinions that the A.I.D. contribution was "important," "substantial," "greater than anyone realized," and so forth. All 45 of the key informants interviewed reported that A.I.D. is making significant contributions to the national public health program and that the effectiveness of A.I.D.'s activities is being felt nationwide.

The fourth method of attributing independent effects to A.I.D.—focus groups of beneficiaries—was the most convincing. A decision was made, as described

Efficiency

This section presents a limited analysis of costs, unit costs, and benefits of the A.I.D. Child Survival Program in Bolivia. Because of the nature of the data that were available, it was not possible to make systematic comparisons of the relative efficiency of all the different kinds of services and delivery organizations supported by the A.I.D. program. It was, however, possible to make some comparisons between a public sector and a private sector public health facility, representative in some ways of two of A.I.D.'s different Child Survival initiatives in Bolivia. It was also possible to do some preliminary estimation of economic benefits resulting from Child Survival interventions, and to validate A.I.D.'s strategy of investing in preventive rather than curative health services. Specifically, this section covers the following topics:

- Comparison of the relative cost-effectiveness of preventive versus curative measures.
- Comparison of the services provided by a Government health facility with a private PROSALUD health facility with respect to both quality and cost of primary health care.
- Comparison of the charges for various services provided by the two facilities.
- Prospects for self-financing by PROSALUD, and comments on the trade-off between this objective and the need to undertake preventive measures and provide services for the destitute.
- A benefit-cost analysis showing, first, the direct costs and direct benefits of saving an average child's life in Bolivia; second, an expanded benefit-cost analysis which includes the indirect benefits and costs of carrying out this objective along with a sensitivity analysis.
- Discussion of the limitations of the results of the benefit-cost analysis and suggestions for expanding it to capture some of the externalities and interrelationships with other donor-financed programs.
- Description of a representative sample of significant nonmonetary benefits resulting from the A.I.D.-financed health projects.

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Cost-Effectiveness Approach

The cost-effectiveness approach takes for granted that the basic objectives of a Child Survival project are justified. Under this approach, the task is reduced to assessing whether a particular program or project is generating a service of higher quality and/or lower cost than comparable services provided through other means.

Two distinct types of cost-effectiveness analyses are presented here. The first compares the cost-effectiveness of preventive and curative measures in the case of four of the most common child diseases that are the major causes of child mortality. The second compares the quality and cost-effectiveness of providing child health care through a private health facility (PROSALUD) and a public facility run by the Government's Public Health Service.

Preventive Versus Curative Costs

The dramatic difference in costs of preventive versus curative care for diarrhea, measles, typhoid, and bronchitis is presented in Table 9. The difference between the curative and preventive costs can be interpreted as constituting a saving to society. If this assumption is made, the benefit-cost ratios of these various interventions would range from a low of 6.2 for diarrhea to a high of 105.7 for measles (see last column of Table 9).

The limitations of this analysis must be recognized. In the first place, the analysis makes the very challengeable assumption that a society will provide the necessary resources to hospitalize and treat a child whose death could otherwise have been avoided through adoption of appropriate preventive measures. This is not likely to be the case for most poor children in lesser developed countries. Second, the costs of preventing diseases such as typhoid and diarrhea include investments in potable water, sewage disposal, education, and other elements that are not easily quantified. In spite of these limitations, the analysis serves to illustrate the substantial cost-effectiveness of preventive versus curative measures and clearly supports the consensus that if a society cares to do anything about the health of its children, it must concentrate its scarce resources on preventive measures.

A Comparison of Public and Private Sector Primary Health Care Costs

Quality. Before analyzing data on the costs of providing various primary health care services, the relative quality of the services provided by the Ministry and a privately owned and managed facility by PROSALUD must be assessed. There is

Table 9. Preventive Versus Curative Costs

	Preventive		Curative		Savings	B/C
	In Bs	In US $[a]	In Bs	In US $[a]	In US $	Ratio
Diarrhea						
Consultation and oral rehydration pills	60	15.92	-	-		
Hospitalization	-	-	262	69.50		
Laboratory tests	-	-	50	13.26		
Treatment	-	-	120	31.83		
Total	60	15.92	432	114.59	98.67	6.20
Measles			-			
Vaccines, syringes, etc.	5	1.33				
Hospitalization	-	-	282	69.50		
X-rays	-	-	50	13.26		
Laboratory	-	-	73	19.36		
Treatment	-	-	150	39.80		
Total	5	1.33	555	141.92	140.59	105.71
Typhoid						
Potable water, sewerage, education	50	13.26	-	-		
Hospitalization	-	-	262	69.50		
Laboratory	-	-	130	34.48		
Treatment	-	-	100	26.53		
Total	50	13.26	492	130.51	117.12	8.84
Bronchitis						
Consultants, education, advice, etc.	60	15.92	-	-		
Hospitalization	-	-	262	69.50		
Laboratory	-	-	80	21.22		
X-rays	-	-	100	26.53		
Treatment	-	-	120	31.83		
Total	60	15.92	562	149.08	133.16	8.36

Source: Estimates by Dr. Alvaro Muñoz, executive director of A.I.D.-sponsored Community and Child Health project.

[a]Converted into US $ at the current (February 1992) exchange rate of US $1 - Bs 3.77.

ample evidence that the quality of services provided by the Ministry is low and has been deteriorating in recent years. A 1990 evaluation undertaken for USAID/Bolivia by Management Systems International (MSI) observed that

> Even with 9 out of 10...Government of Bolivia health budget bolivianos going to pay employees, salaries within the MOH remain low, and in real terms have fallen significantly throughout the 1990s. In fact, between 1984 and 1988, they fell by an average of 43 percent. This has resulted in a high rate of absenteeism and tardiness. In addition, most MOH employees now work only a six-hour rather than an eight-hour day, and there is an annual turnover rate averaging 30 percent. Clearly morale and motivation are extremely low. Although no studies have been conducted, one may infer that the quality of the care provided is likely to be low and, given the trends of the past decade, deteriorating. (p. 62)

The report went on to note that the Ministry continues to be forced to allocate an ever-growing proportion of its budget to pay higher salaries, with obvious implications for all other already poorly addressed budget categories, such as maintenance, supplies, equipment, and medicines. It concludes that "the quality of care is painfully self-evident."

On the other hand, the available evaluations of the PROSALUD system are highly complimentary. The MSI evaluation noted that

> Overall, the performance of PROSALUD in terms of quantity and quality of services provided is impressive....The PROSALUD project is the best example of sustainable primary health care ever seen by the evaluation team, and the program is close to reaching its goal of financial sustainability. In addition, the PROSALUD Management Team has succeeded in creating a PHC [public health care] system which is technically and culturally appropriate, as well as managerially sound....The demand for PROSALUD health centers is high in neighborhood health districts not yet covered by PROSALUD. This demand for the expansion of the PROSALUD system was expressed unanimously by officials from the Mayor's Office in City Hall, from the MOH and from the Caja Nacional....To quote a high official at City Hall, "every community wants a PROSALUD clinic in their neighborhood." (pp. 88-89)

An evaluation (Fiedler 1990) undertaken by the World Bank notes that

> PROSALUD has already introduced important structural changes in the health care market of Santa Cruz, and is already an important source of quality health care, providing coverage to a large and growing segment of the people of Santa Cruz....The PROSALUD experience, however, has demonstrated—at least in the particular conditions of Santa Cruz and Bolivia in the 1980's—that this is a useful model for augmenting the public health system and providing health care in a socially acceptable manner. (p. 160)

Cost Analysis. This section compares some representative service costs in a Public Health Service hospital (Virgen de Cotoca Hospital) with PROSALUD's La Madre Hospital. Both are located in Santa Cruz. The costs of certain services in the two institutions are presented in Table 10, and the amounts charged clients for some services are presented in Table 11.

Table 10. Unit Cost Comparison Between a Public Health Service Facility (Virgen de Cotoca) and a PROSALUD Hospital (La Madre) in Santa Cruz July-September 1991 (in Bolivianos)

	Virgen de Cotoca	La Madre
Prenatal Office Consultation	1.21	3.76
Vaccinations		
Polio	1.09	0.63
BCG (tuberculosis)	0.97	1.14
Measles	2.49	1.68
Tetanus	1.24	1.46
Diphtheria, pertussis, tetanus	1.50	0.95
House Calls	4.80	2.12
Office Visits		
ARI (respiratory)	7.83	4.63
Diarrheal diseases	14.43	8.03

Source: The Development Group, Inc. 1990, pp. 38-39.

Note: Average 1991 exchange rate of US $1.00 - Bs 3.56.

Table 11. Comparative Charges for Services at Virgen de Cotoca (Public Health Service) and La Madre (PROSALUD) (in Bolivianos)

	Virgen de Cotoca	La Madre
Office visits	7.00	7.00
Vaccines	2.00	2.00
IV Solution, 500 cc	5.00	8.00
IV Solution, 1,000 cc	10.00	8.00
Treatment with vaporizer, simple	3.00	3.50
Treatment with vaporizer, with doctor	5.00	3.50
Deliveries	120.00	120.00
Sutures, medium	3.00	3.00
Sutures, large	5.00	3.00

Source: The Development Group, Inc. 1990, pp. 39-40.

Although there is not a consistent pattern of differences in the costs of different interventions in Table 10, PROSALUD's costs on the average are somewhat lower, particularly for house calls and office visits. PROSALUD's costs are higher in the case of prenatal office consultations and two vaccinations. The cost study noted that "the difference in unit costs may be attributed to a higher level of efficiency in [PROSALUD's] utilization of human resources in its activities, particularly its aggressive marketing policy, which enables it to maintain a high level of care (Development Group 1990, 39). Charges for some different services are similar in the two institutions (Table 11). Because Tables 10 and 11 examine different services, it is not possible to determine the extent to which charges to clients are recovering costs. Given similarities in the fees that are charged to clients, the main difference between the two institutions from the client's perspective must reside in the quality of service provided.

The cost comparison that can be undertaken between A.I.D.-sponsored institutions and others is necessarily limited by the fact that several A.I.D. activities in the health field do not produce institutions that operate alongside Ministry facilities. For example, A.I.D. provides funding and technical assistance directly to the Ministry in several districts to enhance the quality and effectiveness of Ministry services. This includes provision of vehicles, funds for gasoline and other operating supplies, communication equipment, vaccines, and the like. A significant amount of such supplies were provided to the Community Child Health Service. A.I.D.'s projects and programs are mostly supportive and complementary to, rather than competitive with, the programs and activities of the Ministry.

Another aspect of A.I.D. activities where a cost comparison is impossible is the area of A.I.D. support for the activities of PVOs. The funding that A.I.D. provides to CARE, for example, enables that organization to move into selected communities to develop its health facilities, including training health promoters, developing potable water systems and latrines, providing health education, instructing villagers in constructing community gardens, undertaking inoculation programs, and generally attacking the causes of infant mortality.

Benefit-Cost Approach

Benefit-Cost Analysis

A benefit-cost analysis presented here considers the direct benefits (i.e., the saving accruing to society from resort to curative as opposed to preventive measures) and direct costs (the costs of the preventive measures). The analysis was undertaken in connection with the cost-effectiveness analysis. In the analysis presented in this section, an attempt is also made to estimate and integrate the indirect costs and benefits of saving an average child's life (from a low-income family) throughout his/her lifetime. Indirect costs will include public expenditures on health, education, housing, and other infrastructure, as well as the individual's personal consumption expenditures from birth through age 60. The benefits to society will consist of the individual's projected average annual earnings over his/her lifetime. Both benefits and costs will be discounted to the present at an annual rate of 8 percent, with the difference—equal to Net Present Value—representing the individual's net contribution to society.

The analysis is presented in Table 12. Column 1 estimates the costs of providing primary health care, including vaccinations and consultations, to an average low-income child through age 5. A detailed breakdown for these cost estimates is presented in Table 13.

Column 2 of Table 12 shows estimated public expenditures per capita on health, education, and housing and other infrastructure throughout his/her lifetime. These figures are taken from the executed 1991 Government budget for these items divided by the total number of inhabitants. These were projected to remain constant throughout the projection period, except for the education expenses which only need to be included during the child's school year.

Column 3 shows the individual's estimated personal consumption expenditures throughout his/her lifetime. The consumption of an adolescent (age 15-18) was

Table 12. Crude Benefit/Cost Estimate of Saving an Average Child's Life, Inclusive of Major Indirect Costs and Benefits (in US constant 1991 dollars)

(1)	(2)	(3)			(4)	(5)	(6)	(7)	
		Regular Public Expenditure[b]			Personal	Total	Total Costs	Projected Ave.	Earnings
Age of Child (Year)	Investment in Child Health[a] (Age 0-5)	Health	Education	Housing & Infrastructure	Consumption Expendit.[c]	(gross) Costs[d]	Discounted at 8% p. a.[e]	Annual Earnings[f]	Discounted at 8% p.a.[g]
1	19	-	-	-	100	119	110	-	-
2	14	-	-	-	100	114	98	-	-
3	14	-	-	-	100	114	90	-	-
4	14	-	-	-	100	114	84	-	-
5	14	-	-	-	100	114	78	-	-
6	-	12	2	1	150	184	116	-	-
7	-	12	21	1	150	184	107	-	-
8	-	12	21	1	150	184	99	50	27
9	-	12	21	1	150	184	92	50	25
10	-	12	21	1	200	234	108	100	46
11	-	12	15	1	200	234	100	100	43
12	-	12	15	1	250	278	110	200	79
13	-	12	12	1	250	275	101	300	110
14	-	12	12	1	300	325	111	400	136
15	-	12	10	1	397	420	132	500	158
16	-	12	10	1	397	420	123	550	161
17	-	12	8	1	397	418	113	650	176
18	-	12	8	1	397	418	105	750	188
19	-	12	-	1	397	420	97	795	184
20	-	12	-	1	397	420	90	795	171
21-60	-	12	-	1	397	420	1,075[h]		2,034[i]
Total							3,139		3,538

Source: 1991 Government Budget, consultations with Instituto Nacional de Estadísticas, and National Household Survey (1989).

Note: B/C ratio at 8%: $\frac{3,538}{3,139} = 1.13$

B/C ratio at 10%: $\frac{2,282}{2,318} = .984$

Internal rate of return (IRR), 9.8%

[a]For detailed breakdown of the cost of primary care for average child, see Table 13.

[b]All figures in these three columns are based on the actual (executed) Government of Bolivia budget for 1991 divided by the country's total population of 6.842 million.

[c]For an average adult (age 19 onward) the personal consumption figure was estimated at 50 percent of his/her projected annual income (shown in Col. 6). This leaves 50 percent of the income earned by each parent for the children and nonearning dependents, about 2.5 to 3.0 for an average household according to the recent Household Survey. A child's consumption is projected to rise gradually to the adult's level, starting from $100 per annum and reaching the adult's level of nearly $400 by age 15.

[d]Sum of Columns 1, 2, and 3.

[e]Figures in Column 4 discounted at 8 percent per annum. An 8 percent discount rate may seem low, but it should be remembered that (1) both benefits and costs are projected in constant dollars, (2) this is a very long-term projection involving a vital social purpose, and (3) earnings were conservatively projected on the assumption of no increase in real per capita income.

[f]Household Survey taken in 1989 shows an average income per adult for Bolivia's seven principal cities of US $1,363. It was assumed that average rural income is at two-thirds of that level. This gives a weighted average national earnings level per adult of US $1,136 per annum, and, assuming an average unemployment rate of 30 percent (20 percent for men and 40 percent for women), yields an average annual income per adult of US $1,136 x .70 = $795.

[g]Figures in Column 6 discounted at 8 percent per annum.

[h]$420 per year over 40 years.

[i]$795 per year over 40 years.

Table 13. Estimated Cost per Capita of Child Primary Health Care (in US dollars at US $1 = Bs 3.56)

	La Madre (PROSALUD)	Virgen de Cotoca (Public Health Service)	Average Total Cost
Prenatal consultations (3 in year 0)	3.17	1.02	
Checkups, 3 a year through year 5			
Year 1	2.82	5.11	
Year 2	2.82	5.11	
Year 3	2.82	5.11	
Year 4	2.82	5.11	
Year 5	2.82	5.11	
Vaccinations (polio, tuberculosis, measles, tetanus, DPT)			
Year 1	2.94	3.85	
Home visits, 2 a year			
Year 1	1.19	2.70	
Year 2	1.19	2.70	
Year 3	1.19	2.70	
Year 4	1.19	2.70	
Year 5	1.19	2.70	
Office consultations (for respiratory diseases and diarrhea), 3 per year			
Year 1	5.81	10.30	
Year 2	5.81	10.30	
Year 3	5.81	10.30	
Year 4	5.81	10.30	
Year 5	5.81	10.30	
Facilities			
Year 1	15.93	22.98	19.45
Year 2	9.82	18.11	13.97
Year 3	9.82	18.11	13.97
Year 4	9.82	18.11	13.97
Year 5	9.82	18.11	13.97

Source: Evaluation team on basis of cost data by The Development Group, Inc. 1990, pp. 38-39.

assumed to be equal to that of an adult. The per capita consumption figure was assumed to be half of an adult's earnings. Lower levels of per capita consumption were assumed from age 14 down. The Instituto Nacional de Estadísticas and the 1989 National Household Survey were consulted in making these estimates. The sum of total costs (columns 1 through 3) was entered in column 4, then discounted at an annual rate of 8 percent in column 5. The individual's average annual earnings were projected in column 6, beginning with his/her earnings as an adult, then estimating his/her earnings in earlier years. The adult's earnings were estimated on the basis of the Household Survey, with allowance made for the fact that rural incomes are lower than urban incomes (it was assumed they are equal to two-thirds of the latter), and assuming an average unemployment and underemployment rate of 30 percent throughout his/her working years. Details of the calculation are presented in footnote f to Table 12. These earnings were then discounted to 1992 at 8 percent per annum (column 7).

The analysis makes the simplifying assumption that the individual's real earnings remain constant throughout his/her life from age 19 onward. Because real per capita GDP might be expected, in fact, to increase by 1 to 2 percent per annum, this assumption is likely to understate somewhat the stream of net benefits.

These assumptions yield a Net Present Value of about $400 per child, or a benefit-cost ratio of 1.13, at the annual discount rate of 8 percent. The internal rate of return is 9.8 percent.

The selection of 8 percent as the annual discount rate may strike some analysts as being on the low side. However, it is defensible for very long-term social investment projects characterized by substantial externalities.

Sensitivity Analysis

The most important items by far in this analysis are the projected earnings of the individual from age 14 onward and his/her consumption expenditures throughout his/her lifetime. There is no basis for changing the figure on average earnings of urban workers as these data came from the National Household Survey. In fact, this income is already projected very conservatively as it was assumed to remain constant after the individual reaches the age of 19. Alternatively, an increase of 1 to 2 percent annum could have been assumed. Rural income was assumed to constitute two-third of urban income. The assumption that it might be lower than this—perhaps only 50 percent—is defensible. Repeating the analysis on that basis yielded the same benefit-cost ratio of 1.13 with an 8-percent discount rate. The benefit-cost ratio remains the same because personal consumption was projected as a function of income. As projected earnings declined, so did consumption. Because consumer

expenditures start immediately and income earnings reach their peak only after age 18, cumulative earnings were discounted by more than consumption which offset the fact that the person's consumption was projected at only half the level of earned income.

Review of the assumptions underlying the analysis suggests that they are likely to err on the conservative side. There is no basis for assuming a lower earnings figure or a higher individual consumption figure than was done in the analysis in Table 12. The benefit-cost ratio is more likely to be somewhat higher than the result obtained.

Interpretation of the Results

Although an effort has been made to make the assumptions of the benefit-cost analysis as realistic as possible, the results should be interpreted with great care. In the first place, several of the assumptions are necessarily arbitrary. Second, and more fundamentally, important externalities had to be omitted. For example, vaccination against contagious diseases has a positive impact not only on the vaccinated individuals but on others who might have been contaminated. The same can be said of consultations resulting in the dispensation of medicines and advice which forestalls the spread of contagious diseases.

The benefit-cost analysis could be substantially improved if the evaluation were made more inclusive. In particular, there is an obvious synergetic effect among programs dealing with health, nutrition, education, family planning, and rural development. The benefits that would be derived from the simultaneous evaluation of these programs is much greater than the sum of the benefits from each program carried out independently of the others. Thus, the benefits to be derived from a Child Survival Program are obviously much greater if this program is undertaken simultaneously with nutrition and education programs which are certain to have a very positive effect on the child's productivity throughout his/her later life. Rural development will be promoted through improved nutrition and education. All three activities should be expected to enhance the worker's productivity throughout his/her lifetime. Family planning would permit a much more rapid increase in per capita expenditures on education and health inasmuch as a larger proportion of any increase in GDP could be spent on improving education and health facilities instead of being used to support a rapidly growing child population. Thus, there is a strong presumption that a significant proportion of the potential social benefits from a Child Survival Program were simply not captured in this analysis owing to failure to undertake the simultaneous assessment of the benefits that would be derived from the closely related programs described above.

In view of the fact that the benefit calculation provided here could be controversial (and most likely understates the actual benefits produced), it is important to list some specific nonmonetary indicators of accomplishment of the A.I.D.-financed health programs. For example, 70,000 oral rehydration packets were delivered through September 30, 1991, under A.I.D.'s CCH program, the number of infants immunized was 340,000, and 670,000 women were immunized with TT 2.

PROSALUD's general consultations (curative care) for diarrheal diseases, ARI, and tuberculosis increased from 16,646 in 1987 to more than 35,000 in 1989; PROSALUD's total preventive activities increased from about 17,000 to more than 38,000 during this period, and its total curative activities from 19,818 to 41,376. A detailed breakdown of these accomplishments is presented in Table 14.

Table 14. Changing Level and Mix of PROSALUD Service Provision, 1987-1989

Service	1987	1988	1989[a]
Curative Care			
General consultations	16,646	27,347	35,024
Diarrheal disease	1,309	1,496	1,797
Acute respiratory infection	1,649	2,687	4,344
Tuberculosis Tx	214	242	211
Curative care activities	19,818	31,772	41,376
Preventive care			
Prenatal care	1,708	2,928	4,416
Births	344	763	1,506
Perinatal visits	262	740	1,914
Well-child visits	2,560	2,682	4,365
Vaccinations	10,546	11,396	20,614
House calls	1,757	1,481	2,318
Preventive activities	17,177	20,580	38,280
Total activities	36,995	52,352	79,656
Preventive as percent of total	46.4	39.3	48.1

Source: Fiedler 1990, p. 176.

[a]1989 quarter 4 data is extrapolated from 1989 quarters 1-3. It is the average of the first three quarters.
Note: For ease of exposition the 16 basic services referred to in the text have been collapsed into the 10 categories listed above.

Summary and Conclusions

Two cost-effectiveness analyses based on other prior studies were reviewed here: the first to gauge the effectiveness of preventive versus curative measures, the second to assess the comparative quality and costs of representative services provided through the Ministry and a private entity under PROSALUD. The first of these came to the predictable conclusion that the cost-effectiveness of preventive measures was considerably greater (by 6 to 105 times) than that of curative measures. However, this analysis was based on the highly dubious assumption that society would be willing and able to find the resources to make up through curative measures what it failed to accomplish through preventive ones. A second cost-effectiveness analysis showed that PROSALUD's La Madre Hospital in Santa Cruz was more efficient than the Virgen de Cotoca facility to which it was compared, in cost as well as quality, particularly the latter. As a result, PROSALUD has expanded dramatically its clinics and other facilities, and is certain to continue to do so.

The Public Health Service is in serious financial difficulty and it has also been compelled to rely increasingly on user fees. Even so, the quality of its services was poor and has been progressively deteriorating, mostly as a result of severe budgetary constraints, resulting in a substantial decline in the real value of salaries paid to its staff and the unavailability of funds for medicines, maintenance, and other essential supplies.

While financial sustainability is a most desirable objective for a private health institution such as PROSALUD, it cannot be the sole or even the main guideline for a public health service. There is an inevitable trade-off between financial sustainability and the need to undertake preventive measures, on which the Ministry has been consistently advised to concentrate. The Public Health Service must also provide adequate services to the very poor who, in a country like Bolivia, may constitute half or more of the total population.

The benefit-cost analysis undertaken here has attempted to include all major benefits and costs, including indirect costs, such as the personal consumption of the individual (whose life was saved as a child) throughout his/her lifetime. The analysis resulted in a fairly modest internal rate of return of just under 10 percent, a rate that is acceptable but not particularly high. It should be noted that this result is not useful for the purpose of deciding the level of resources that is to be assigned to health versus other sectors. The principal reasons for this conclusion include the fact that the analysis does not capture externalities that are bound to be significant in a project of this type. Even more important, it is recommended that the analysis of a Child Survival project not be undertaken in isolation but jointly with an analysis of the benefits and costs of closely interrelated and reinforcing projects such as those in the

areas of nutrition, education, rural development, and family planning, as there are bound to be very significant synergetic effects among these programs that would not be captured if each were evaluated independently. Finally, it should be remembered that saving the lives of children and improving the quality of life of families is an objective in itself. Although it is important that human lives are a means of production, they also have a more fundamental value that makes them worth saving and improving regardless of costs and economic returns.

Sustainability

The A.I.D. Child Survival Program in Bolivia has identified development of sustainable services as one of its major long-term objectives.

In one sense, some of the benefits of Child Survival services are naturally sustained. A life saved from dehydrating diarrhea, a permanent immunity acquired through vaccination, and prevention of conditions such as brain damage and blindness are permanent impacts that are sustained by the beneficiary for the rest of his/her life. Program sustainability, however, is another matter. Dependence on external donors for fundamental life-or-death services to citizens is a precarious position for any government to be in. A.I.D. priorities can change quickly and unpredictably, and the improvements in the coverage, quality, and impact of Child Survival services that are being achieved with A.I.D. assistance could be lost in the future unless there is a realistic strategy to permanently institutionalize services and to provide for their continuing financial support.

Long-term sustainability of services is a major concern of many of the players involved in the Bolivia Child Survival scene. Three different dimensions of sustainability were discussed by the CDIE assessment team with key informants in the Bolivian health sector. The first dimension of sustainability is whether there is adequate institutional capability to continue operating and providing services after project support ends. The second dimension of sustainability is the ability to get along without A.I.D. funding, often simply by depending more heavily on other donors. The third dimension of sustainability examined by the CDIE team is the ability to be completely self-financing, independent of outside subsidies from any source.

The A.I.D. Child Survival Program in Bolivia is working on all three dimensions of sustainability through its different projects. This section will examine the three major A.I.D. Child Survival initiatives in Bolivia in terms of their efforts to achieve long-term sustainability. In addition to a general discussion of each A.I.D. initiative's sustainability strategy, a sustainability score was given to each. This score is derived from a scale developed in a CDIE document titled "Factors Influencing the Sustainability of U.S. Foreign Assistance Programs in Health, 1942-1989: A Six Country Synthesis" (Godiksen 1990). This scale is reproduced and the rating technique discussed in Appendix A, "Methodology."

PROSALUD

The two A.I.D. projects that established PROSALUD are both called "Self-Financing Primary Health Care." The name reveals the fundamental concern of the A.I.D. program in Bolivia with finding ways to make health services financially sustainable.

PROSALUD's objective is to function without outside financial support, recovering its costs from the sale of health services and products. In the health sector, recovering costs by charging fees for health services delivered to low-income families is often considered impossible. Charging fees that are high enough to cover the costs of services appears to discriminate against the very poor, who live on the edge of subsistence and often have no money on hand to pay for services or goods of any kind.

This conventional wisdom, however, seems to be belied by the PROSALUD experience in Bolivia. PROSALUD already has a growing system of health facilities in operation that are self-financing through the fees charged for its health services. Clients are predominantly low-income families. Services include free preventive health care and Child Survival interventions. Curative services are provided free of charge to families that cannot pay (between 8 percent and 13 percent of PROSALUD's patients). A number of detailed studies of PROSALUD's finances are available. However, the important conclusion is that PROSALUD, a product of A.I.D.'s Child Survival Program, has conclusively demonstrated the feasibility of self-financing primary health care services, even in a country as poor as Bolivia.

A number of practices have evolved that have enabled PROSALUD to become self-financing. One is payment arrangements, like the "deferred payment plan" (see earlier discussion of the A.I.D. Child Survival Program in Bolivia), that make payment by clients easy and convenient. A second practice that contributes to self-sustainability is working through contracts with the Government health system and with local governments. A third practice that supports sustainability is having a system of cross-subsidies in which certain markets (urban and working class communities, for example) and certain services (births and curative services) generate a financial surplus that can be used to subsidize other markets (rural and very poor communities) and services (preventive services) that are not self-financing. A fourth factor is careful selection of markets so that the overall system will not lose money. A fifth factor is an employee incentive system that rewards PROSALUD employees for going into communities and actively encouraging both new and established

clients to make use of its services. A sixth practice that supports permanent sustainability is control of costs by keeping salaries and overhead costs as low as possible.

Table 15. PROSALUD Clinics' Progress Toward Self-Financing (excluding the MSU costs)

Health Centers	Est. Date	1988				1989		
		Q1 %	Q2 %	Q3 %	Q4 %	Q1 %	Q2 %	Q3 %
Urban								
Villa Pillin	3/86	82	63	74	90	94	100	108
El Carmen	7/87	90	89	125	137	134	130	183
La Morita	10/87	95	82	99	87	97	95	104
La Madre	5/88		77	83	99	108	103	95
Los Lotes	11/88				39	53	52	66
Foianini	7/89							40
La Cuchilla	7/89							53
Las Pampitas	7/89							57
Ismael Suarez	—							
Heroes del Choco	—							
Urban Average[a]		89	78	97	99	104	102	88
Rural								
El Pailon	3/86	50	41	48	54	47	55	53
Montero Hoyos	6/86	50	53	40	42	59	61	47
Cotoca	6/86	57	56	54	57	86	97	101
Los Tujilios	10/86	30	36	43	48	73	67	92
Puerto Pailas	10/86	89	82	91	79	77	79	84
Rural Average[a]		61	53	56	58	68	76	78
Overall Average[a]		85	81	91	92	95	96	87

Source: World Bank 1990, Exhibit III, p. 9.

[a]Averages are weighted by clinic size. Quarter 3, 1989 weighted urban clinic average excluding the three clinics opened that quarter was 107 percent; the overall weighted average was 101 percent.

The PROSALUD system has already achieved, or is very close to achieving, full self-financing. Table 15 shows that PROSALUD's first health centers in its urban coverage area had already achieved full self-financing by 1989. In PROSALUD's rural coverage area, services were 70 to 80 percent self-financing. Overall,

PROSALUD facilities were around 95 percent self-financing in 1989. Further progress has been made since then. Public demand for the expansion of PROSALUD coverage suggests that PROSALUD will be able to continue to recover its costs and perhaps generate a surplus that can be used to support expansion of its facilities to additional rural areas.

PROSALUD has demonstrated that fee-for-service sustainability is feasible. However, the real sustainability issue at this point in the evolution of the PROSALUD model is the extent to which the model is replicable. PROSALUD has become self-financing by finding a market "niche" in which it can recover its costs. This market niche is sometimes described as the "working poor," people who cannot afford costly commercial medical services but who can afford PROSALUD's economical services. So far, PROSALUD has been able to generate enough of a surplus to be able to accommodate a number of very poor clients free of charge. Everyone agrees, however, that this approach has its limits and is not the entire solution to providing services to the millions of Bolivians who survive from subsistence agriculture in thousands of tiny, remote villages. The intent of A.I.D.'s follow-on Self-Financing Primary Health Care project is to test the extent to which the PROSALUD approach to recovering costs can be successfully extended into lower socioeconomic strata.

Ministry of Health

Normally, working toward sustainability in public sector Child Survival programs involves two kinds of activities: (1) strengthening Ministry of Health institutional units so that they can function by themselves without outside advisers and contractors and (2) implementing policy dialog to persuade the Government to provide enough budget resources so that Child Survival services can continue in the future without depending on outside donor funding.

In Bolivia, A.I.D. is engaged in the institution-building approach through the CCH project, strengthening the Ministry's administrative, technical, and logistical capabilities at the local district level so that it will be able to run its own services in the future. Success with this approach is a necessary, but not sufficient, condition for permanent sustainability of Child Survival services. There has been some controversy concerning A.I.D.'s institutional-strengthening activities in Bolivia because progress has been slow and resources are drawn away from the more politically attractive, quick-impact Child Survival interventions like vaccination campaigns. Although a tension exists between proponents of quick-impact, direct Child Sur-

vival services and people favoring long-term institution building, there seems to be consensus that the two kinds of work actually reinforce each other. Dramatic, high-impact health services build popular and political support for Ministry and A.I.D. programs. This political support and positive public image of the program make it possible to simultaneously plod along with institutional-strengthening activities without being criticized for moving too slowly or not accomplishing anything.

On the financial side, the Government of Bolivia and the Ministry of Health have succeeded in obtaining increasing budgetary resources for primary health care, improving the prospects for eventual local sustainability of services presently supported by A.I.D. An additional favorable factor is that the Government has begun to collect fees for its health services. This practice, unusual among Latin American governments, has become an increasingly important source of financial support for local public health services. With regard to the financing of the public health sector as a whole, the proportion provided by user fees between 1984 and 1986 increased from only 5.6 percent to 30.2 percent. Subsequently, it declined somewhat to 22.1 percent in 1988 (see section on Efficiency and Table 16). Data for 1990-1992 are not comparable but show a slight decline in the share of operating income (mostly user fees) to total revenues.

Table 16. Recent Evolution of Health Sector Financing in Bolivia (percent)

Sources	1984	1985	1986	1987	1988
Government resources	92.2	62.2	48.8	60.2	50.1
Own resources (user fees and other cost recovery)	5.6	17.2	30.2	25.4	22.1
External aid	2.2	20.6	21.1	14.4	27.8

Source: MPSSP-Banco Mundial 1988.

In the CCH project area, officials of the Departmental *Unidad Sanitaria* reported that income earned from fees was providing one-third of the overall public health budget. However, the charging of fees began spontaneously and has never been well planned or institutionalized. Fees are charged, or not charged, haphazardly in local health facilities. There is no accounting system to manage the money taken in from fees, and, as a result, the amount taken in from fees is unknown. Furthermore, there is no mechanism for managing the utilization of the income generated

from fees. Most of the money is reportedly used to top off low Ministry salaries. Some Ministry people report that up to half of the money simply disappears.

On the negative side, Bolivian health services are becoming increasingly dependent on outside donor assistance. As discussed in "the Health Sector In Bolivia," the health sector in Bolivia has received heavy financial support from external donors. Many donors have been willing to fund operating costs, causing the Ministry to expand its staff substantially with temporary contracted staff. Some agree to "top off" salaries. The Inter-American Development Bank has initiated a study of the degree of dependence on external donors in the health sector and its consequences. On the whole, the prospects for long-term local sustainability of Child Survival services in Bolivia are diminished by the current dependence on external donors. However the effects of this dependence are mitigated by the Government's efforts to increase its own budgetary resources going to health and by its efforts to generate income by charging fees. Furthermore, the highly diversified group of bilateral and multilateral donors working in Bolivia means that the abrupt departure of any one donor from the scene would not have disastrous consequences for the ongoing delivery of most essential Child Survival services.

It is important to emphasize that A.I.D.'s Child Survival Program in Bolivia, in contrast to some other donors, concentrates on developing sustainable services. The A.I.D. program also consciously tries not to get into activities that would create a permanent dependency on A.I.D., such as paying Ministry field staff salaries.

Although financial sustainability and self-financing are obviously very worthwhile objectives for privately owned and managed institutions, this is not the case for the public health system as a whole, at least not for a developing country. The revenue-producing services are mostly in the curative area, but preventive measures generally must be provided free of charge. Yet donors urge the Government to concentrate on preventive services because of their high cost-effectiveness. The Public Health Service also needs to provide a safety net of curative services for the very poor, who generally are in no position to pay anything. While this segment of the population is a relatively small minority in the developed countries, their numbers are estimated to exceed 50 percent in a poor country such as Bolivia. For these reasons, a public health service must secure most of its resources from the general treasury or from external assistance, as in the case of Bolivia. Although it is to be hoped that user fees will constitute an increasing proportion of total revenues as external aid diminishes, there is an irreducible hard core of resources, most likely a major share, that must be obtained from other sources.

PROCOSI

The A.I.D. Child Survival PVO Network project (PROCOSI) is developing an entirely different approach to achieving sustainability—an endowment created from the proceeds of a debt-for-development swap. PVOs present a different set of considerations with regard to sustainability than do Government programs or the PROSALUD model. By their nature, most PVOs are created to provide charitable, humanitarian services to people who cannot get them any other way. They are an expression of generosity on the part of the people who make contributions to them. For the most part, therefore, charging fees would not be consistent with their approach to helping people. Sustainability for PVOs normally just means not spending more than they take in from charitable donations. A disadvantage of this approach is that considerable time and money are required for constant fundraising.

Endowments, widely used in the United States to provide permanent income for nonprofit institutions, appear to offer an almost ideal source of income for private development-oriented services and organizations in developing countries. Unlike grants, endowments never run out. The income they generate is reasonably steady and predictable, enabling the institution to do serious long-term planning and budgeting. PVOs with endowments do not get locked into stressful permanent dependency relationships with specific donors. If dollar endowments can be created, then endowments have the additional advantages of protecting the recipient NGO against local currency inflation and devaluation, generating dollar income for purchase of imported commodities and keeping the A.I.D. grant funds in the United States. Establishment of endowments is widely regarded in A.I.D. as difficult or impossible, but the Bolivia case shows that the obstacles are not as great as generally believed.

PROCOSI, the Child Survival-oriented network of PVOs, created by A.I.D. in Bolivia, would almost certainly become a permanent A.I.D. dependent were it not for the plan to create an endowment. The complicated arrangements required to create the endowment are described in this section in some detail because they may be a model that could help achieve sustainability in other A.I.D. projects in other countries. The description that follows is condensed from a document called "Feasibility Report: The Use of Debt-for-Development to Finance the PROCOSI II Project" (Debt-for-Development Foundation 1990).

A.I.D.'s new PROCOSI II Project contains $5 million in its budget for a debt conversion arrangement. It is planned that the local currency received from the debt conversion will be invested in local interest-bearing instruments, generating income

that could ensure PROCOSI's financial sustainability on a permanent basis. A series of complex studies and negotiations between A.I.D., the Bolivian Central Bank, and PROCOSI, with technical assistance provided by the U.S. Debt-for-Development Foundation (DDF), has resulted in understandings and procedural agreements that cleared the way for the creation of a PROCOSI local currency endowment.

PROCOSI's first step in the proposed debt conversion was to obtain the Central Bank's approval to complete a debt conversion, with the local currency proceeds devoted to the support of its program of services. PROCOSI can then seek to purchase Bolivian debt on the secondary market at 11 percent (US $0.11) per dollar of face value. The actual purchase of the debt occurs only after A.I.D. indicates its concurrence with the terms of the transaction. Under Bolivia's debt conversion program, the Central Bank of Bolivia will convert that debt first into collateralized, 25-year, zero coupon bonds (Bolivian Series A Investment Bonds), and will then redeem the Investment Bonds in local currency for 16.5 percent of their face value. Assuming that the debt was obtained for 11 percent of its face value, the transaction will yield 50 percent more local currency to PROCOSI than would have been generated by a normal exchange transaction. This benefit will be lower if PROCOSI must pay more than $0.11 per dollar of debt.

Under new Government regulations, all of the debt conversion's proceeds can be disbursed to PROCOSI immediately, instead of disbursing gradually throughout the life of the project. As a result of this important change, PROCOSI will be able to hold the conversion proceeds in interest-bearing local currency denominated (but dollar-linked) accounts. The interest rate currently paid on such accounts is 10-14 percent, significantly more than the current or expected rate of inflation of the dollar and more than can be obtained on term deposits in the U.S. or Eurodollar markets. PROCOSI will thus be able not only to maintain the real value of these assets but also to increase them. As PROCOSI will enjoy both an initial conversion benefit and a positive return on investment in financial instruments, the total return from the debt conversion should exceed 50 percent.

PROCOSI can utilize these resources in a variety of ways. If PROCOSI uses $5 million for the debt conversion and is able to purchase debt at 11 percent of its face value, it would receive $7.5 million in local currency proceeds. Invested at 12 percent (assumes that the current rate will decline by several points), these resources will generate the local currency equivalent of $900,000 annually (in current dollars). Used judiciously, the proceeds of the debt conversion would permit PROCOSI to modestly expand its current program and to sustain that program well beyond the 5-year life of the A.I.D. project.

Aside from the direct financial benefits of the debt conversion, PROCOSI will also realize important secondary benefits as a result of its being able to receive and invest much of its funding immediately rather than over the life of the project. Because it will be able to invest those resources in interest-bearing financial instruments, it receives the full value instead of the value depreciated by inflation (the "discounted value") of the funds that A.I.D. makes available for the debt conversion. This benefit results from A.I.D.'s willingness to advance funds for the purchase of debt and from the recent decision by the Government to permit PROCOSI to receive all of the proceeds of the debt conversion immediately.

The direct benefits from the debt conversion and the benefits from being able to invest the proceeds of the conversion are expected to generate a significant increase in the resources available to PROCOSI. Those resources will permit higher expenditures during the A.I.D. project period, the creation of an income-generating savings account to sustain project activities after the A.I.D. project period, or some combination of these two objectives.

A.I.D.'s Office of the General Counsel has informed DDF that NGOs using A.I.D. financing for debt conversions are prohibited from reconverting local currency proceeds into dollars. A.I.D. does not prohibit NGOs from maintaining local currency accounts in the Central Bank or commercial banks which are denominated in dollars for accounting purposes and maintenance of value.

DDF believes that it may be possible, through careful planning and financial management, to generate sufficient interest to avoid expending any of the debt conversion proceeds. Thus, PROCOSI hopes to permanently maintain the endowment at the full value of the debt conversion.

Impact

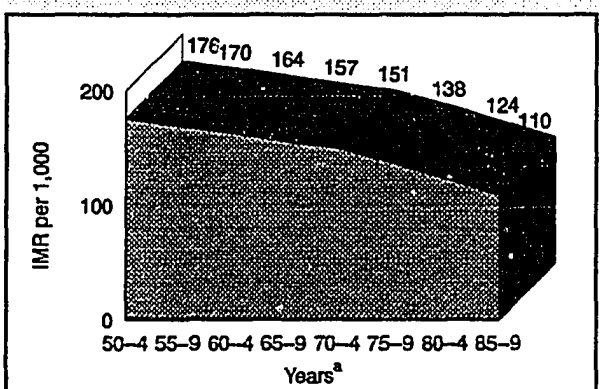
Impact on Infant Mortality Rate

The single best indicator for measuring the long-term, permanent impact of child survival activities is the infant mortality rate (IMR). The decline of the IMR in the last 15 years is a clear indication that Child Survival programs and services in Bolivia have had a significant impact. Unfortunately the data available do not permit quantitative measurement of the direct impact of Child Survival Program activities (compared with the impact of other influences such as education and migration to cities) on Bolivia's changing IMR.

For many years, Bolivia had the highest IMR in Latin America. Estimates for the period 1980 to 1985 placed Bolivia's IMR at 124 per 1,000 births. In other words, for every 1,000 live births in a year, 124 of the newborns died before their first birthday. The second highest IMR was in Haiti with 108. Peru's IMR was 82, Argentina's was 43, and Cuba's was only 20 infant deaths per 1,000 live births.

The current IMR in Bolivia is similar to those found in many industrialized countries about 100 years ago. Beginning in 1950, the country experienced a significant decline in IMR. The decline has accelerated over the last 20 years. From 176 for the period 1950-1954, the IMR fell to 110 for the period 1985-1990 (Figure 19). More recent estimates (based on the National Population and Housing Survey of 1988 and the DHS of 1989) put the IMR in Bolivia at about 90 per 1,000 births.

Figure 19. Infant Mortality Rates in Bolivia, 1950-1990



Source: Wolowyna and Pinto 1990.

[a]Years refers to 5-year intervals beginning from 1950.

Besides the two surveys mentioned above, there have been three other nationally representative data sources for estimating national and subnational IMRs: the National Demographic Survey of 1975, the 1976 census, and the National Demographic Survey of 1980. A careful analysis of all these data sources has provided solid evidence that Bolivia has experienced a significant decline in infant and child

mortality in the last 20 years. According to these sources, the IMR for Bolivia declined from 151 in 1974 to 102 in 1986, a reduction of 32.5 percent (Figure 3).

These national averages obscure some important subnational variations. Figure 3 illustrates significant IMR differences between urban and rural areas. In 1974 the IMR in rural areas was 169, compared with 120 in urban areas. However, the reduction of IMR in the last 15 years has not been limited to urban areas. Between 1974 and 1986, urban IMR declined from 120 to 83 (a reduction of 31 percent), and in rural areas IMR declined from 169 to 120 (a reduction of 29 percent). Although the reduction of IMRs in urban and rural areas is of the same order of magnitude, the more recent level of IMR in rural areas, 120 per 1,000 births, is equal to the urban value 12 years previously. There is considerable regional variation in IMR values in Bolivia. The Department of Santa Cruz had an IMR of 78, while the IMR for the Department of Potosi was about twice as high.

For discussion purposes, it is informative to make three different hypothetical projections in order to get an idea of the potential impact of Child Survival activities on infant and child deaths in the future. It is important to note that these calculations are illustrative, and are based on arbitrary assumptions.

The first projection ("constant") assumes the IMR remains constant at the 1987 value of 98 per 1,000 births. The second projection ("current") assumes that the IMR will continue to improve at the same pace at which it has been improving over the past 20 years. In the second projection, IMR declines gradually from a value of 102 in 1985 to 76 in 2000. In the third projection ("accelerated"), there is a more rapid decline of the IMR starting in 1992, reaching a value of 55 in the year 2000. The three IMR trends are presented in Table 17.

Although the three projections are specified in terms of IMR trends, their impact will be measured in terms of "child deaths (under 5 years of age) averted." For each value of IMR, there is a respective child mortality rate. For example, in 1987, the IMR was 98 deaths per 1,000 births, and the associated child mortality rate was 142 deaths per 1,000 births. These rates are applied to the projected number of births in order to estimate the number of deaths in children under 5 years of age.

The first projection ("constant") provides a baseline against which to compare impacts of the other two projections. The first projection produces more child deaths than does the second, and the difference between the two increases with time (Table 17). The sum of these differences for the 1985-2000 period results in a total of 72,228 child deaths averted over the 5-year period due to continuing steady improvement in the IMR, compared with a situation where the IMR remains constant at its present level and does not improve (Figure 20). If it is assumed arbitrarily that all direct Child Survival Program activities account for 40 percent of the child deaths

averted during this period, then 28,903 child deaths averted between 1985 and 2000 could be attributed to Child Survival Program activities. This projection presumes that progress in improving the coverage and quality of health services continues at its present pace.

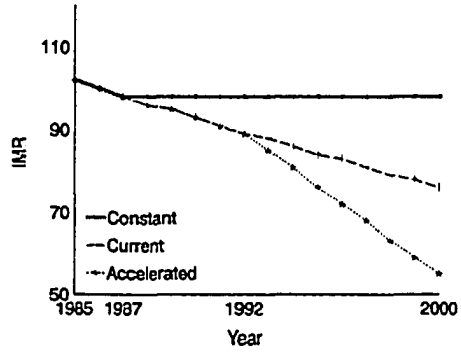
Table 17. Three Trends in Infant Mortality Rate, per 1,000 Live Births

Year	Constant	Current	Accelerated
1985	102	102	102
1986	100	100	100
1987	98	98	98
1988	98	96	96
1989	98	95	95
1990	98	93	93
1991	98	91	91
1992	98	98	89
1993	98	88	85
1994	98	86	81
1995	98	84	76
1996	98	83	72
1997	98	81	68
1998	98	79	63
1999	98	78	59
2000	98	76	55

Source: Evaluation team projections.

However, more rapid progress is possible. It was pointed out in the discussion of the Bolivia health sector that almost half of deaths in the first month of life are due to birth-related problems and that, excluding neonatal deaths (in the first month of life), 48 percent of deaths under 5 years of age are caused by diarrheal diseases. These are areas in which the Bolivian national Child Sur-

Figure 20. Three Trends in Infant Mortality Rates



Source: Evaluation team projections

vival Program could quickly improve its performance and achieve even greater impact on IMR. Greater emphasis on prenatal care, "clean" home delivery, ORT, and educational activities concerning exclusive breastfeeding could result in more rapid reductions in infant and child mortality. Reflecting this possibility, the third projection ("accelerated") is based on an optimistic target of 55 infant deaths per 1,000 births by the year 2000, exceeding the value of 76 infant deaths per 1,000 births which would result if improvement simply continues at its present pace. The yearly number of child deaths that result and the difference between this projection and the others, is presented in Table 18. The total number of additional child deaths averted (compared with the "constant" rate of improvement) is 37,771 between 1992 and 2000 (Figure 20) under the "accelerated" scenario. In this case, it would be reasonable to assume that the majority of the additional deaths averted would be attributed to Child Survival Program interventions.

Table 18. Number of Deaths of Children Under 5 Years of Age, According to Three Trends

Year	Constant	Current	Accelerated
1985	33,798	33,798	33,798
1986	33,155	33,155	33,155
1987	32,522	32,522	32,522
1988	32,696	31,913	31,915
1989	32,889	31,316	31,319
1990	33,131	30,758	30,763
1991	33,429	30,241	30,247
1992	33,738	29,723	29,731
1993	34,050	29,243	28,194
1994	34,291	28,691	26,572
1995	34,518	28,118	24,915
1996	34,746	27,536	23,235
1997	34,901	26,890	21,487
1998	35,065	26,334	20,013
1999	35,161	25,723	18,487
2000	35,187	25,058	16,915

Source: Evaluation team projections.

Thus, for the period 1985-2000, child deaths averted due to Child Survival Program activities from all sources could total as many as 66,674. It is difficult to estimate the proportion from this total that can be attributed to A.I.D. Some A.I.D.

activities make a partial contribution to integrated services that receive support from multiple sources. Other interventions are limited geographically, making it difficult to factor out their contribution to national indicators. The impact on IMR resulting from the A.I.D. policy reform effort in the area of reproductive health is also difficult to estimate. Thus, as in the case of estimating the increment of "effect" attributable to A.I.D., it can be concluded that A.I.D. is making a significant contribution to the overall improvement. However, the quantitative magnitude of A.I.D.'s contribution to IMR improvement—impact—cannot be measured with precision. A.I.D.'s contribution to the historical improvement that is reported is minimal because of its late entry into the program as a major donor. However, A.I.D.'s contribution to "impact"—reductions in infant mortality—in the future is likely to be very substantial and to increase if some of the adjustments in programming discussed above are made.

Impact on Morbidity

The increases in vaccination coverage achieved by the national immunization program over the last 15 years (see "Effectiveness") have had a powerful impact on the incidence of vaccine-preventable childhood diseases. To a large extent, the reductions in the infant mortality rate seen above are attributable to progress in reducing these diseases. Table 19 shows the incidence of polio, measles, and whooping cough that was reported between 1976 and 1986.

Table 19 shows progress that was made in reducing the incidence of vaccine-preventable childhood diseases prior to A.I.D.'s initiation of support for the Expanded Program of Immunization in Bolivia. Since then, immunization coverage has continued to grow rapidly. It is likely that within the next few years, the vaccine-preventable childhood diseases will no longer be regarded as significant causes of infant and child mortality.

These encouraging trends have two important program implications. First, although much of the population has been vaccinated and the incidence of these childhood infections has been reduced, the national vaccination program will need to find a sustainable maintenance level of operations so that this impact is not lost. Progress can lead to complacency and backsliding, opening the door to new epidemics. Second, as the incidence of these diseases approaches negligible levels in the mid-1990s, further progress in reducing IMR will require that Child Survival resources be shifted to treating different health conditions. Diarrhea, birthing practices, and breastfeeding are three obvious "targets of opportunity" that the Bolivian

program, with A.I.D. support, can take on more aggressively. This shift in activities could be expected to produce the "accelerated impact" discussed above and would represent a major new accomplishment for the A.I.D. Child Survival Program in Bolivia.

Table 19. National Prevalence Rates of Three Vaccine-Preventable Childhood Diseases, 1976-1986 (number of cases per 100,000 people per year)

Year	Polio	Measles	Whooping Cough
1975	4.4	45.9	62.9
1976	1.0	128.0	43.7
1977	2.6	159.1	84.9
1978	0.2	63.6	49.4
1979	7.9	107.0	45.3
1980	0.8	63.8	46.6
1981	0.2	109.8	68.9
1982	0.2	12.3	23.6
1983	0.1	33.7	24.0
1984	-	20.5	22.5
1985	-	3.4	15.1
1986	0.1	5.3	8.2

Source: Ministry of Health, National Office of Epidemiology 1987.

Relevance

"Relevance" refers to the appropriateness of A.I.D.-financed interventions, given the needs of the beneficiary population. In the Bolivian Child Survival panorama, the relevance of a single donor's contribution should not really be analyzed in isolation. Because of the magnitude of external support received from many different donors by the health sector in Bolivia, the relevance criterion should be applied to the national program as a whole rather than to a particular contributor's part. Because many donors prefer to subsidize the direct delivery of health services, A.I.D. can support different kinds of activities that are complementary to what other donors are doing, resulting in a relevant package of activities and services.

To identify needs and to address them with responsive interventions, A.I.D. undertook a series of diagnostic and design steps prior to initiating its Child Survival Program. A national DHS was performed, and, based on the results, an A.I.D. Child Survival strategy was developed. The intent of the strategy was to find the best possible match between A.I.D.'s resources, other available resources, and the needs and circumstances of Bolivian children and mothers.

To be relevant in health terms, a Child Survival Program should allocate its resources in proportion to the seriousness of different health problems that affect infants and mothers. By this criterion, Child Survival programs overall can be said to be highly relevant because they concentrate their efforts and resources on preventive rather than curative services, directly attacking the diseases that are demonstrably the principal killers of infants and children.

However, within Child Survival programs, including the A.I.D. Child Survival Program in Bolivia, there is considerable controversy about the mix of interventions that should be supported and the priority that should be given to each. At first glance, the correlation between the size of different project components and the seriousness of different specific health conditions is not strong in the A.I.D. Child Survival Program in Bolivia. Diarrhea, by far the number one killer of infants and children, receives a relatively small proportion of total program resources. ARI, the second cause of infant deaths, also receives relatively little attention. Vaccine-preventable diseases such as polio and measles, on the other hand, are less important from a health standpoint yet receive more attention and resources. Inappropriate practices associated with childbirth and breastfeeding appear to contribute to many deaths, yet receive relatively little attention from the program. Water and sanitation activities, which address a fundamental cause of mortality, receive program support but not on

a large enough scale to have significant impact. Nutrition, a contributing cause to most infant deaths, is also not addressed on a significant scale by the A.I.D. program.

As the A.I.D. program gains experience in Bolivia, it is shifting resources to make its interventions more relevant to existing health conditions. For example, funding is being reprogrammed to provide more support for control of diarrheal diseases. A new breastfeeding activity is going to be developed. A new project in the area of reproductive health will address problems associated with high-risk births.

To further analyze the issue of program relevance, two other areas have to be considered within the mix of problems that are addressed by A.I.D.'s Child Survival Program—health administration and health care financing. Although not strictly health problems in the sense of being childhood diseases, health administration and health finance are considered by A.I.D. to be the major constraints to delivery of the services that will save children. The A.I.D. program has made a strategic decision to concentrate more of its resources on these institutional areas rather than on the treatment of specific diseases. What makes it possible for A.I.D. to take on this area is the fact that many other donors prefer to directly support the delivery of specific health services. Health administration and health care financing, then, are critical areas into which A.I.D. has been able to insert itself as the key donor, complementing the work of other donors and making the overall national program more complete. The wisdom of this decision is difficult to judge at this early point in the evolution of the program. If the strategy works, it is in the best interest of the children and mothers of Bolivia in the long run because it will create a permanent institutional capacity to deliver and finance Child Survival services, transcending the presence of the A.I.D. program in Bolivia.

A.I.D.'s strategic choice to make its program primarily relevant to the long-term institutional needs of the health sector in Bolivia involves an element of risk. A number of key informants confirmed that A.I.D.'s institutional development priorities reflect sound analysis and are sensible, provided that current promising political and economic trends continue into the future. In Bolivia, this assumption is a gamble. Even if democracy is consolidated, the widespread shifting of personnel and of policy priorities that accompany changes of governments in Bolivia make permanent institutionalization of new services and capabilities difficult and uncertain. A.I.D.'s interventions, then, appear relevant in that they address problems that were found, through rigorous analysis, to be fundamental constraints in the Child Survival area. Only experience over the next 10 to 20 years will show whether A.I.D.'s strategic choices correctly interpreted long-range trends and conditions in Bolivia.

Another factor that affects the relevance of interventions is cost. Nobody disputes that water and sanitation activities address the major fundamental causes of diarrhea, the principal killer of children in Bolivia. Logic would seem to dictate that massive water and latrinization interventions are preventive and permanent and, therefore, more relevant than temporary, curative ORT interventions. Similarly, malnutrition contributes to most of the documented infant and child mortality in Bolivia. Unfortunately, cost-effective interventions are not available to A.I.D. to solve these problems. The cost of providing good water nationwide, universal latrinization, and dietary supplementation exceeds all the available resources by a large margin. A strategic choice to pursue these kinds of interventions, then, would mean deciding to benefit only small numbers of communities, making the program less relevant nationally.

Policy Reform

A.I.D. entered the health sector in Bolivia as an active player in the mid-1980s. Until that time, A.I.D. had supported only some PVO activities and a few activities through PL 480 local currency generations. These activities did not permit A.I.D. to take part in Government health policy deliberations in any significant way. During that period, A.I.D. did not even attend meetings of the donor coordinating group for national vaccination campaigns.

As the political climate changed in Bolivia in the mid-1980s, so did A.I.D.'s attitude toward the health sector. With the designation of Bolivia by A.I.D. as a Child Survival "emphasis country" and the development of new project activities beginning in 1987, A.I.D. gradually became more actively engaged in national health policy issues.

A.I.D.'s approach to policy dialog in the health sector between 1985 and 1992 was characterized by gradually increasing breadth and involvement. The A.I.D. Mission has developed a relationship with Ministry of Health officials that is friendly and collegial. Frequent informal social and professional contacts make it possible for A.I.D. and the Ministry to exchange views and information easily and quickly, without relying on cumbersome written exchanges and without having to work through intermediaries. A.I.D. and Ministry officials have clear understanding of and mutual respect for each others' positions on policy issues.

In this congenial atmosphere, A.I.D. has been able to become engaged in important policy areas in constructive ways rather than having to try to force changes in Government positions by using project resources for leverage or imposing unwanted conditionality. The three means of trying to shape Government policies that have been most commonly used by A.I.D. in Bolivia are (1) direct dialog; (2) A.I.D.-sponsored studies, analyses, high-level presentations, and workshops designed to explain policy concerns that are important to A.I.D.; and (3) A.I.D. project support for activities that reflect important policy reforms.

This section discusses five health policy areas in which A.I.D. has been involved since 1985. It should be noted that the most fundamental policy determination needed to support Child Survival activities—the decision to give top priority to primary and preventive health care services—had already been made by the Government prior to A.I.D.'s entry into the sector in the mid-1980s. This change set the stage for a constructive A.I.D. engagement in the sector based on Agency Child Survival guidelines. The five policy areas discussed here are presented because they represent important health policy reforms in Bolivia in which A.I.D. played a major

role. The final area—adoption of reproductive health services by the Government—is discussed in depth as an example of how A.I.D. was able to enter into a particularly important but perilous policy arena and eventually produce dramatic change.

Putting Decentralization Into Practice

There is a consensus among Government health officials at all levels of the national system that the old, highly centralized Ministry of Health administrative and service delivery system is hopelessly inefficient. Officially, the Government supports decentralization of its administrative and service delivery functions in health and other sectors. A.I.D. also agrees that a decentralized system would better serve the health and Child Survival needs of communities and individuals.

However, despite the general agreement in principle concerning the advantages of a decentralization policy, there is a problem of insufficient political will to move from general endorsement of the idea of decentralization to actual implementation of decentralized structures and operations. The Bolivian Congress has been debating legislation to decentralize health and education for almost 2 years without reaching closure. It is likely that Bolivian political leadership sees the administrative advantages of decentralization, but is worried about the political consequences.

A.I.D.'s response in the health sector has been to give the Government's decentralization policy a push into practice. The A.I.D. CCH project is supporting a pilot program in decentralized primary health care in three health regions. This approach to the decentralization policy reform question should help the Government get its program off the ground in two ways. First, it will test decentralization on a medium scale, permitting it to be modified before being implemented on a national scale and reducing the risks of serious unanticipated problems or complications. Second, it may help give the political leadership the "courage of its convictions" to really move ahead into this reform program by demonstrating that the benefits outweigh the risks.

Emphasizing Sustainability

The Ministry of Health began charging fees for its health services out of desperation when it ran out of money a few years ago. A.I.D. has encouraged the Ministry to systematize and expand a policy of charging fees for services, and the Ministry is now moving to institutionalize and standardize a fee structure. A.I.D. has

encouraged this new policy through direct dialog with Ministry officials and by providing support in the A.I.D. CCH project regions for better, more consistent charging of fees and utilization of the income generated by fees. The example that is being set by A.I.D.'s parallel private sector PROSALUD project has impressed public sector officials. PROSALUD has become financially self-supporting by charging low user fees. The success of the PROSALUD model has demonstrated the feasibility of at least partially recovering costs with user fees and has challenged the Ministry of Health to try to do the same in the public sector.

Increasing the Role of the Private Sector

Historically, the Bolivian Ministry of Health has had an adversarial relationship with private sector organizations working in the health sector. Both sides were parties to the conflict. Health PVOs viewed the Government, especially during the time of military governments, as corrupt and unconcerned with the well-being of the poor. The Government viewed the PVOs as paternalistic, over-financed, and unfairly critical of government programs.

A.I.D., as an outside agency providing funding to both sides, was in a good position to serve as an intermediary. By designing projects that were sensitive to this situation, A.I.D. has produced a significant change in the policies of both the public sector and the private sector concerning working with each other. First, A.I.D. created PROSALUD, a new kind of private sector health organization which works directly in support of Ministry health services. Jointly developed Ministry-PROSALUD services have helped the underfunded Ministry expand services and improve quality at no cost. The cooperation that has developed between the Ministry and PROSALUD under the "joint venture" arrangements has demonstrated to both the government and to the PVO community that collaboration is feasible and mutually beneficial.

A second A.I.D. initiative that has improved the policy environment for collaborative public sector-private sector health programming is the PROCOSI project. One of PROCOSI's specific objectives is to serve as an interface between the PVO community and the Ministry. Both the Ministry and PROCOSI now speak favorably of the improved collaboration that has resulted. PVO activities are gradually shifting away from competing with or duplicating Ministry services. Increasingly, resources and facilities are being shared and complementary services are being offered.

Promoting Reproductive Health Services

Reproductive health is a policy issue that is extremely sensitive in Bolivia, and it is a particularly risky area for the U.S. Government to try to exert influence. However, the importance of reproductive health in meeting Child Survival objectives has made it necessary for A.I.D. to try to find a way to deal with Bolivia's traditional official opposition to family planning.

Family planning has a long history of controversy in Bolivia. In 1968, a movie called "The Blood of the Condor" dramatically alleged that U.S. Peace Corps volunteers were sterilizing native women. As a consequence of the protests aroused by the film, the Peace Corps was expelled from the country in 1974 and did not come back until 1990 to work in nonhealth development activities.

For many years, the Government had a pronatalist orientation. The argument was that Bolivia had a low population density, with vast, sparsely populated areas, and that there was therefore a need to increase the population size in order to populate all areas of the country.

During the 1970s, the United Nations Family Planning Agency (UNFPA) began a maternal-child health care project which planned, among other things, to provide family planning services at Ministry facilities. However, when project commodities first arrived in 1975, Catholic Church officials denounced the project as "massive birth control" and the Government had to cancel the family planning component of the project.

In 1983, Westinghouse Health Systems and a local PVO conducted the first contraceptive prevalence survey in Bolivia. The survey showed only 10 percent of the population using modern contraceptive methods.

By 1985, some small A.I.D. centrally funded population projects were under way, supporting local PVOs doing demographic research, IE&C, and delivery of services. CONAPO, the National Population Council within the Ministry of Planning, was founded with A.I.D. support. With technical assistance from A.I.D. Office of Population projects, CONAPO developed a two-pronged strategy. First, regional demographic analyses were done to show that, although the national population density was low, certain regions of the country suffered from serious population pressure on the ecology and local economy. The second line of action was to educate policymakers on the relationship between fertility and infant and maternal health and mortality. This took the form of analyses of the relationship between family size,

spacing of births, and infant/maternal mortality, followed by seminars and graphic presentations to Government and private sector leaders.

In 1986, A.I.D. cautiously approached the Ministry about initiating a contraceptive social marketing program. The Ministry did not agree to support this activity, so in 1988 A.I.D. sought the help of the Bolivian Obstetrics and Gynecology Society. The society agreed to support the program as long as there was no mention of any specific family planning method or product. Distribution of A.I.D.-supplied family planning methods began in 1989 through a commercial importer, and was subsequently transferred to PROSALUD in Santa Cruz. The Obstetrics and Gynecology Society declined to continue support for the project after its involvement in the initial campaign.

In 1987, A.I.D. entered into a $35,000 Limited Scope Grant Agreement with the Maternal and Child Health Division of the Ministry of Health to provide limited family planning services to patients with abortion complications. The original name of this program, "Selective Family Planning," was later changed to "The Battle Against Abortion." However even this cautious approach was not supported by fearful Ministry officials, and almost no services were provided.

A.I.D. sponsored a national Demographic and Health Survey (DHS) in 1989. Among its most striking findings was the relationship between child spacing and infant mortality. The DHS found that 154 infants for every 1,000 live births died when births were less than 2 years apart. This high infant mortality rate fell to 77/1,000 when births were 2-3 years apart. It fell to only 43/1,000 when births were 4 years or more apart.

Also in 1989, A.I.D. provided funding for a joint Ministry of Health-Catholic Church workshop called "The Battle Against Abortion." The workshop was attended by more than 100 women and representatives of public sector, private sector, union, and church groups. The workshop recommendations stated that women have the human right to information and access to family planning methods. The workshop further recommended that the Government should support this right to access, that family planning should be incorporated in Government health programs, and that couples should be permitted to decide voluntarily on the size and spacing of their children. This breakthrough was tempered by a proviso saying that measures should be taken to stop "foreign intervention" in population policy decisions and activities in the country.

These recommendations clearly influenced some of the political parties during the subsequent elections of May 1989. The new Government that took office in August 1989 quickly reversed the traditional government stance toward family planning.

In October 1989, A.I.D. conducted a workshop on Reproductive Health Planning, which resulted in the design of the first major bilateral A.I.D. population project in Bolivia, the $9.3 million Reproductive Health Services project. This was the first time that the Ministry of Health and private family planning institutions met to discuss plans in the reproductive health area. A.I.D.'s centrally funded population contractors were also invited to participate and describe their activities and resources.

In November 1989, the Government launched the National Plan for Child Survival and Maternal Health, which contained an important section on reproductive health. This marked the initiation of reproductive health services within the Bolivian Ministry of Health and a legalization of the activities of all other PVOs working in the field. A.I.D. provided technical assistance in the development of the national plan, and an executive presentation of the plan was made to the President of Bolivia, to his Cabinet, and to national and regional public and private institutions. The A.I.D. Reproductive Health Services project agreement with the Government was signed in July 1990.

After 1 year of project operations, further progress has been made. Service delivery subprojects with PROSALUD and other PVOs have been initiated. Training for medical staff in several areas has begun. The Unit for Population Policy (formerly CONAPO) in the Ministry of Planning continues to play an active role in policy formulation. An important data-based book on demography and Child Survival was produced and has been used with Bolivian national leadership in numerous seminars and briefings to raise levels of knowledge and concern about population and Child Survival. Market research and operations research activities have begun, and a population management information system is being installed in the Ministry of Health. A new project-supported, professionally produced bulletin, *Enlace*, is now published officially by the Ministry and circulated nationally to disseminate news and information about the reproductive health program and issues. *Enlace* represents an important public endorsement of reproductive health activities by the Government of Bolivia. The population policy unit is developing a national population policy in collaboration with UNFPA, A.I.D. advisers, and the Ministry.

This process illustrates how a patient, serious, scientific process of study, analysis, and persuasion succeeded in gradually reversing a national policy position that was a major obstacle to achieving A.I.D.'s Child Survival objectives in Bolivia. A.I.D.'s willingness to take on this contentious area produced a breakthrough which is now strongly endorsed by the Ministry of Health and which has made it possible for public and private sector organizations concerned with Child Survival to initiate essential reproductive health activities.

Shifting From Vertical to Integrated Services

When A.I.D. began supporting Child Survival in Bolivia in the mid-1980s, existing services were predominantly vertical in their organization. The Government's preference for vertical services, particularly for vaccination campaigns, was encouraged by many of the donor organizations. Although recognizing the value of this approach in achieving short-term gains, A.I.D. felt that the vertical structure was not sustainable or efficient in the long run. It therefore began to work with the Government to encourage a gradual transition from vertical to integrated services.

To some extent, Bolivia's shift from vertical to integrated services can be seen as a natural evolution in Child Survival services which is simply being nurtured and encouraged by A.I.D. through the CCH project. Child Survival programming in many countries begins with a few high-impact, high-visibility services which are implemented independently of other health services. These initial vertical services build political support for primary health care. The vertical services can also result in institutional strengthening as providers respond to growing demand for services that results from initial successes. Furthermore, the vertical services produce changes in the public's knowledge of health phenomena, attitudes about modern health care services, and in health practices. Finally, from the experience of delivering relatively costly vertical services, providers become aware of the greater efficiencies that can be had by shifting to integrated health services.

Under these conditions, a Child Survival Program can gradually move away from a focus on a few vertical services and begin to build an integrated, permanent Child Survival service delivery capability. The argument that vertical Child Survival services result in an overconcentration of resources in a few services, to the detriment of development of permanent integrated services, has not been supported by the Bolivia experience. On the contrary, the initial success of vertical services created the political and financial conditions required for development of permanently integrated, institutionalized, sustainable primary health care services.

The A.I.D. Child Survival Program has promoted this transition in a number of ways. First, studies such as the DHS and dissemination activities demonstrated to Bolivian health policymakers the interactions among different complementary health and family planning interventions. Second, in analysis that led to the CCH project, A.I.D. emphasized the long-term efficiencies that could result from an integrated approach to delivering primary health care services to rural communities. Third, A.I.D.'s CCH project activities themselves are structured to support the

development of permanent, integrated services. Although special campaigns are still seen as useful for emergencies, for introducing new services, and for building political support, they are now viewed more as political and public information tools than as long-term solutions to health problems. Their prominence in the Bolivian Child Survival Program, as a result, is diminishing. Partly as a result of A.I.D. policy dialog activities and partly as a result of accumulating experience, this orientation is now widely shared by Ministry executives and medical staff.

Management Information Systems

Information systems are required for any program to be effective. They are necessary to establish a baseline for evaluating progress of the project, they help track progress and identify problems in implementation, they are essential for administering program resources, and they are critical for planning future activities and services.

In Bolivia, there is a surprising degree of awareness among health officials concerning the importance of health statistics and management information. Among Ministry of Health political officials, particularly, there is a strong belief that the Ministry is being ill served by its statistics. For many years, Bolivia reported internationally an extremely high infant mortality rate. This incorrect statistic, with others, was useful in attracting donor assistance. However, unflattering statistics have detrimental political effects in a democracy, and the new national leadership is in a hurry to develop more accurate statistics which, incidentally, will present a more favorable image of the country and of the Government.

A.I.D. is helping develop management information capabilities only in the PROSALUD project. In the CCH and PROCOSI initiatives, management information receives minor A.I.D. project support. The A.I.D. Reproductive Health project has a substantial management information component. The local A.I.D. Mission itself does not have a health statistics database to track and monitor the performance of its projects. Instead, it depends on the different implementing agencies to periodically send in reports with statistics needed for A.I.D. routine reporting purposes.

This section briefly describes the management information capabilities found in the three major A.I.D. Child Survival initiatives. It also describes an important new National Health Information System that is being organized by the Ministry of Health, without major international assistance.

PROSALUD

PROSALUD has a well-developed information system in Santa Cruz. The system is composed of the following subsystems: Administration/Finances, Warehouse/Logistics, Medical Service, and Computation.

The Administration/Finances subsystem has several components, including the cost component, which links most of the other subsystems. The Logistics subsystem

keeps track of the distribution and use of commodities. The Medical Services subsystem keeps track of all services provided, and the Computation subsystem keeps a log of all operations within the information system.

The Medical Services subsystem keeps track of 12 preventive services, from prenatal care to immunization, and of 5 curative services. Each establishment reports these statistics on a monthly basis.

Although PROSALUD's information system is the most sophisticated health management information system in Bolivia, it does have some problems. Most of them can be traced to the fact that it was developed 4 years ago and is now somewhat out of date. For example, there is not enough disk memory for storage. The information generated each year is enough to fill the hard disk, so each year the previous year's data are erased and lost. This precludes making time series analyses. Another problem is that not all subsystems are interconnected. For some analyses, information is printed from two different subsystems, and then the information has to be merged manually.

Despite these technical problems, the PROSALUD information system is put to good use for planning and evaluation. Each year, coverage targets are defined for each health center and post, and for each service. Then monthly coverage reports are used to track progress towards the targets. Monthly reports from the Warehouse/Logistics subsystem are used to determine purchasing orders for each commodity, based on historic usage in each health establishment. Logistics statistics are matched with invoice data from the Administration/Finance subsystem, and inconsistencies are cleared up.

PROCOSI

PROCOSI coordinates the activities of a growing group of health PVOs and provides Child Survival-related grants, technical assistance, and training services to the PVO community. One initial objective of the A.I.D. project that established and consolidated PROCOSI was to develop a unified database, with participating PVOs using common indicators and reporting information that could be aggregated. This A.I.D. initiative appears to have failed. PROCOSI reports that the different PVOs prefer to use their own indicators and statistics systems, based on their different headquarters' reporting requirements. Also, many regard their statistics as confidential. As a result, PROCOSI has no concise way of knowing the coverage statistics, budgets, personnel, or results of the Child Survival activities, either individually or

in the aggregate, of its participating organizations. PROCOSI member organizations do report certain service statistics to the Ministry of Health system.

Community and Child Health Project

The CCH project has been working in four health districts since 1989. In 1990 a baseline survey was done in all four districts. Selection of samples in each district was a problem, as no reliable information on the population size and no updated cartography were available. In each district, eight communities were selected—four where water systems were to be installed under the CCH project and four control communities which were not scheduled for waterworks.

The questionnaire was quite complete, with basic demographic and socioeconomic information for women in childbearing ages, a birth history, and information on children born in the last 5 years on the following topics: immunization, diarrhea and oral rehydration, breastfeeding, prenatal care, delivery, and weight and height of the child. Information on place of treatment (delivery) and about who provided the treatment was also collected.

Data processing was finished in March 1991, workshops to discuss the results were held in all districts, and the results were considered satisfactory. Subsequently, these data were used to help guide development of project operative plans for 1991 and 1992. For example, the study showed that traditional birth attendants play a very small role in delivery of babies because most births were attended by husbands or other family members. As a consequence, in one of the districts money budgeted for training of traditional birth attendants was rebudgeted for the "clean home delivery" program.

Apparently no further use of the data has been made because the systems analyst of CCH, who designed and supervised the baseline surveys, has been moved to the Chagas' disease component of the project. A deficiency in the analysis of the information is not having calculated IMRs. Without this information, it will be difficult to assess the impact of the project on IMR, a key impact indicator.

Ministry of Health National Health Information System

In December 1990, the National Health Information System (SNIS) was created at the Ministry of Health and housed in the Sectoral Office for Planning and Projects. The office had the mandate to have a national system set up by the end of 1991. The system has three components: basic information about the health district, service statistics, and epidemiology surveillance.

SNIS reporting forms are sent monthly to the districts for consolidation and then to the health region offices where the information is entered into the computerized database. Health regions send diskettes to the Ministry of Health, where they are merged into the centralized database.

The information collected in the service statistics form is summarized in 28 standard health indicators, which are produced on a monthly basis for the whole country, for the health regions, and for the health districts. The indicators range from low-weight births and immunization coverage to deaths by major cause and prenatal care.

The system also produces monthly epidemiological reports. A monthly report is filled out in each health area on 22 diseases, broken down by age. This report also registers malnutrition information. Contagious diseases are reported immediately to the district by radios provided by A.I.D.'s CCH project.

The system has achieved full coverage of the Ministry of Health system, and about 90 percent of the NGOs are complying with the system. The data are evaluated regularly at the health area, health district, health regions, and national levels by Information Analysis Committees, which are supposed to meet once a month. Although the system has a way to go in terms of improving the quality of its data, the fact that it has been set up and is functioning is quite an achievement.

The major application of the system is that it helps improve the quality of the information-gathering process. It has not had significant impact yet on the policy and planning process. For this it needs to be complemented with analytical tools linking the database with the decision-making process.

A fourth component of the system, human resources, is being developed. The design and implementation of other information components are also under way. An administrative and financial subsystem is in place for primary health care, and similar subsystems for secondary and tertiary levels are under development. One source of concern is that the administrative and financial subsystem is not integrated

with the National Health Information System. What is lacking is a logistics and control subsystem. Continuous problems with procurements and logistics tracking are a source of frustration for A.I.D. and other donors.

The director of the National Health Information System reports that the system is being used by Ministry executives for reporting and planning purposes. This may be something of an overstatement. The enthusiasm and resourcefulness of the group that is setting up the system is impressive, and the group is proud that the system is a local initiative that has not had to depend on outside experts or donor funding. Nevertheless, the system is very new and is not really fully functioning. It will be a challenge for this new and fragile unit and its staff to weather the 1993 political transition. If flaws in data gathering and analysis can be overcome and an ability to generate good reports for executives can be developed, the system should prove to be an important planning and policymaking tool in the future.

Women's Education and Child Survival

Data from developing countries consistently show that women's educational attainment is powerfully associated with improvements in Child Survival indicators. In Bolivia, data from the 1989 Demographic and Health Survey (DHS) confirm this relationship for virtually all major indicators of Child Survival Program effectiveness and impact. Because Child Survival interventions primarily work through the mothers of babies and young children, it is important to recognize the strong impact of female education.

Statistical Relationships

Mortality Under Five Years

Infant and child mortality is the fundamental impact indicator by which the success or failure of Child Survival programs is judged. Table 20 presents the neonatal, postneonatal, and child mortality rates for the 10-year period preceding the DHS survey. Mortality rates of neonates and postneonates more than double from the highest to the lowest educational categories, and the rates quadruple for children aged 1 to 4 years.

Table 20. Neonatal, Postneonatal, and Child Mortality, by Mother's Education, Bolivia, 1979-1988 (deaths per 1,000 live births per year)

Mother's Education	Neonatal Mortality (< 1 month)	Postneonatal Mortality (1-11 months)	Child Mortality (1-4 years)
None	57	66	66
1-5 Years	44	64	61
6-8 Years	29	36	38
9+ Years	20	27	15

Source: Demographic and Health Survey 1989.

Treatment Practices for Diarrheal Diseases

Diarrheal diseases are the number one killer of children under 5 in Bolivia. Child Survival programs have focused on improved case management, especially by using ORT (either through prepackaged ORS or homemade sugar/salt solutions) and also by increasing overall fluid intake and seeking medical assistance. The Bolivian DHS data confirm that all these indicators of case management are associated with the mother's formal education. As shown in Table 21, mother's knowledge of ORS was strongly associated with formal education. Slightly less than half of the mothers with no schooling knew about ORS and less than one-third had ever used it. Increases in formal education are associated with increases in both knowledge and use of ORS, particularly knowledge.

Table 21. Knowledge and Use of ORS Among Women With Children Under 5 Years, by Mother's Education (percent)

Mother's Education	Knowledge of ORS	Has Used ORS at Least Once
None	47	29
1-5 Years	68	42
6-8 Years	81	49
9+ Years	91	52

In the 2 weeks preceding the survey, 28 percent of children under 5 years of age had experienced diarrhea. Table 22 presents the differentials in case management by education for children under 5 who had diarrhea in the 2-week period preceding the survey. The percentage of mothers who used ORS increases less markedly than does fluid intake as educational attainment goes up.

Undernutrition

When compared with the WHO/CDC (World Health Organization/Centers for Disease Control) NCHS International Reference Population, a large percentage of Bolivia's children were stunted (height for age) and underweight (weight for age); that is, they fell more than 2 standard deviations below the reference median. Fully 38 percent of children aged 3 to 36 months were stunted and 13 percent were classified as underweight. Over half of the children whose mothers had received no education were stunted, compared with just 20 percent of children whose mothers

attended 9 or more years of school. The corresponding percents for children classified as underweight were 66 and 27, respectively.

Immunization Coverage

For children aged 12-23 months, Table 23 shows the differentials for mother's education for no immunizations, for the first and third doses of DPT, and for measles. Overall, 15 percent of all children in this age group had not received any vaccinations, but this figure drops to 8 percent for children whose mothers have more than 5 years of education. The relationship between coverage and mother's education is consistently strong for measles and both doses of DPT. Furthermore, the dropout rate for DPT is notably lower among better educated women.

Table 22. Percentage of Children With Diarrheal Disease Who Were Treated With ORS, Homemade Solutions, and Increased Fluids, by Mother's Education (percent)

Mother's Education	Used ORS	Used Homemade Solution	Increased Fluids
None	20	12	25
1-5 Years	25	9	45
6-8 Years	31	11	55
9+ Years	30	15	61

Table 23. Percentage of Children Aged 12-23 Months Immunized for Specific Childhood Diseases, by Mother's Education

Mother's Education	None	Measles	DPT 1	DPT 3
None	34	42	52	17
1-5 Years	14	54	70	24
6-8 Years	8	67	76	32
9+ Years	6	73	84	45

Prenatal Care

The strong inverse relationship between prenatal care and women's educational attainment is shown in Table 24. Nearly 90 percent of women with at least 9 years of education who had given birth in the past 5 years received prenatal care at least

once during pregnancy, compared with only 16 percent of the women with no schooling. Compared with women with no formal education, coverage of tetanus toxoid triples for women with at least 6 years of schooling.

Table 24. Percentage Distribution of Births in the 5 Years Preceding the Survey for Which the Mother Received Prenatal Care and Tetanus Toxoid, by Mother's Education

Mother's Education	Prenatal Care[a] (percent)	Tetanus Toxoid (percent)
None	16	10
1-5 Years	36	19
6-8 Years	64	30
9+ Years	87	29

[a]Mother received at least one prenatal examination by a physician, nurse, or trained midwife.

Implications of the Findings

Although the statistical relationships reported above do not necessarily establish direct causal relationships between women's schooling and health outcomes, they at least argue strongly that women's education conditions the success of Child Survival programs.

As the main caretakers of children, women are the primary targets of most Child Survival interventions—birth spacing, use of ORT, immunizations, and health education. They are expected to adopt new behaviors (family planning, ORT) and use modern health services more often (immunizations, prenatal care). There are a number of possible explanations of why educated women may adopt new health behaviors more quickly.

- Education enables women to think more analytically, overcoming traditional fatalism and making them willing to initiate actions intended to improve their quality of life.
- Education increases a woman's power within the family, allowing her to direct more of the family's resources to child health. Literate women feel more confident in their ability to deal with health care personnel, pharmacists, and other professionals.

- Schooling exposes girls to female role models who have adopted modern health practices with their own families.
- Schooling gets girls out of the home, showing them how to obtain services and resources from professional change agents and modern sector institutions.
- Education is associated with higher socioeconomic status, which facilitates access to better goods and services than are available to less advantaged families.
- Literacy and other information-processing skills acquired in school make it possible for better educated mothers to get and use information about modern health services and practices from public information campaigns and the mass media.

The findings presented here have important implications for Child Survival Program managers both in Bolivia and elsewhere. First, in terms of policy dialog with the host country, girls' education should be high on the priority list. The young girls of today are the future beneficiaries of Child Survival programs.

Second, women's educational attainment should be taken into account when establishing Child Survival goals. Similar program inputs in two contexts, such as a high literacy and a low literacy country, might lead to drastically different outputs. The immunization dropout rates identified above, for example, suggest that achieving good coverage rates will be much tougher in low literacy settings.

Third, the educational status of women should be considered during program design. Data such as the Bolivia DHS findings point to the need for creative, nonformal health education programs targeting women with no (or low) literacy skills. Message content and selection of media should reflect the local realities of women's social status.

Fourth, research should be undertaken to clarify the interaction effects between educational attainment and health and family planning behaviors, so that project designs in the future can enhance the synergy that exists.

Finally, the data clearly indicate the importance of basic education for girls. A.I.D., other donor agencies, and cooperating countries should give high priority to expanding the coverage and improving the quality of basic education services for girls. Basic education for girls is demonstrably one of the most powerful long-term investments that can be made in social and economic development.

A.I.D. Management and Staff

Compared with some other A.I.D. country Child Survival portfolios, A.I.D.'s Child Survival Program in Bolivia is large and complex. A.I.D. Child Survival programs in other countries are often significantly simpler, sometimes having a single Child Survival project. Some country programs concentrate mainly on commodity support. Some rely heavily on preexisting A.I.D./Washington buy-in projects. Others transfer A.I.D. Child Survival funding to other organizations such as PAHO for implementation of activities. These strategies enable A.I.D. country Missions to program substantial resources for Child Survival without having a complicated, management-intensive portfolio of projects.

USAID/Bolivia has deliberately chosen a more active, "hands-on" approach to Child Survival for several reasons. First, the hands-on approach positions A.I.D. to participate in a direct, ongoing way in policy dialog. Second, it has permitted A.I.D. to develop a program which is custom-tailored to Bolivia's special circumstances rather than adhering to a more standardized Child Survival approach. Third, it has permitted the Mission to implement R&D activities, experimenting with untried techniques that could improve impact and sustainability in the long run.

There are two important features of A.I.D.'s approach to programming Child Survival activities in Bolivia. The first is the nature of the field staff that plans and implements A.I.D.'s Child Survival Program. The second is the time horizon required for successful accomplishment of program objectives.

A.I.D. Staff

A.I.D.'s approach to Child Survival programming in Bolivia is staff-intensive. Beginning in 1987, a large and highly qualified technical staff has been assembled by the USAID/Bolivia Office of Health and Human Resources (HHR). The health staff includes 10 health professionals, as follows:

- An A.I.D. U.S. Direct Hire (USDH) Office Chief who has been posted in Bolivia since 1987. This individual has a master's degree, 16 years of A.I.D. experience, and previously served as a Peace Corps volunteer in India and as CARE Regional Director in India, Guatemala, and Indonesia.

- An A.I.D. USDH Deputy Office Chief. This person has a master's degree and 12 years of A.I.D. experience as a population officer. Previously, she served as a Peace Corps volunteer in Nepal.
- An A.I.D. USDH Health Project Officer. This officer has a master's degree in public health, and served as a Peace Corps volunteer in Ecuador. Prior to joining A.I.D. in 1989, he had 3 years of field experience as an A.I.D. contractor in health.
- A Bolivian Foreign Service National (FSN) Project Officer with a master's degree from Mexico and 8 years' professional experience with A.I.D. This individual, regarded by the A.I.D. field Mission as a competent and promising permanent local staff member, is currently studying in a 1 year A.I.D.-supported long-term training program at Harvard.
- A U.S. Personal Services Contractor who manages the PROCOSI project.
- A senior FSN Population Officer. This individual worked at UNFPA before joining A.I.D. 5 years ago, and successfully completed A.I.D.-sponsored long-term training at Harvard.
- A University of Michigan Fellow who is a Ph.D. candidate and experienced population officer on a 2-year assignment in Bolivia.
- A U.S. Personal Services Contractor Project Manager with extensive A.I.D. experience in Latin America.
- Two Technical Advisers for AIDS and Child Survival (TAACS) from the CDC in Atlanta. One is a physician (internist and epidemiologist) with experience in public health and AIDS.

The A.I.D. professional health sector field staff grew gradually from two to nine between 1985 and 1992 as the Child Survival Program grew and other activities were added to the portfolio. Because of limitations on A.I.D. direct hire staff, A.I.D. made use of a variety of personnel mechanisms, including the University of Michigan Fellows Program and the CDC TAACS program. Most of the staff is temporary and project-funded, with contracts lasting from 1 to 5 years. Most members of the A.I.D. HHR staff have taken the A.I.D. Project Implementation Course and the Management Skills Course.

This large professional staff runs other projects besides Child Survival. The HHR portfolio includes AIDS, drug awareness, radio education, and other activities.

A large staff has advantages and disadvantages. Disadvantages are that a large professional group can be expensive, increases the A.I.D. and U.S. Government

presence in the country, and requires administrative support services of different kinds. Advantages of strong technical staff include the ability to undertake programming adapted to local circumstances, more intensive project management and monitoring, reduced vulnerability, more active policy involvement, better donor coordination, and the ability to design and implement R&D activities. An important comparative advantage that A.I.D. has over other donors is a permanent professional and technical staff in the field. Without a large and qualified health staff, the A.I.D. Child Survival Program in Bolivia would have to drop its staff-intensive R&D activities and concentrate on conventional activities like providing commodities. Staff-intensive activities in the areas of sustainability and policy would not be possible. Furthermore, the program would inevitably have to rely to a greater extent on contractors and intermediaries like the PAHO and UNICEF, lowering the U.S. Government profile and reducing the positive political impact of the program.

Some technical staff functions—policy dialog, in-house advocacy, personnel management, and development of strategy, for example—require a nucleus of A.I.D. USDH professional health officers. However, the number of permanent A.I.D. USDH technical professionals in the field Missions does not need to be large because USDH staff can be effectively and economically supplemented with local hire and contract staff to perform specialized technical assistance, project management and implementation, monitoring, reporting, and many administrative tasks.

Program Continuity

The A.I.D. Child Survival Program in Bolivia has determined that development in the health field takes longer than the typical A.I.D. 5-year project cycle. Although it has not been possible to formally program for periods of longer than 5 years, A.I.D. has been able to string together sequential projects to provide continuous support to initiatives that require 10 years or more to produce permanent change. Both PROCOSI and PROSALUD are now into their second consecutive A.I.D. project, providing them with the time and resources needed to consolidate initial gains, fully institutionalize their services, and achieve sustainability.

Donors and Donor Coordination

According to the World Bank country representative, Bolivia in recent years has been a "darling of the donors." The health sector in Bolivia is receiving heavy support from major multilateral donors, from a number of bilateral donors, and from many PVOs.

The "big three" are the World Bank, the Inter-American Development Bank (IDB), and A.I.D. In 1989, the World Bank began disbursing its first major loan for health services in Bolivia, totaling about $20 million. The loan includes construction and renovation of 160 primary care health facilities, one hospital, three regional warehouses, vehicles and other commodities, and various institutional-strengthening activities for the Ministry of Health. A new IDB project, including $33 million in loan funds and $4.95 million in nonreimbursable funding, has been negotiated and is just about ready to start.

Funding from United Nations organizations is substantial, but has been declining since 1985 as other donors have increased their investments in Bolivia. UNFPA has a small maternal/child health program ($200,000 during 1991), which focuses on reproductive health and which will help finance the planned national census. UNICEF provides about $3 million a year to support Child Survival activities through commodities, nutritional services, and education. PAHO provides $2 million a year, mostly for technical services. United Nations Development Program (UNDP) supports development of basic sanitary infrastructure in 30 health districts.

A number of bilateral programs also provide assistance to Bolivia's health sector. The following are some recent bilateral grants Bolivia has received, as reported by the Ministry of Health:

France	$ 1.5 million (2 years)
Spain	$ 3.5 million
Holland	$ 6.2 million (4 years)
Belgium	$ 0.5 million
Italy	$ 7.5 million (2 years)
Japan	$10.0 million

Finally, the Ministry of Health estimates that nongovernmental organizations of various sorts contribute between $15 million and $20 million per year. The Ministry cannot keep track of all the different NGOs that are providing different kinds of health services. It is estimated that there may be more than 150 different NGOs working in the health sector.

In all, the Ministry of Health estimates that there will be almost $100 million in donor support for health in Bolivia over the 2-year period of 1992-1993. The Ministry does not feel that this is too much. The new IDB project will include a major study of absorptive capacity and coordination of external financing in health. The Ministry points out that donor assistance to the health sector is only 3 to 4 percent of the total external development assistance that Bolivia receives.

While acknowledging problems in managing resources from so many donors, the Ministry of Health feels that activities are generally complementary and under control. One means of coordinating resources is a geographical division of labor among the major donors. In the three Departments where the majority of the population lives (La Paz, Santa Cruz, and Cochabamba), the World Bank supports urban health services and A.I.D. supports rural health services. IDB project activities are channeled to a different, remote jungle region.

Another mechanism is Ministry negotiation of project agreements based on the Government's policy priorities. The Ministry feels that it has had moderate success in convincing donors to support its agenda and priorities in the health sector rather than pursuing their own favorite kinds of activities. As an example, Ministry officials point out that hospital construction, traditionally a favorite donor activity, has almost stopped and that most donor resources are being used to finance primary health care and Child Survival, following Ministry policy priorities. The major exception to this trend is Japan, whose only concession to the Government in this regard was to shift from constructing large hospitals to small hospitals. Donors and the Ministry of Health all acknowledge that a degree of tension exists. Each donor has its own constituency, project design approach, and special requirements for management and disbursement of resources. Some donors permit considerable host country control; others permit very little. Having to satisfy so many different, complicated, and confusing requirements imposed by all the different donor organizations is a serious management problem for the Government. From its perspective, the resources would benefit Bolivia more if they were simply turned over to the Government to manage according to a Bolivian master plan.

The donors have a different point of view. All of the major donors, bilateral and multilateral, regard the Ministry of Health's management and absorptive capacity as marginal. Although there is recognition that the Ministry is making a serious effort to control, coordinate, and rationalize the utilization of resources from external sources, there is a generalized feeling that the Ministry is not up to the job. One problem is weak systems for financial management, procurement, contracting, auditing, and logistics. However, the biggest problem seems to be human resources in the Ministry of Health. The Government of Bolivia does not have a career civil service system. Each time the government changes, the system of political patronage

results in sweeping staff changes at all levels of the Ministry of Health. Every 4 years, the Ministry is almost completely restaffed with new people who have no training or experience managing donor-financed projects.

In response to the administrative weaknesses in the Ministry, informal mechanisms of interdonor coordination have begun to function spontaneously. Donors working in the health area meet informally on an irregular basis. Cooperation takes place on a project-by-project basis rather than sectorwide. For example, UNICEF, PAHO, and A.I.D. work together on vaccination services. The World Bank and A.I.D. have begun to work together on the PROSALUD self-financing primary health care model. UNICEF cooperates with A.I.D. on the PROCOSI PVO Child Survival network project. PAHO cooperates with A.I.D. on the new AIDS project. A.I.D. has succeeded in mobilizing considerable donor support for its reproductive health project, but UNICEF has been fearful of getting involved. Most of this cooperation is informal. Most donors feel that this is a reasonably well-functioning arrangement, although some feel that an overall health sector coordinating commission, which presently exists on paper but does not meet, would be useful. The existing arrangement suits the needs of the large donors, but the small donors often feel excluded or ignored.

Coordination of PVOs is particularly troublesome for the Ministry of Health. PVOs are small players, but they are grudgingly seen by the Ministry as helping to provide needed services. As a group, they are a significant source of assistance. But each PVO has a need to stake out its own turf and show its supporters what it is accomplishing by itself. Some are willing to cooperate with the Government and to develop services that complement and support the Government's services, but others are stubbornly independent and even antagonistic. In the balance, the Ministry feels that, by showing good faith and improved performance, it is gradually winning the confidence and cooperation of more and more PVOs. The Ministry is supportive of A.I.D.'s initiative through the PROCOSI project to promote better cooperation among PVOs working in the health sector.

Implications for A.I.D. Child Survival Programming

This section summarizes the most important general conclusions of the CDIE case study in Bolivia. The conclusions focus on the policy and program issues that were determined to have Agencywide relevance prior to beginning the case study. Therefore, although they are based just on the Bolivia case study, they may have broader implications for A.I.D. Child Survival programming worldwide. A subsequent wrap-up "synthesis" paper comparing the different country case studies will determine the extent to which these observations actually do have broad programwide implications.

A.I.D.'s Child Survival Strategy

An important conclusion with regard to A.I.D.'s Child Survival strategy is that there is *a natural evolution from vertical to integrated services* in Child Survival programming that can work advantageously if encouraged by the program. Initially, Child Survival programming often begins with a few high-impact, high-visibility services that are implemented independently of other health services. These initial vertical services build political support for primary health care which manifests itself in policies and budgets favoring preventive health services. The vertical services can also result in institutional strengthening as providers feel compelled to respond to growing demand for services that results from initial successes. Furthermore, the vertical services produce changes in the public's knowledge of health phenomena, attitudes about modern health care services, and health practices. Finally, from the experience of delivering vertical services, providers become aware of the greater efficiencies that can be had by shifting to a more comprehensive, integrated, permanent program of health services.

Under these conditions, a Child Survival Program can gradually move away from concentrating on a few vertical services and begin to build an integrated, permanent Child Survival service delivery capability. The argument that vertical Child Survival services result in an overconcentration of resources in a few services, to the detriment of development of permanent integrated services, has not been supported by the Bolivia case study. On the contrary, the initial success of vertical services created the political and financial conditions required for development of permanently integrated, institutionalized, sustainable primary health care services. To some extent, this evolution is happening spontaneously in the Bolivian national

program as it matures, although A.I.D. assistance has deliberately encouraged the transition.

This finding, if duplicated in other country case studies, is important because the Agency Child Survival initiative worldwide is maturing, and the Agency is considering whether the program should be continued or redirected. In Bolivia, if the program were declared a success and terminated because of improved health indicators, the gains achieved so far could be lost. Initial accomplishments have set the stage for a consolidation phase in which responsibility for recurrent costs can increasingly be shifted to local institutions and A.I.D. assistance can focus to an even greater extent than it does now on institutional strengthening and sustainability. Given the gains and the momentum that have been achieved, it would be a missed opportunity for A.I.D. not to continue its support with the objective of institutionalizing the progress that has been made to date.

It is likely that similar circumstances exist in other countries with A.I.D. Child Survival programs that are between 5 and 10 years old. The evolution from vertical to integrated services appears natural and desirable, and should be encouraged and supported by A.I.D.'s Child Survival strategy.

Another implication of this case study for A.I.D.'s Child Survival strategy concerns *primary education for girls*. Educational attainment of mothers is a very powerful factor influencing adoption of modern health behaviors and utilization of Child Survival services. Programming to support the improvement of basic education can be expected to greatly enhance the performance of Child Survival activities. As is happening in Bolivia, A.I.D. programming in the health and education sectors should be coordinated, and projects in both sectors should be designed to enhance the synergy that exists between basic education and health.

Project Development in Child Survival

One conclusion of the CDIE case study concerning project development in the Child Survival Program is that A.I.D.'s approach to programming *offers a surprising degree of flexibility* to local A.I.D. field Missions and cooperating local private and public sector health organizations. The image of Child Survival as a standardized "cookie cutter" program replicated in many different countries is incorrect. A.I.D. in Bolivia has been able to undertake wide-ranging independent analyses of health conditions and design a Bolivian program accordingly. A.I.D. has also been able to integrate Bolivian governmental and private entities directly into the planning,

design, implementation, and evaluation of its Child Survival Program, enabling it to develop a program that incorporates local interests and priorities.

Another conclusion of the Bolivia case study is *that Child Survival, as a congressionally earmarked program with high priority from A.I.D.'s Washington headquarters, has not resulted in excessive pressure on A.I.D. to design activities, negotiate projects, or disburse money at a pace or on a scale that exceed Bolivia's absorptive capacity.* Because of the special status of Child Survival resulting from the earmark, A.I.D. in Bolivia has experienced abundant, but not excessive, funding levels. Pressure from Washington has apparently not resulted in hasty or careless design or implementation work in Bolivia.

Another conclusion is that *clarity, detail, and specificity in Child Survival project planning documents contribute to performance.* One important component of Bolivia's Child Survival Program has experienced some confusion, conflicts, misunderstandings, and delays due, in part, to lack of specificity in project planning documents with regard to objectives and target populations. Unfortunately, detail and specificity in project design can limit flexibility in implementation, an important characteristic of R&D activities. In the balance, the Bolivia experience shows that it is better to articulate very clear, specific objectives in Child Survival project planning documents, coupling the specifics with a stated plan for midcourse corrections, revisions, and possible reprogrammings.

A final conclusion concerning project development is that *the standard A.I.D. 5-year project cycle is too short to accomplish Child Survival objectives.* Short-term objectives of increasing the coverage of primary health care services may be accomplished in 5 years, but the gains are likely to be temporary. Changing entrenched health behaviors on the part of clients and creating permanent institutional capabilities to sustain new services normally will take 10 years or more.

Policy Dialog in Child Survival

The experience of the A.I.D. Child Survival Program in Bolivia has demonstrated the advantages of a *collaborative style of policy dialog.* Supporting policy-relevant research, sponsoring analytical workshops, and providing funding support for new policy initiatives are constructive ways of promoting policy reform. In the sensitive Bolivian environment, more aggressive forms of policy dialog might have had counterproductive effects.

Project Implementation in Child Survival

A.I.D.'s experience with its Child Survival Program in Bolivia has yielded several conclusions concerning implementation. First, *A.I.D.'s burdensome administrative requirements result in long delays and wasted resources.* In Bolivia, it was widely reported that A.I.D.'s procurement procedures have resulted in delays of 1 to 2 years in the provision of technical services and commodities. A.I.D.'s source and origin requirements have resulted in provision of commodities that are inappropriate and expensive. A.I.D.'s financial management practices, such as complex reporting requirements for PL 480 disbursements, have caused inactivity and budget shortfalls in field activities. Too much A.I.D. technical staff time is spent trying to meet A.I.D. administrative requirements rather than tending to technical monitoring of the program. The A.I.D. program pays an unknown, but high, price for these pervasive system inefficiencies. The price is paid in time lost, money wasted, diminished political prestige and credibility, and, ultimately, in babies' lives lost unnecessarily.

A second important conclusion concerning project implementation emerging from the Bolivia case study is that having *strong A.I.D. technical staff directly influences program performance.* A simple commodity-based kind of program can be implemented with minimal staff, but A.I.D.'s disappointing experience with its ORT component in Bolivia has shown that hands-off implementation cannot be counted on to produce results. Furthermore, complicated R&D and policy dialog activities, which enable the program to address really fundamental issues that will determine the long-term success or failure of the program, require experienced, technically sophisticated, permanent in-house staff. Without A.I.D.'s strong technical staff in Bolivia, the program would not be as relevant to local circumstances as it is, its performance would be poorer, and the Agency's vulnerability would be greater.

Management Information Systems in Child Survival

There is growing awareness of the importance of good health statistics and efficient administrative information processing in Bolivia, but most health policy decisions and planning still take place without reference to any solid analytical information. Ultimately, *part of a long-term consolidation strategy in the Child Survival area should include support for strengthening management information*

systems, with special emphasis on developing policy-relevant information packages for health system executives. Health management information systems should also make it possible to easily and accurately track program performance in critical areas such as cost recovery, effectiveness, efficiency, and impact. As part of this effort, A.I.D. should develop an in-house system in its field Missions for tracking national health indicators and its own project performance data.

Child Survival Sustainability

The most important conclusion of the Bolivia case study is that *local sustainability of Child Survival services is feasible if it is a serious program objective.* The A.I.D. Child Survival Program in Bolivia shows two important mechanisms that are available. The first is cost recovery through *user fees.* The PROSALUD model demonstrates conclusively that the costs of essential preventive and curative Child Survival services can be recuperated by charging fees to low-income clients, provided that the services are good and the system is well managed. Furthermore, the Bolivian Ministry of Health has demonstrated the feasibility of recovering some costs in the public sector for primary health care services by charging user fees.

The second effective mechanism for achieving sustainability is *endowments.* The PROCOSI PVO network project in Bolivia is about to become fully and permanently sustainable using interest generated by an A.I.D. grant which will be invested as an endowment. This is a nearly ideal solution to the problem of long-term sustainability of private sector organizations working in the health and Child Survival area. The advantages of endowment funding for NGOs are predictability and permanence of the income that is generated and flexibility for the recipient to program and use the funds according to changing needs and priorities. If dollar endowments can be created, then endowments have the additional advantages of protecting the recipient NGO against local currency inflation and devaluation, generating dollar income for purchase of imported commodities, such as vaccines, and keeping the A.I.D. grant funds in the United States. Establishment of endowments is widely regarded in A.I.D. as difficult or impossible, but the obstacles are not as great as generally believed. More widespread establishment of A.I.D.-funded endowments would be a step forward in ensuring the long-term sustainability of A.I.D.-supported Child Survival services delivered by private sector organizations.

Mix of Interventions

There are different programmatic ways for A.I.D. to approach Child Survival in its country programs. In Bolivia, at least, the following implications about different interventions for A.I.D. support can be drawn:

- It is best to initially support vertical interventions in new country programs, then encourage a shift to integrated services before vertical services become permanently institutionalized.
- A.I.D. can concentrate most of its resources on institutional strengthening because many other donors prefer to support direct delivery of health services. A.I.D. should, however, still directly support health services on a small scale in order to generate political and public support for the program.
- Sustainability should be a principal focus of A.I.D. Child Survival programming. A.I.D. has a comparative advantage over other donors in this area because it can support activities through private providers, apply considerable resources to policy dialog, and establish endowments.
- Programs should be flexible in terms of interventions. A.I.D. should be able to program aggressively to meet localized problems (like Chagas' disease and cholera in Bolivia) that influence infant mortality. A.I.D. country programs should seek "targets of opportunity"—new interventions that can produce additional reductions in IMR quickly and at low cost. For example, in Bolivia, A.I.D.'s support for health services should focus more on control of diarrheal diseases, clean birthing practices, and breastfeeding. There could be less emphasis on vaccinations, which are approaching a point of diminishing returns in terms of impact on infant and child mortality.
- Child Survival interventions should be linked closely to A.I.D. programming in the education and population sectors.
- A.I.D. should regard Child Survival as a long-term commitment. The quick and dramatic impact of initial services creates a temptation to declare victory and move on to something else. However, if services are not institutionalized and made sustainable, initial health gains may be lost.

Appendix A Methodology

Background: The New CDIE Assessment Format

Prior to this field study of the A.I.D. Child Survival Program in Bolivia, four other field studies in the Child Survival Assessment Series—Haiti, Morocco, Egypt, and Indonesia—had already been completed by CDIE. However, CDIE's evaluation mandate changed significantly after the first four studies were finished, requiring a different approach for the final two studies in Bolivia and Malawi. The four initial studies had been done as part of the A.I.D. Impact Evaluation Report Series. These reports were short, focused quite sharply on specific country programs, and not standardized across reports.

The new approach, described in a CDIE paper called "The A.I.D. Evaluation System: Past Performance and Future Directions" (September 1990), is different in several important ways. First, the new approach, of which this Bolivia Child Survival study is an initial example, involves more elaborate and rigorous fieldwork and analysis. The new studies incorporate economic analyses of cost-effectiveness to give indications of the "efficiency" of A.I.D. services and systematic "rapid appraisal" research into qualitative aspects of A.I.D.-supported services. Second, the new approach tries to document common elements across country programs that contribute to performance, using standardized measurement instruments as much as possible. Third, the new approach is designed to meet the information needs of A.I.D. senior management. The country report, of which this Bolivia Child Survival paper is an example, is a Technical Report which compiles in detail the results of CDIE fieldwork in a particular country. The more important document is a subsequent Synthesis Report, which summarizes the findings of a complete series of six Technical Reports in a succinct, policy-relevant fashion for A.I.D.'s senior management.

Preliminary Steps

As a preliminary step, CDIE and its technical contractor, Research Triangle Institute (RTI), attempted to carry out a "stakeholder inventory" to identify the most important program and policy issues regarding A.I.D.'s Child Survival Program.

Because the Administrator's Evaluation Initiative is intended to provide policy-relevant information to A.I.D. senior management, it was important to attempt to discover the issues and concerns that are most relevant to senior management "stakeholders" prior to initiating data gathering. The CDIE research team, however, was unable to have any direct access to individuals who had been identified as high-level users of the study, and it relied instead on information and reports provided by various A.I.D. health sector officials regarding salient and policy-relevant evaluation issues. The list of issues that was compiled in this way formed the thematic research agenda for this study.

Also, prior to initiating fieldwork on the final two field case studies in the Child Survival Assessment Series, CDIE and RTI performed a methodological analysis of measurement strategies. In an effort to standardize measurement as much as possible for the final two field studies, prototype questionnaires were developed for key informant interviews and beneficiary focus groups. A decision was made to apply an experimental CDIE "sustainability scale." A CDIE resident economist provided preliminary guidance for a standardized approach to economic analysis. An effort was made to identify standardized statistical indicators of effectiveness, quality, coverage, costs, and impact in order to gather comparable data across studies.

The next step in the Bolivia Child Survival case study was a review of available literature in the United States. The CDIE Development Information Database was searched for project documents, evaluations, and other relevant documents. Additional statistical and program information was obtained from the A.I.D. Health Projects Data Base, a service of the Center for International Health Information/ISTI in Arlington, Virginia. Available documents describing A.I.D.'s Child Survival Program in Bolivia were compiled, catalogued, and summarized by RTI. Copies of the relevant documents and the initial literature review paper are available in CDIE files.

Finally, a team planning workshop was held in Washington, D.C., 1 week prior to initiation of fieldwork. The team planning workshop finalized measurement strategies for fieldwork, assigned responsibilities to individual team members, and made logistical plans.

Fieldwork

The CDIE field assessment team worked in Bolivia between February 2 and February 27, 1992. The team consisted of a CDIE team leader, an A.I.D. health

officer with special expertise in qualitative "rapid appraisal" research methodologies, a health statistician/demographer, an economist, and a public health physician from A.I.D./Guatemala. Resumes of the team members are available in CDIE files.

The team principally used three techniques for gathering information in the field: (1) reanalysis and compilation of statistical information from available sources, (2) key informant interviews, and (3) focus groups. Each of these techniques is described briefly below.

Statistical Data From Existing Sources

A large amount of statistical data was available in Bolivia to the CDIE team for secondary analysis. The 1989 Demographic and Health Survey (DHS) was the single best source of relevant statistical information. Service statistics from the private sector organization, PROSALUD, were used, as were official statistics from the Ministry of Health's new National Health Information System. A.I.D. project evaluations provided intervention-specific coverage figures and some important cost studies.

A problem with the compilation and interpretation of data from the many available data sources in Bolivia was incompatibility of indicators. The team had hoped to find several key indicators used consistently in different studies, making it possible to perform longitudinal analyses of trends. Analysis of trends is essential for making clear inferences about effectiveness and impact. Unfortunately, it was found that key indicators had not been used consistently by different studies and the planned longitudinal analysis had to be abandoned. Furthermore, Government of Bolivia statistics, which were supposed to be available on the newly developed National Health Information System database, proved to be incomplete and of uncertain origin, rendering them of little utility for the CDIE analysis.

The statistical portion of the analysis that was done for this report could have been done better in 1993. Bolivia has not had a national census since 1976, making it very difficult to estimate coverage rates. During 1992-1993, a new national census and a new DHS will be completed. These new sources of statistical information will make it possible to provide much more precise statistics concerning both coverage rates and impact.

Key Informant Interviews

Key informant interviews were held with 45 individuals. The CDIE team made an effort to be systematic and concise. Initially, the team developed a matrix, with topic areas (coverage of health services, sustainability, policy issues, etc.) listed

vertically and different organizational units (Ministry of Health, Health PVOs, USAID, etc.) listed horizontally. This made it possible to identify all the different categories of information that were needed and the different sources from which each kind of information would be sought. From this matrix, a list of interviewees and the information needed from each one was prepared. A customized questionnaire was then developed for each interview. Because many of the interviews addressed similar topics, the questionnaires were kept on computers and were easily adapted using word processing prior to each interview.

Two members of the CDIE team normally attended each key informant interview. One was designated in advance as the interviewer and the other was designated notetaker. An effort was made to meet with each interviewee individually, although in some cases informants insisted on having members of their staff with them to help provide information. It was decided not to tape-record interviews, because taping might offend respondents or inhibit spontaneous responses. It was also decided not to use portable computers to take notes during the interviews.

Immediately following each interview, the two members of the CDIE team would return to the team office. The notetaker would prepare a written summary from his/her handwritten notes on the word processor. The other member of the team would then review the draft, making any additions and corrections. In this way, loss of information and misinterpretations were minimized. Backup copies, both diskette and paper, were prepared and filed to ensure against loss of notes.

All the interview protocols and notes are available in CDIE files in Washington. A list of all individuals interviewed is contained in Attachment 1 to this Appendix.

Focus Groups

Focus groups were used to assess the quality of Child Survival services provided through A.I.D. projects. Focus groups proved to be a powerful and economical methodology in the Bolivia study, providing information about beneficiaries' perceptions, experiences, and circumstances. In contrast to the statistical operations, it was easy to establish attribution to A.I.D. in the focus groups by going to sites where A.I.D. services were being provided. The focus groups provided a wealth of information and insight that could not have been easily obtained with other methodologies. For example, surveys can obtain statistical data regarding vaccination coverage, but the focus groups provided the range of different reasons that mothers give for not vaccinating their children, for having only partial vaccinations, or for having their children vaccinated later than they should. Similarly, with regard to oral rehydration therapy, focus groups provided surprising information about mothers' notions concerning the causes and cures of diarrhea in infants, about the

different treatments they use, and about their perceptions of project-supplied oral rehydration salts and other health services.

To be effective, focus groups require considerable planning and preparation. The CDIE team in Bolivia first developed a list of the kinds of qualitative information that were needed from the focus groups. Then a draft questionnaire was developed. The questionnaire is not a formal list of questions, but rather a list of topics that need to be covered in each session.

The team then recruited and hired two local facilitators. Because the Child Survival assessment needed information about sensitive matters such as childbirth and breastfeeding, it was decided that facilitators had to be Bolivian women. This decision was confirmed in some of the subsequent focus groups, where the presence of a male and/or foreigner, even just as notetaker, inhibited responses.

Decisions were then made concerning sampling. It was decided to have focus groups representing beneficiaries of two different A.I.D. Child Survival projects. Public sector and private sector health services would be compared, in both rural and periurban settings. Because Bolivia has a large indigenous population, it was also decided to conduct focus groups with both Spanish-speaking and Aymara-speaking mothers. All participants would be mothers of children under 5 years of age.

The field team was composed of four individuals: a behavioral scientist (epidemiologist/anthropologist), a public health physician, and two focus group facilitators. One of the facilitators was a Bolivian nutritionist with previous experience running focus groups on health topics and the other, a Bolivian psychologist, had previous experience in group dynamics through work with recovering alcoholics and drug users. Both of the facilitators were trained to use the guide developed for this project. Training included a review of the Child Survival discussion guide, techniques for generating and managing group discussions, role playing, recording information, and a supervised field test of the discussion guide.

Three data collection instruments were developed: a focus group guide, a semistructured questionnaire for service providers, and an observation checklist to verify the presence of supplies and equipment in health service delivery points. The public health physician and behavioral scientist interviewed the providers; the physician did the on-site observation and inventory; and the Bolivian facilitators ran the focus groups. The task of focus group observer/notetaker was shared by all team members and the sessions were recorded to facilitate the later verification of the notes. A total of 9 days was spent in the field, including travel days.

All of the focus groups were conducted in Spanish, although both of the facilitators had limited Aymara language skills. The focus groups were composed

of five to eight mothers of children under 5 years who resided within a facility catchment area. The decision to limit group size to about seven members was based on the notion that small groups are easier to manage and give each participant more opportunities to speak.

Carrying out the focus groups required a considerable investment in time and resources. In rural areas, a vehicle and driver were hired. The CDIE focus group team consisted of the CDIE focus group supervisor, a public health physician, and the two Bolivian facilitators. Typically, the supervisor and two facilitators would locate respondents and conduct interviews, while the public health physician would interview health facility staff and conduct an inspection of the facility. Finding willing respondents proved to be a problem until the team discovered that "mothers clubs" operate in most Bolivian communities. If the team planned its visit to coincide with the meeting of the "mothers club" and attended the meeting along with the local health promoter or nurse, it found that it had access to an almost unlimited number of good respondents. Focus groups were carried out with one of the Bolivian facilitators leading the discussion and any other member of the team taking notes. Interaction among the different mothers in the groups was encouraged. Discussion of children and health proved to be easy, interesting topics for the mothers, and there was ample activity in all groups.

Because of the rapid pace of the focus groups, the CDIE team found that some information was being missed by the notetaker. Tape recorders were therefore purchased and focus group sessions were recorded. Recording did not seem to inhibit participation. Following the day's sessions, the team would transcribe the notes onto word processors. Team members would then review the notes against the tapes of the sessions, making additions and corrections.

Upon completion of the cycle of focus groups, the team reviewed all the notes and prepared a written summary, contained in the section on effectiveness of this paper. In all, approximately 8 person-weeks of work (two CDIE professionals and two interviewers, working as a team for approximately 2 weeks) were required to complete this activity.

A total of 20 beneficiary focus groups were held in 11 different communities. One hundred and forty-four mothers participated in the focus groups. At the same time, 17 health staff members in the 11 communities were interviewed.

Attachment 2 to this Appendix contains the focus group guide and training manual that were used in Bolivia, as well as more detailed information concerning the sample of communities. The detailed written summaries of the different focus groups are available in CDIE's files.

The Sustainability Scale

CDIE Working Paper No. 149, titled "Factors Influencing the Sustainability of U.S. Foreign Assistance Programs in Health, 1942-1989: A Six-Country Synthesis" (December 1990), developed a set of 10 factors that appear to be predictors of sustainability of health services in a number of different settings. The CDIE team in Bolivia, in an effort to systematize its assessment of the sustainability of different A.I.D. Child Survival initiatives, took the predictors in the draft CDIE sustainability paper and attempted to operationalize them in a questionnaire format. The questionnaire was then given to the four core members of the team on the last day of fieldwork. After discussion of the items on the questionnaire, the team members responded individually to the questionnaire, rating each A.I.D. Child Survival initiative in Bolivia according to 10 items. The team's responses were then added up and averaged to provide an overall "sustainability score" for each Child Survival initiative. The questionnaire is contained in Attachment 3 to this Appendix.

Averaged results from the four raters are reported in the table.

Factors	PROSALUD	PROCOSI With Endowment	PROCOSI Without Endowment	CCH
1. Effectiveness	4.25	2.75	2.25	1.75
2. Organization	4.50	3.50	3.00	3.50
3. Economic Context	4.25	3.75	3.75	3.75
4. Political Context	4.25	4.25	4.25	4.25
5. Financing	4.75	3.25	1.00	1.00
6. Project Content	4.75	2.24	2.25	3.12
7. Negotiation Process	3.75	2.00	2.00	3.25
8. Institution	4.75	2.00	2.00	1.75
9. National Commitment	3.75	2.75	2.75	4.00
10. Participation	3.75	3.00	3.00	2.75
Average	4.27	2.95	2.62	2.91

Although the averaged scores appear to discriminate among the different A.I.D. Child Survival initiatives in Bolivia, there was uncertainty about the scores' meaning and interpretation. Especially troubling to the team was the fact that only 1 of 10 indicators of "sustainability" has to do with finance. Although contextual factors, design characteristics, and performance are shown to be important indicators of sustainability, the CDIE Bolivia team felt that financial factors such as cost recovery,

ongoing government and donor financial commitments, and other permanent sources of income such as endowment interest are primordial determinants of sustainability.

To get an indication of the validity of the scale, the Bolivia team tested the difference between the PROCOSI project with and without the planned PROCOSI endowment. The team regards the endowment as a make-or-break element of PROCOSI's long-term sustainability strategy. With the endowment, PROCOSI will almost certainly be sustainable beyond its present A.I.D. support; without the endowment, PROCOSI almost certainly will not be sustainable. However, because of the small "weight" given to financial sustainability in the scale, there was little difference in the scores for PROCOSI with and without the endowment. The team therefore concluded that the scale, while a useful compilation of the factors that contribute to sustainability, probably needs further refinement and testing before it can be used confidently as a valid indicator or predictor of sustainability. It is important to mention that the CDIE article was intended to be a descriptive synthesis of factors contributing to sustainability, and did not attempt to turn the list of factors that emerged into a measurement instrument.

Attachment 1

PERSONS INTERVIEWED

Person	Organization	Title	Notetaker
Anderson, Sigrid	USAID/Bolivia/HHR	Deputy Chief	Richard Martin Patricia O.Connor
Antelo, Jack	Ministry of Health	Director General de Salud Pública	Richard Martin
Armijo, Freddy	PROSALUD, La Paz	Director Ejecutivo Adjunto	Enrique Duarte
Arrazola, Antonio	PROSALUD, Sta Cruz	Director Administrativo	Enrique Duarte Richard Martin Patricia O'Connor Oleh Wolowyna
Bernard, Connie	World Bank	Resident Representative	Richard Martin Oleh Wolowyna
Bohrt, Roberto	Ministry of Health	Director Nacional de Atención de las Personas	Richard Martin Oleh Wolowyna
Buzio, Juan Antonio	Inter-American Development Bank	Sub-Representante	Richard Martin Oleh Wolowyna
Calle, Dominga	Distrito Altiplano Sur (Patacamaya)	Auxiliar	Enrique Duarte
Calizaya, Modesto	Centro de Salud de Machacamarca	Auxiliar	Enrique Duarte
Carreno, José	PROCOSI	Tecnico de la Unidad de Salud primaria	Richard Martin
Cisneros, Fernando	Ministry of Health	Coordinador de Donantes Bilaterales	Richard Martin Oleh Wolowyna
Contrreras, Manuel	UDAPE	Director del Grupo Social	Oleh Wolowyna Clark Joel
Cuellar, Carlos	PROSALUD	Director Nacional	Richard Martin Enrique Duarte
Diaz Romero, Fernando	PROCOSI	Secretario Ejecutivo a.i.	Richard Martin Oleh Wolowyna
Fairbanks, Rita	CCH	Consultora de Educación en Salud	Enrique Duarte Patricia O'Connor
Gómez, Antonio	CCH	Consultor en Computación	Oleh Wolowyna
Gutiérrez, Daniel	PAHO	Consultor Materno-Infantil	Richard Martin Oleh Wolowyna

PERSONS INTERVIEWED

Person	Organization	Title	Notetaker
Halkyer, Percy	PAHO	Consultor Macional PAI	Richard Martin Oleh Wolowyna
Hartenberger, Paul	HHR	Chief	Richard Martin
Heineken, José	Unidad Sanitaria, Santa Cruz	Director	Richard Martin
Johnson, Pamela	AID/W/RD/H		Richard Martin
Kuritsky, Joel	Centers for Disease Control (CDC)	CCH Project Coordinator	Richard Martin Oleh Wolowyna
La Fuente, Oscar	Distrito de Salud Valles Crucflos (Samaipata)	Director	Enrique Duarte Patricia O'Connor
Landaverde, J. Mauricio	PAHO	Consultor Intermacional, PAI	Richard Martin Oleh Wolowyna
Langmaid, Brad	AID/W/AA		Richard Martin
Lavadenz, Fernando	Ministry of Health	Coordinador de Donantes Internacionales	Richard Martin Olleh Wolowyna
Leonard, Carl	USAID/Bolivia	Director	Richard Martin Patricia O'Connor
Llewellyn, Charles	USAID/Bolivia/HHR	Health Officer	Richard Martin Patricia O'Connor
Mercado, Elba	USAID/Bolivia/HHR	PROSALUD Project Manager	Richard Martin
Mufioz, Alvaro	CCH	Director Ejectivo	Patricia O'Connor
Oropeza, Carlos	Ministry of Health	Director Macional de LA Oficina Sectorrial de Planificación y Proyectos	Richard Martin Oleh Wolowyna
Paz Zamora, Mario	Ministry of Health	Minister of Health	Richard Martin
Poma, Nora	Area de Calamarca, Distrito Altiplano Sur	Auxiliar	Enrique Duarte
Putney, Pam	PROSALUD	Asesora	Patricia O'Connor
Reyes, Juan Francisco	Inter-American Development Bank	Especialista Sectorial	Richard Martin Oleh Wolowyna
Rosenbaus, Reiner	UNFPA	Director	Enrique Duarte
Rubin de Celis, Marco T.	PROSALUD, Santa Cruz	Encargado SIG	Oleh Wolowyna
Sandi, Franklin	Ministry of Health	Director General Administrativo	Oleh Wolowyna Clark Joel

PERSONS INTERVIEWED			
Person	Organization	Title	Notetaker
Santa Cruz, Luis	PROSALUD, Santa Cruz	Director Médico	Enrique Duarte Richard Martin Patricia O'Connor Oleh Wolowyna
Schmalzle, Johann	Inter-American Development Bank	Representative in Bolivia	Richard Martin Oleh Wolowyna
Tejada, Cindy	USAID/Bolivia/HHR	PROCOSI II Project Manager	Richard Martin
Tenorio, Alberto	Distrito Altiplano Sur, Unidad Sanitaria La Paz & CCH (Patacamaya)	Director Médico	Enrique Duarte
Van Dusen, Ann	AID/W/RD/H		Richard Martin Patricia O'Connor
Vargas, Heber	Unidad Sanitaria, Santa Cruz	CCH Project Coordinator	Richard Martin
Zapata, Neyla	Area de Calamarca, Distrito Altipalanno Sur	Director Médico	Enrique Duarte Pat O'Connor

Attachment 2

EVALUATION OF CHILD SURVIVAL PROGRAMS IN BOLIVIA

Agency for International Development

February 1992

DISCUSSION GUIDE FOR FOCUS GROUPS

I. ICE BREAKER (10 minutes)

A. Introductions
- Name.
- Explain the purpose of the meeting.
- Working as a group.

B. Children Under Five Years
- Tell me about your children.

II. IDEAS ABOUT CHILDREN'S HEALTH (10 minutes)

A. When can say that our children are healthy?
B. What are the most common diseases that affect our children?
C. How often do our children get sick?

III. CURATIVE HEALTH SERVICE (20-30 minutes)

A. Who treats/cures your children when they get sick/ Why?
Note: Look for opinions about:
- Outcome/results
- Provider/user relations
- Costs (consultation, transportation, medicine)
- Waiting time
- Physical aspects (privacy, cleanliness)
- Availability of drugs, lab services
- Access (distance, availability of transportation)
- Follow-up at home

B. How are the health services for children at <u>(name of the facility)</u> ?

PROBES: Why do you feel that way?
Why do you say that?
Why do you go/not go there?
How are you treated?

C. How do you take care of yourself when you are pregnant?

Note: Look for opinions about prenatal care:

- Have you been to the clinic for a prenatal check-up? Why or why not?
- How were you treated?

D. Where were your children born? Why?

E. If you were the director of (name of facility) , how would you improve the services?

(NOTE: Alternative question—Describe the services you would like (name) to offer).

IV. PREVENTIVE HEALTH SERVICE (20-30 minutes)

A. General Prevention

What do you do to keep your children from getting sick?

B. Diarrheal Disease

Why do children get diarrhea?
What do you do when your child has diarrhea?

Note:
- Methods of treating diarrhea?
- Where diarrhea is treated (home, healer, health center)
- Preventing dehydration

C. Oral Rehydration Salts

What experiences have you had with ORS?

- Have you ever used the packets?
- Where do you get the packets?
- When/why do you use them?
- Have they helped your child? In what way?

D. ARI

What do you do when your child has cough, fever, and/or difficulty breathing?

- Methods of treating cough/fever
- Where cough/fever is treated (home, healer, health center)

E. Immunizations

1. Some people say it is important to vaccinate our children. Other people say that it is not important. What is your opinion?

2. Have you vaccinated your children? Why or why not?

3. Have you experienced any difficulties in getting your children vaccinated?

    - Waiting time
    - Lack of vaccines
    - Rigid schedules
    - Provider/client relations

F. Health Education

1. Is there any one from this community/neighborhood who teaches you about health/

2. What does he/she teach about?

    - Breastfeeding
    - Nutrition (Vitamin A, iron, iodine)
    - Growth monitoring
    - ORS, diarrheal diseases
    - Basic hygiene
    - Sanitation

3. Are the things you learn practical? Can you do them? Why?

4. Will the things you are learning help to solve the problems in this community/neighborhood?

G. What should be done to keep this community/neighborhood healthy?

- Water projects, latrines, sewage
- Agriculture projects, family gardens
- Marketing

V. CLOSING (5-10 minutes)

A. Conclusions/Summary of the Discussion

- Characteristics of good services
- Characteristics of available curative/preventive services

B. Thank you

EVALUATION OF CHILD SURVIVAL PROGRAMS IN BOLIVIA

Agency for International Development

February 1992

MANUAL FOR RUNNING FOCUS GROUPS

I. ICE BREAKER (10 minutes)

The objective of this introductory section is to establish trust among the group members and between the group and the facilitator. The facilitator should adopt a friendly manner and communicate that she is enjoying the session—it is not just work.

A. Introductions

- Names
- Explain the purpose of the meeting

  Explain to the participants that the purpose of the meeting is to discuss health of women and children in Bolivia, and that each person's presence/participation is important. Explain that you and the observer do not work in the health sector in Bolivia, that you are just visiting the community to get to know more about it.

- Working as a group

  Explain what a focus group is—that you want to learn about all of the different ideas/opinions people have, that there are no right or wrong answers, and that it is okay to disagree.

B. Children Under Five Years

This topic gives the group members a brief opportunity to get to know each other by discussing a neutral subject. The purpose is to help the participants feel secure in the group setting. Be sure to avoid any negative commentary regardless of what the women talk about.

II. IDEAS ABOUT CHILDREN'S HEALTH (10 minutes)

The purpose of this brief section is to continue building rapport among the group members. You want the participants to start thinking about their children's health. Get the group to define health—how do they know that their children are healthy? sick? Identify the major health problems/diseases? How common are they?

III. CURATIVE HEALTH SERVICES (20-30 minutes)

You are now in the body of the discussion. During this section, you should engage the group in a discussion about quality of care. You want to know how they evaluate the services offered at a given facility. Do they use the services? When and why? What is good about the care? What is bad?

A. Who treats/cures your children when they get sick? Why?

You can use this question and a series of follow-up probes to establish the criteria used by the group to evaluate the quality of services. One mother may always treat her children at home because of costs associated with other care while another mother may try a traditional healer before going to the health center because of access (distance), cost, and better provider/client relations. A third mother may always go directly to the health center because her child is cured and she can buy the drugs she needs right at the facility. Some of the elements of quality the group may discuss include:

- Outcome/results
- Provider/user relations
- Costs (consultation, transportation, medicine)
- Waiting time
- Physical aspects (privacy, cleanliness)
- Availability of drugs, lab services
- Access (distance, availability of transportation)
- Follow-up at home

B. How are the health services for children at <u>(name of the facility)</u> ?

During this part of the group, be sure that the participants discuss the services at the identified health facility. Remember, you want to discover their ideas, their criteria of quality. Don't impose your own criteria. For example:

Facilitator:	How are you treated at the health center?
Mother 1:	Fine.
F:	Fine?
Mother 1:	Fine. There are no problems there.
F:	Why do you say that?
Mother 1:	There is a nurse there. She understands me. She does not scold me.
F:	And you—what are your experiences at the center?

Mother 2: Well, sometimes you have to wait a long time. The last time I went, my son had a fever and a cough. I had to wait all day. The nurse prescribed some medicine, but said I would have to go to the pharmacy. The pharmacy is always expensive and it was late. We had to go home. My son was sick for 1 week.

Mother 3: The problem is that the nurse does not understand. And she blames us when the children get sick.

F: Why do you feel that way? Why do you think she blames you?

C. How do you take care of yourself when you are pregnant?

Now you are going to discuss prenatal care. Try to find out how women take care of themselves when they are pregnant, including prenatal check-ups. Why do they go or avoid going to the clinic when they are pregnant?

D. Where were your children born? Why?

Many women choose to deliver their babies at home. In this section, try to establish why mothers deliver at home or in a facility, and who attends the birth.

E. If you were the director of (name of facility) how would you improve the services? (Describe the services you would like (name) to offer.)

In this part, the mothers discuss ways that curative services at the facility might be improved. Remember, the purpose is to establish their suggestions about improving quality such as:

- Outcome/results
- Provider/user relations
- Costs (consultation, transportation, medicine)
- Waiting time
- Physical aspects (privacy, cleanliness)
- Availability of drugs, lab services
- Access (distance, availability of transportation)
- Follow-up at home

IV. PREVENTIVE HEALTH SERVICES (20-30 minutes)

This module of the group discussion deals with preventive and community health services.

A. General Prevention

What do you do to keep your children from getting sick?

Use this question to get mothers thinking about prevention. Is it possible? What can a mother do?

B. Diarrheal Disease

From the clinical perspective, diarrhea is one of the most common child health problems. Does this group of mothers agree? Is there a taxonomy of diarrheal diseases (that is, do they classify diarrheas by certain criteria—cause, severity, odor, etc.)? Does treatment vary by type? When/why do they go to the clinic?

Note:
- Methods of treating diarrhea
- Where diarrhea is treated (home, healer, health center)
- Preventing dehydration

C. Oral Rehydration Salts

Discuss ORS. Do they use them? Why (what is the purpose of using the salts)? Where do they get them? How are the results? Do they cure diarrhea?

D. ARI

Like diarrhea, ARIs are a common disease from the clinical perspective. How do mothers determine severity of cough/fever/breathing difficulties? How do they treat ARI? When/why do they go to the clinic?

E. Immunizations

Immunization rates vary dramatically across different social sectors (urban-rural, literate-illiterate, Spanish speaking, Aymara-speaking). Also coverage rates of fully vaccinated children (all recommended doses) are very low. Try to establish the reasons why children are vaccinated or not. What are the difficulties faced by mothers who want to have their children vaccinated?

F. Health Education

First, establish whether or not the group knows a community health promoter and whether the promoter is affiliated with the health center (or a church, etc.). Second, engage the group in a discussion about quality of education—do they participate? why? can they use what they learn?

G. What should be done to keep this community/neighborhood healthy?

As a final topic, the discussion turns to mothers' ideas about how to keep their community healthy. What kinds of services/projects will improve the quality of life in the community.

Note:
- Water projects, latrines, sewage
- Agriculture projects, family gardens
- Marketing

V. CLOSING (5-10 minutes)

A. Conclusions/Summary of the Discussion

To conclude the session, you should tell the group that you want to summarize their ideas. Ask the group to correct you when necessary. As you go along, you can take advantage of this final opportunity to clarify some of the opinions that emerged during the earlier discussion.

- Characteristics of available curative/preventive services
- Characteristics of a good services; ways to improve services

B. Thank you

Attachment 3

SUSTAINABILITY FACTORS
BOLIVIA CHILD SURVIVAL ASSESSMENT

In the CDIE study, "Factors Influencing the Sustainability of U.S. Foreign Assistance Programs in Health, 1942-1989: A Six Country Synthesis" (December 1990), 10 factors were found to generally influence the long-term sustainability prospects of A.I.D.-supported health projects.

We are going to try to apply the factors developed in the CDIE paper to the Child Survival initiatives here in Bolivia. We will define the factors as follows:

1. Project Effectiveness

   The most important factor is the project's *reputation* for effectiveness among key informants. Let's rate the projects as follows:

   0 - Project has a reputation as a complete failure; viewed as totally ineffective.
   1 - Project has a reputation as a qualified failure, an overall failure in terms of its objectives but it did a few things right and had minor impact.
   2 - Project has a reputation as somewhat disappointing, although it did have some significant positive effects.
   3 - Project has a neutral reputation in terms of effectiveness; it accomplished most but not all of its objectives and is considered a qualified success.
   4 - Project has a positive reputation in terms of effectiveness; it accomplished all of its objectives and achieved the anticipated impact.
   5 - Project has a reputation as a spectacular success; it exceeded its objectives and had more impact than anticipated.

2. Institutional Organization and Management

   The important element here is whether projects were designed and implemented as vertically run separate hierarchies (single-disease programs, campaigns) or integrated into existing institutional hierarchies ("full-service" packages of interventions). Integrated services proved to be more sustainable than vertical services in the CDIE study. Rate the projects as follows:

   0 - perfectly vertical service; no functional relationship at all with any other health service or unit
   1 - essentially vertical service with only minimal relationship with other services or units
   2 - vertical services packaged together somewhat, but not constituting an integrated program
   3 - a mix of vertical and integrated services

4 - essentially integrated services, but with a few "special" services such as vaccination campaigns
5 - totally integrated services

3. Economic Context

A strong and/or growing national economy was found to be a favorable factor with regard to project sustainability. Rate the economy of Bolivia as follows:

0 - chaotic and collapsing
1 - troubled; not growing, high uncertainty, lack of confidence
2 - stagnant; some sectors improving slightly, other sectors weak
3 - indifferent; not performing as well as it could, but not collapsing
4 - improving slowly
5 - improving rapidly

4. Political Context

This factor seems to have several dimensions: national political stability, priority given to national health programs, and a well-established and well-run public sector health establishment. Based on these three criteria, rate the political environment of Bolivia as follows:

0 - extremely negative and unfavorable; health sector projects virtually impossible
1 - somewhat negative, enough to seriously constrain health sector projects
2 - slightly negative, minimally constraining health sector projects
3 - indifferent; political environment neither favors nor constrains health sector projects
4 - generally positive; political context overall supports health sector projects
5 - extremely positive; political environment provides strong positive incentives for rapid progress with health sector projects

5. Financing

This factor measures whether a source of financial support was developed during the project to provide continuing funding support after the A.I.D. project ends. Let's rate projects as follows:

0 - no anticipation at all of postproject financial requirements
1 - only vague, unclear account taken of postproject financial needs
2 - postproject financial requirements taken into consideration, but not clearly and strongly provided for
3 - postproject financial needs apparently provided for, but it is questionable whether they will really be adequately covered
4 - postproject financial needs apparently covered adequately, although it will be a constant problem for the implementing organization

5 - strong, convincing provision of financing for postproject activities and additional, new activities assured

6. Project Content

This factor seems mainly concerned with the degree to which the project provided training so that project staff could continue project activities by itself. Let's rate projects as follows:

0 - no training, no attention at all to creating a permanent staff
1 - practically no training
2 - some training, but the local staff will be shaky when project ends
3 - barely adequate training; local staff will be ill prepared, but will carry on
4 - adequate training; local staff will be strong at end of project
5 - superior quality and quantity of training; local staff will be able to sustain project activities and launch new initiatives on their own

7. Project Negotiation Process

A mutually respectful negotiation process favors long-term sustainability, according to the CDIE study. Rate projects as follows:

0 - project exclusively an A.I.D. initiative; no consultation at all
1 - only minimal consultation and negotiation after A.I.D. develops the project
2 - a little host country participation in project development, followed by a negotiation process
3 - some active host country participation throughout project development, but still an A.I.D. initiative
4 - joint, collaborative A.I.D.-host country project development
5 - project essentially a host country initiative which is negotiated with A.I.D.

8. Implementing Institution

Negative institutional factors include rapid turnover of staff and executives, centralization, political patronage, internal conflict, and low skill levels. This multidimensional factor will be rated as follows:

0 - extremely deficient implementing institution capability
1 - weak institution, very low capability
2 - moderately weak institution
3 - fair institutional capability, strengths balance weaknesses
4 - moderately strong institution, strengths outweigh weaknesses
5 - very strong institution

9. National Commitment

This factor measures the degree of consensus among important interest groups and decision-makers that project goals and objectives are a national priority.

0 - lack of national consensus on project goals, including some strong opposition
1 - lack of consensus, but only weak opposition
2 - official indifference; neither support nor opposition
3 - some signs of a general consensus favoring project goals, but not a high priority
4 - firm, generalized consensus among leadership favoring project objectives
5 - project objectives represent a major national initiative with highest priority on the part of the host country

10. Community Participation

This factor measures the degree to which the project stimulates community participation and responds to community-defined requests. Rate projects as follows:

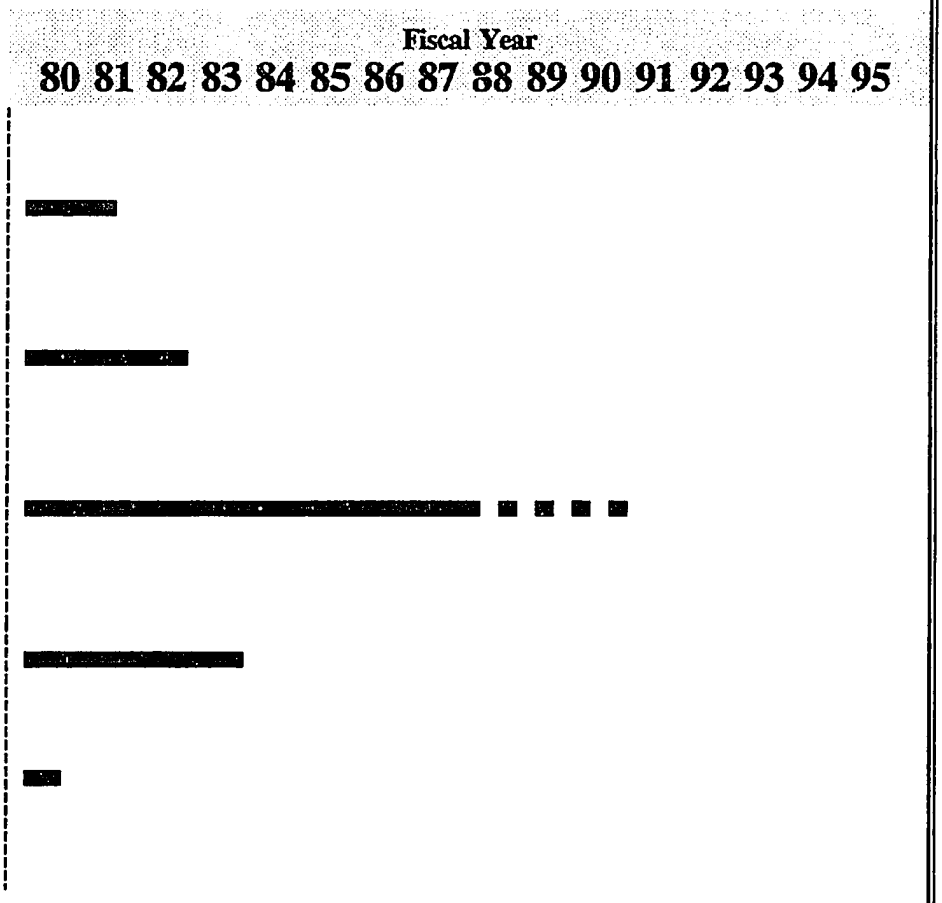
0 - no community involvement, participation, or initiative whatsoever
1 - very minimal, token community participation
2 - some community participation, but not very much
3 - moderate community participation
4 - strong elements of community participation, active participation a requirement for success at the community level
5 - activities based on strong community initiative; community designs and implements project activities at the local level

	PROSALUD	PROCOSI con fondo	PROCOSI sin fondo	CCH
1. Effectiveness				
2. Organization				
3. Economic context				
4. Political context				
5. Financing				
6. Project content				
7. Negotiation process				
8. Institution				
9. National commitment				
10. Participation				

Projects: Bilateral, Regional, and Centrally Funded Projects

Timeline: USAID-Funded Activities Related to Health and Population in Bolivia, FY 1980 to 1995

This chart contains USAID-funded projects active since FY 1980 known to contain a health or child survival component. Some projects with a nutrition or population component may also be included. The beginning and ending fiscal years appear after the project title. Dollar amount for bilateral projects is the approximate total authorized life-of-project (LOP) funds for the entire project and *not* an amount allocated to a specific component of the project. The centrally funded LOP reflects the authorized LOP for Bolivia.



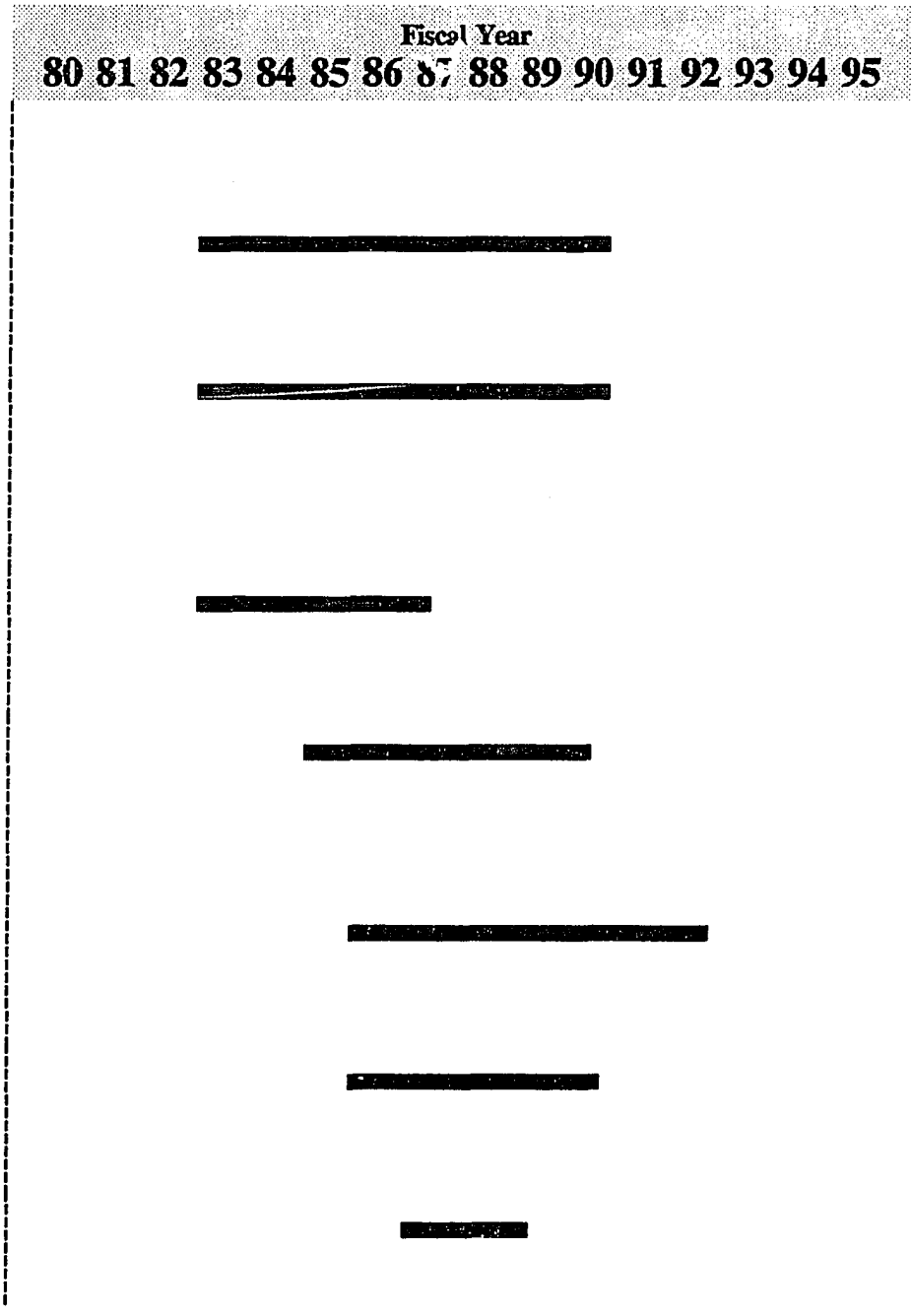
* Fiscal Year of Final Obligation
** Country-specific funding information is currently not available in the Center's Health Projects Database.

Source: Center for International Health Information/ISTI, USAID Health Information System, May 1992.

Note: Table reprinted from "Bolivia Health Profile, Selected Data." Prepared by the Center for Internaticnal Health/USAID Health Information/USAID Health Information System for the Office of Health, Bureau for Research and Development, Agency for International Development. Draft. May 1992

Timeline: USAID-Funded Activities Related to Health and Population in Bolivia (continued) FY 1980 to 1995

	Project Number
Bilateral Projects (continued)	
Self-Financing Primary Health Care 1983 - 90 LOP $2,300,000	511-0569
Chapare Regional Development 1983 - 90* LOP $38,500,000 (23% of project reported for health)	511-0543
Tiwanacu Rural Health (San Gabriel) 1983 - 87 LOP $300,000	511-0536
Oral Rehydration Therapy and Child Growth Monitoring - OPG 1985 - 90 LOP $1,236,000	511-0590
Private Agriculture Organization (Nutrition) 1986 - 92 LOP $4,200,000	511-0589
Child Survival/Rural Sanitation 1986 - 90 LOP $5,000,000	511-0599
ORS Packets 1987 - 89 LOP $450,000	511-0600



* Fiscal Year of Final Obligation

** Country-specific funding information is currently not available in the Center's Health Projects Database.

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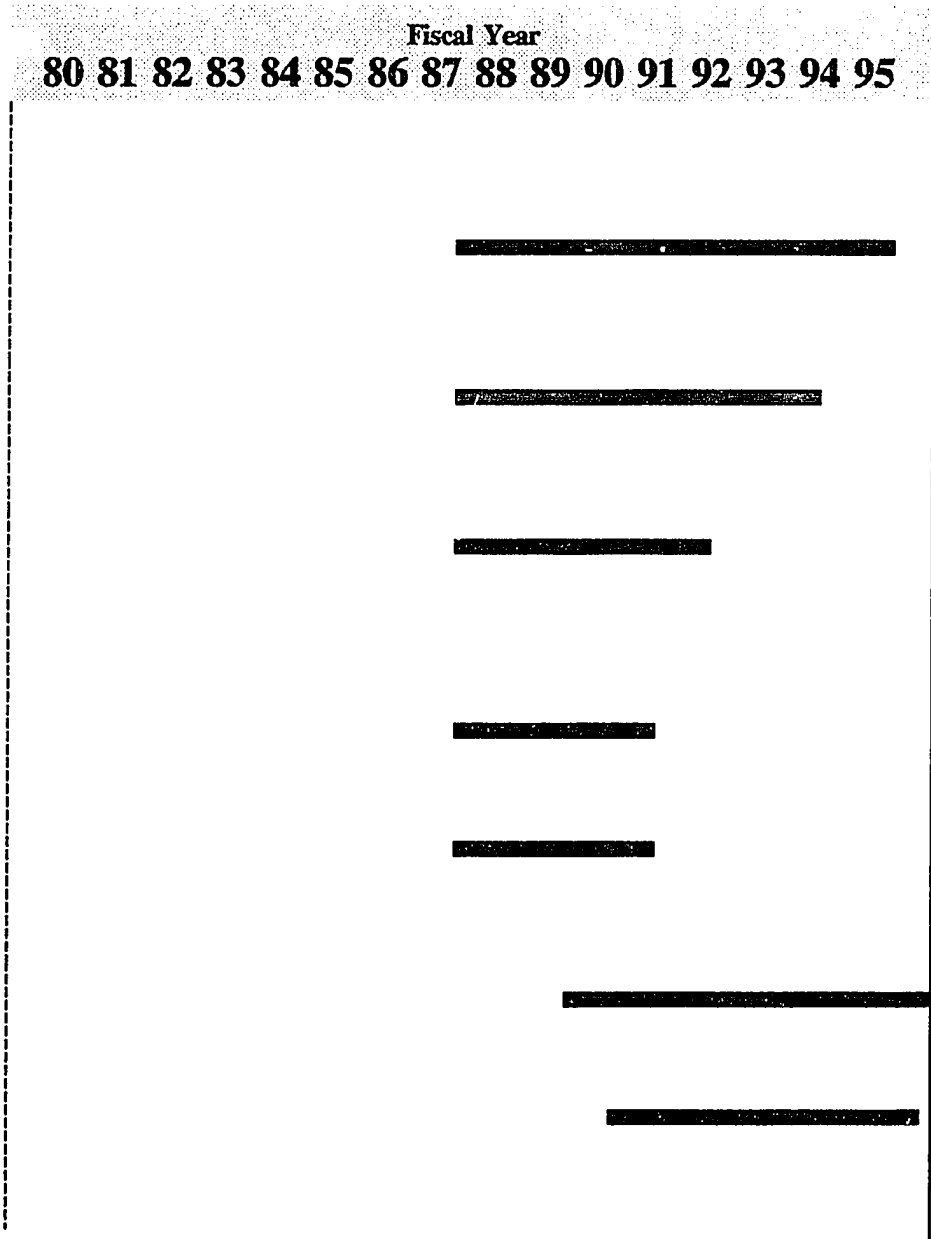
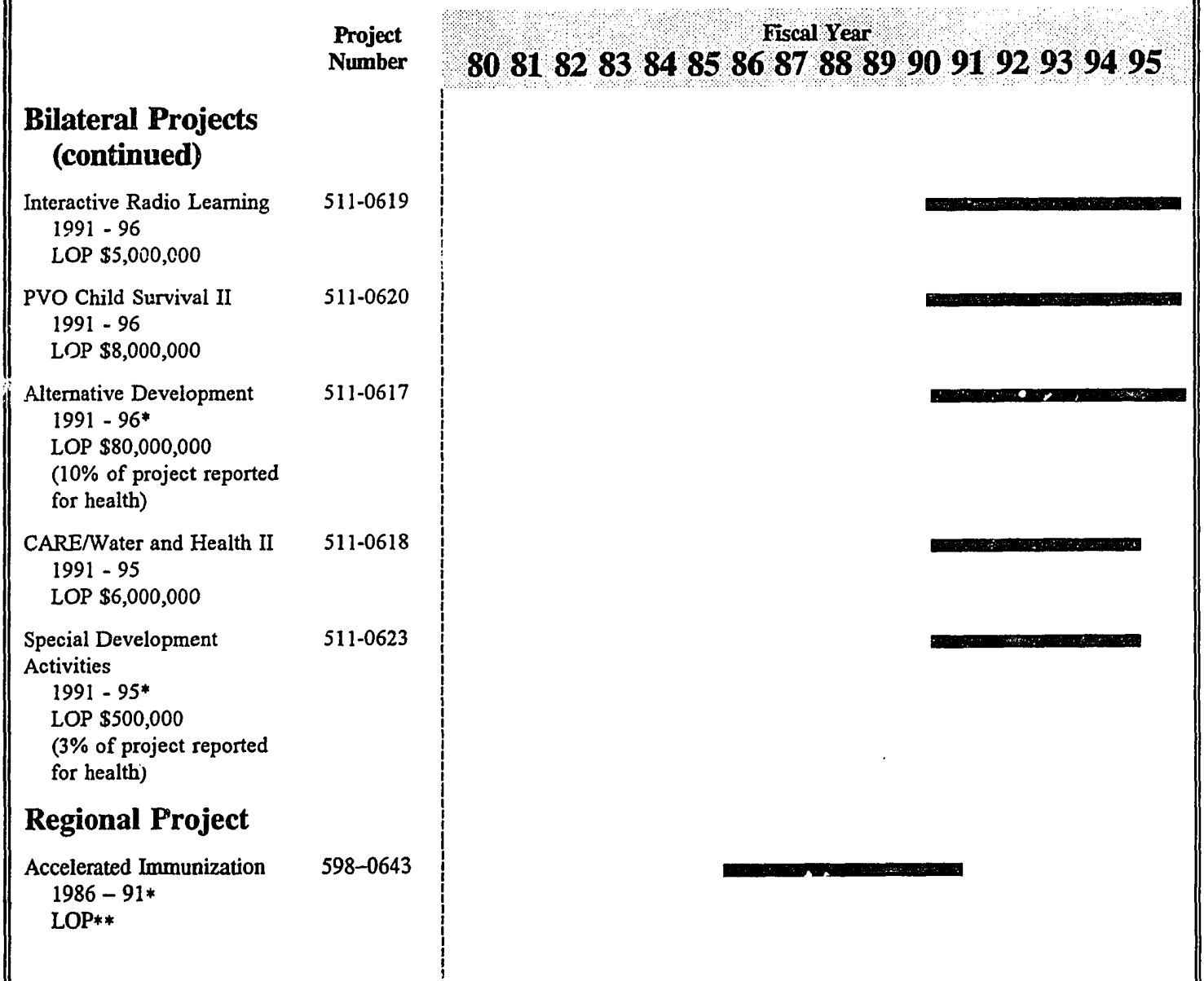
Timeline: USAID-Funded Activities Related to Health and Population in Bolivia (continued) FY 1980 to 1995



* Fiscal Year of Final Obligation

** Country-specific funding information is currently not available in the Center's Health Projects Database.

Timeline: USAID-Funded Activities Related to Health and Population in Bolivia (continued) FY 1980 to 1995

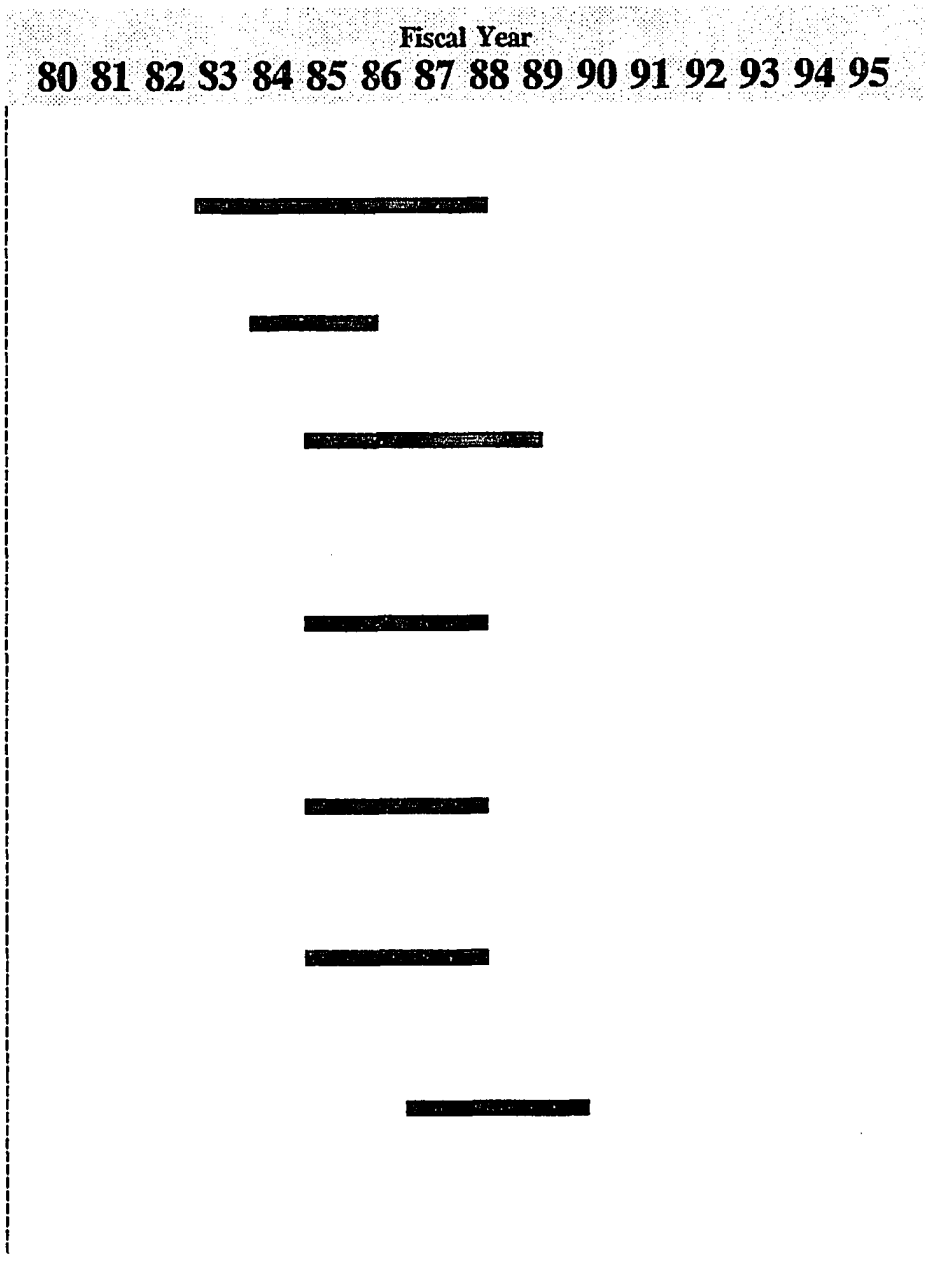


* Fiscal Year of Final Obligation

** Country-specific funding information is currently not available in the Center's Health Projects Database.

Timeline: USAID-Funded Activities Related to Health and Population in Bolivia (continued) FY 1980 to 1995

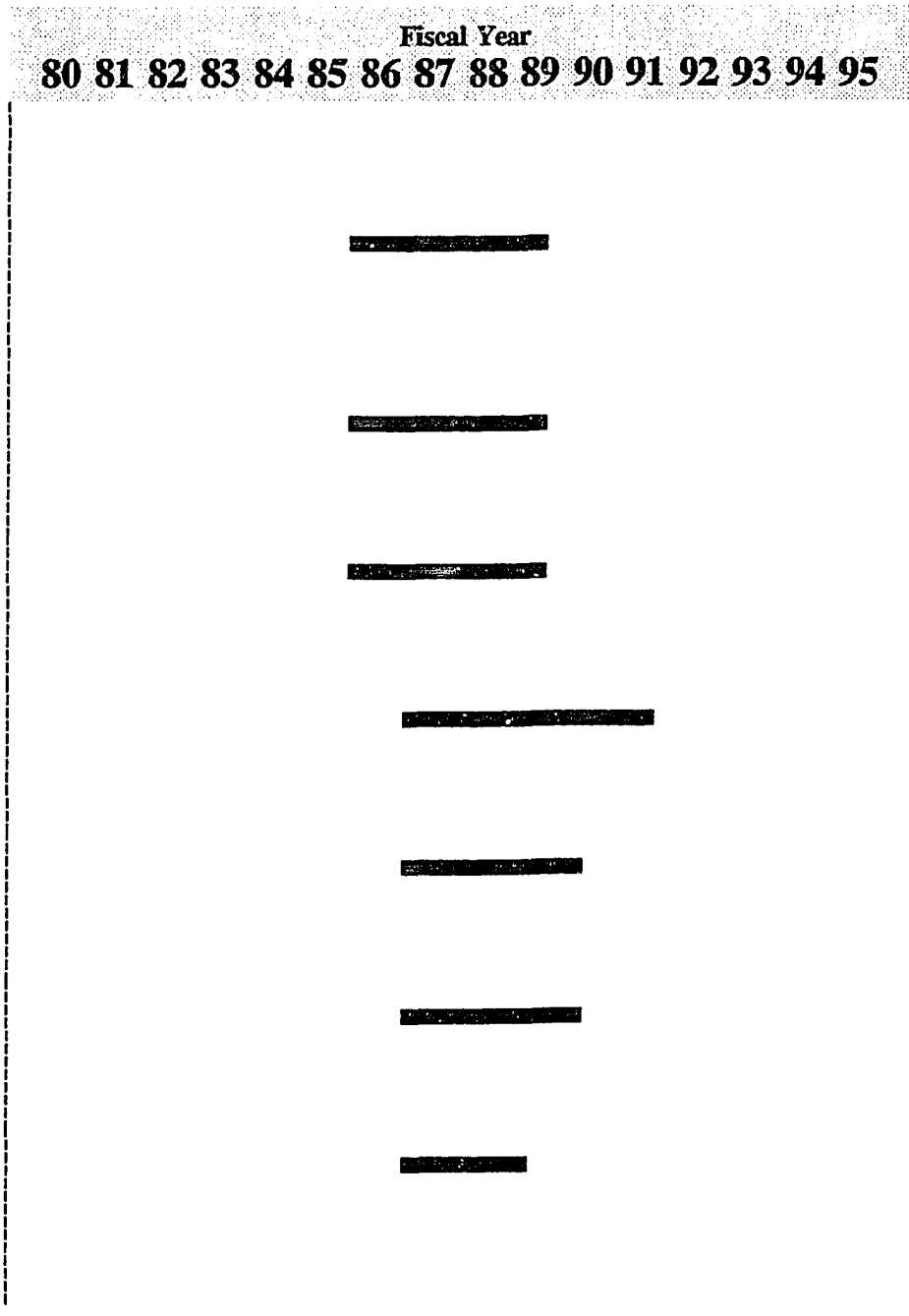
	Project Number
Central Projects	
PRITECH 1983 - 88 LOP $410,000	936-5927
PRICOR 1984 - 86 LOP $139,000	936-5920
FY85 Child Survival Grant to Save the Children Federation 1985 - 89 LOP $669,000	938-0502
FY85 Child Survival Grant to Project Concern International 1985 - 88 LOP $525,000	938-0510
Matching Grant to Meals for Millions 1985 - 88 LOP $165,000	938-0261
FY85 Child Survival Grant to CARE 1985 - 88 LOP $625,000	938-0503
FY87 Vitamin A Grant to Save the Children Federation 1987 - 90 LOP $34,000	931-0045



* Fiscal Year of Final Obligation
** Country-specific funding information is currently not available in the Center's Health Projects Database.

Timeline: USAID-Funded Activities Related to Health and Population in Bolivia (continued) FY 1980 to 1995

	Project Number
Central Projects (continued)	
FY86 Child Survival Grant to Project Concern International 1986 - 89 LOP $500,000	938-0521
FY86 Child Survival Grant to Esperanca 1986 - 89 LOP $550,000	938-0520
FY86 Child Survival Grant to Foster Parents Plan 1986 - 89 LOP $500,000	938-0522
FY87 Child Survival Grant to Freedom from Hunger 1987 - 91 LOP $460,000	938-0528
FY87 Child Survival Grant to ANDEAN 1987 - 90 LOP $220,000	938-0531
Child Survival Fellow - (Johns Hopkins University) 1987 - 90 LOP $49,000	936-5951
FY87 Child Survival Grant to Save the Children Federation 1987 - 89 LOP $700,000	938-0535



* Fiscal Year of Final Obligation

** Country-specific funding information is currently not available in the Center's Health Projects Database.

Timeline: USAID-Funded Activities Related to Health and Population in Bolivia (continued) FY 1980 to 1995

	Project Number	Fiscal Year 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Central Projects (continued)		
PRITECH II 1988 - 92 LOP $846,000	936-5969	
CSAP Support (John Snow) 1988 - 91 LOP $169,000	936-5951	
FY88 Child Survival Grant to Project Concern International 1988 - 91 LOP $850,000	938-0510	
Technical Advisors on AIDS/Child Survival 1988 - 91 LOP**	936-5970	
Demographic and Health Surveys 1988 - 89* LOP**	936-3023	
FY89 Child Survival Grant to Food for the Hungry, International 1989 - 93 LOP $500,000	938-FFHI	

* Fiscal Year of Final Obligation

** Country-specific funding information is currently not available in the Center's Health Projects Database.

Timeline: USAID-Funded Activities Related to Health and Population in Bolivia (continued) FY 1980 to 1995

	Project Number	Fiscal Year 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Central Projects (continued)		
FY89 Child Survival Grant to Save the Children Federation 1989 - 93 LOP $600,000	938-0SCF	
FY89 Child Survival Grant to Esperanca 1989 - 92 LOP $640,000	938-0ESP	
FY90 Child Survival Grant to Foster Parents Plan 1990 - 93 LOP $875,000	938-PLAN	
FY90 Child Survival Grant to ANDEAN 1990 - 93 LOP $700,000	938-0AND	
Breastfeeding and Maternal and Neonatal Health 1990 - 90* LOP**	936-5966	
FY91 Child Survival Grant to Project Concern International 1991 - 94 LOP $675,000	938-0PCI	

* Fiscal Year of Final Obligation

** Country-specific funding information is currently not available in the Center's Health Projects Database.

Timeline: USAID-Funded Activities Related to Health and Population in Bolivia (continued) FY 1980 to 1995

	Project Number	Fiscal Year 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
Central Projects (continued)		
FY91 Vitamin A Grant to Project Concern International 1991 - 94 LOP $25,000	938-0PCI	
Central Contraceptive Procurement 1991 - Continuing LOP**	936-3057	

Other, usually short-term, health and nutrition projects known to have worked in Bolivia include:

Central Projects
AIDSCOM
AIDSTECH
CSAP Support
Health Resources Support
HEALTHTECH
Improvement of Maternal/Infant Diet
Integration of Health/Nutrition Services
Lactation Management
MEDEX Support
Nutrition Education and Social Marketing
Nutrition Education Field Support
REACH
Vector Biology and Control
Vitamin A for Health
Water and Sanitation for Health
Women and Infant Nutrition

Regional Projects
Andean Peace Scholarships
Technology Development/Transfer in Health

* Fiscal Year of Final Obligation
** Country-specific funding information is currently not available in the Center's Health Projects Database.

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