



*Reducing Maternal and Child Mortality in Bolivia*

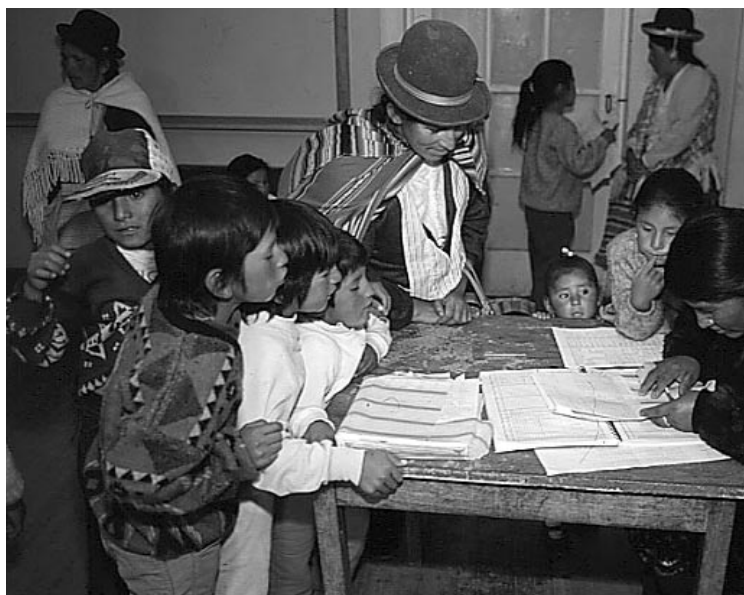


Partnerships  
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Reform

## *Delivering Priority Health Services to Poor Mothers and Children*

Policymakers in developing countries are increasingly faced with the challenge of achieving the public policy objective of ensuring universal health care while operating within the reality of limited, and often decreasing, public financing for the health sector. In Latin America, formal sector workers and dependent family members are frequently covered for health care by social security systems or by a growing private health insurance market. Meanwhile, the task of reaching under-privileged populations remains largely an obligation of the state and its institutions.

In recent years, a number of creative solutions have been proposed and implemented in an effort to improve access to health services by the poor.



*(The) goal is to reduce maternal and child mortality by ... providing key maternal and child health inventions free-of-charge to the consumer, thereby eliminating what was viewed as an important economic barrier to access.*

One such program is the Bolivian *National Insurance for Mothers and Children* (SNMN by its Spanish acronym), which began operation in mid-1996. The Partnerships for Health Reform Project (PHR) and the Data for Decision Making Project (DDM), both funded by the United States Agency for International Development, were asked by the Ministry of Health and Social Provision of Bolivia (MOH) to evaluate the insurance program as it completed its second year of operation. The observations provided below are drawn from the findings of this evaluation.

### *Bolivia: An Innovative Approach*

High maternal and child mortality have been two of the most persistent health problems confronting Bolivia over the past several decades. The maternal mortality rate, 371 per 100,000 live births, is higher than the average for low- and middle-income countries globally (238) and more than twice that found in an average Latin American country (162). Infant mortality rates depict a worrisome picture: 83 infants die per 1,000 live births in Bolivia while average rates in the region and for countries of similar income are, respectively, 44 and 61 per 1,000.

These figures are partly explained by environmental conditions that will likely continue to present a challenge over the foreseeable future. Bolivia, one of the poorest countries in Latin America (per capita income was \$950 per annum in 1997), is characterized by a substantially rural population (41%) that is dispersed across three distinct ecological regions, some parts of which are extremely difficult to access. Its population is culturally diverse and is growing at a rapid pace (2.4% annually) (see Exhibit 1).

Despite continued government efforts to provide access to health care, utilization of formal health services remains low. In 1994, only 42% of deliveries occurred within health facilities.

Over the last 40 years, the government of Bolivia has implemented various programs directed at improving the health of underserved populations.

These efforts addressed a variety of health problems, often focusing on specific illnesses, but no comprehensive strategy was developed. The Bolivian Insurance for Mothers and Children is the government's most recent attempt at resolving critical public health issues affecting this important segment of the population. The SNMN program focuses on reducing economic barriers to access; easing cultural, physical or other barriers remains a challenge for the future.

## Bolivian Insurance for Mothers and Children

The goal of the SNMN program is to reduce maternal and child mortality by increasing utilization of formal health services. The program hopes to achieve this goal by providing key maternal and child health interventions free-of-charge to the consumer, thereby eliminating what was viewed as an important economic barrier to access.

### How does the program work?

- ▲ Women and children under five years of age receive treatment, free-of-charge, for a set of conditions that are common causes of maternal and child morbidity. SNMN-covered services are summarized in *Exhibit 2*.
- ▲ Participating institutions include Ministry of Health facilities at all levels of the service delivery network, some social security hospitals and a small number of private not-for-profit organizations.
- ▲ Facilities are reimbursed by their municipal government (*alcaldía*) for drugs, supplies, hospitalization and laboratory exams associated with the delivery of covered services. Reimbursement rates for each service were fixed by the MOH in 1996. These rates were calculated based on the average cost of treating the conditions covered using the first line of treatment drugs indicated by MOH protocols.
- ▲ Facilities request reimbursement on a per service basis from their municipal government. Prior to payment by the municipality, reimbursement requests must be approved by the local health directorates (DILOS by their Spanish acronym). Municipalities use revenues they receive under the 1994 Law of Popular Participation to pay the reimbursements (see below).

## Exhibit 1: Basic health, population and income indicators

Indicator	Bolivia	Low- and middle-income countries	Latin America
Maternal mortality rate (per 100,000 live births)	371	238	162
Infant mortality rate (per 1,000 live births)	67	59	33
Income per capita (in US\$)	950	1250	3880
Rural population (%)	48	60	26
Annual rate of growth of the population	2.4	1.6	1.7

Data for Bolivia and for maternal and infant mortality rates are from the World Bank website. Remaining data are from the *World Development Report 1998/1999*, pp. 191, 193.

## Exhibit 2: SNMN services

### Maternity

Prenatal care  
 Preeclampsia  
 Eclampsia  
 Vaginal delivery with neonatal care  
 Cesarean section delivery with neonatal care  
 Postpartum sepsis  
 Postpartum hemorrhage

### Neonatal

Asphyxia  
 Pneumonia  
 Sepsis

### Children under 5 years of age

Acute respiratory illnesses  
 Diarrhea

- ▲ Reimbursement for expenditures on labor and equipment or other capital costs are not covered by the SNMN. For MOH facilities, labor costs are paid by the central government through its representatives at the local level; municipalities pay capital costs. Social security and nongovernmental organizations (NGOs) are responsible for such costs in their facilities, regardless of whether they were incurred in the delivery of SNMN services or not.

### How is the program financed?

Since the Law of Popular Participation was implemented in Bolivia in 1994, 20% of national revenues are allocated on a per capita basis to municipalities, which have also been given greater responsibility in providing for the needs of local populations.

### Exhibit 3: Sample of the evaluation

Municipalities	12	General hospitals	8
Specialized hospitals	9	Health centers and posts	14

### Exhibit 4: Growth in utilization after the SNMN

(comparing 18-month period prior to SNMN and 18-month period following SNMN implementation)

Services	Public	Social Security	NGOs	Private
Total prenatal visits	39%	16%	94%	- 50%
Other outpatients	29%	34%	61%	- 56%
Total births	50%	43%	28%	- 37%
Other inpatients	26%	18%	47%	- 29%

Information is from *all* institutions that provide data to the National Health Information System (SNIS), including some social security, NGO and private institutions that do *not* participate in SNMN.

The law currently stipulates that 85% of the funds allocated to each municipality must be spent on what is loosely termed “investment purposes.”

In 1996, the decree that created the SNMN established that each municipality would be required to contribute 3.2% of those investment monies to a Local Compensatory Health Fund. SNMN reimbursement requests are paid from this fund once the DILOS approve them. Reimbursements are paid directly to the facility, except in the case of health posts and centers. Reimbursements to these primary level facilities are paid to the district as an aggregate; the district then allocates funds to individual facilities according to locally established criteria, which are not necessarily correlated with the individual SNMN reimbursement amounts requested by the facilities in question.

Under the Bolivian system, municipal governments are also responsible for capital investments and upkeep of the health infrastructure and equipment. The central government, through its representatives at the local level (*prefecturas*), pays the salaries of MOH personnel at the local level. Additionally, central funds pay for programs that are carried out locally in the fulfillment of national priorities, such as immunizations.

The financing scheme under the SNMN program differs from the previous system of financing health

services in two important ways. First, as described above, it is a decentralized system that relies heavily on municipalities whereas under the old system resources flowed directly from the central level to the facility. Second, with implementation of the SNMN, user fees for key maternal and child health services were eliminated. Prior to the insurance program, facilities charged patients a fee, established by the facility to cover a percentage of the cost of delivering the service utilized. Whether clients were required to pay the full fee or only a portion of it was determined by an informal evaluation of the client’s ability to pay, conducted at the facility level. Each facility had a certain amount of funds allocated to a social account that was used to subsidize those clients who were unable to pay the full fee. Revenues from user charges were used partly to cover costs of medicines and supplies, and partly as a “production bonus” to health staff.

The changes described above have important implications for the functioning of the SNMN. These implications, drawn from the summary results of the PHR/DDM evaluation of the SNMN program, are discussed below. The evaluation, which was carried out from February to July 1998, relied on information collected from primary and secondary data sources, including a review of official MOH statistics as well as interviews and surveys conducted at the facility level. The sample comprised 31 health facilities in 12 municipalities across 5 departments in all 3 geographic zones of Bolivia (*see Exhibit 3*). For a complete description of the methodology, findings and conclusions of the evaluation see Dmytraczenko et al., 1998. (*Evaluación del Seguro Nacional de Maternidad y Niñez en Bolivia*, PHR Technical Report 22.)

## Lessons Learned

### *Program successes*

- ▲ Utilization of formal maternal and child health services covered by the program has increased since implementation of the SNMN. The rise in utilization can be attributed to the program itself since the rate of growth for many SNMN-covered services has outpaced the growth in non-covered services and in non-participating providers. Furthermore, the rate of growth of utilization rose markedly beginning in mid-1996, the start-up date of the insurance program, especially for institutional deliveries and pneumonia in children under five (*see Exhibit 4*).

- ▲ Utilization is strongest among the poor and relatively high for adolescents, a group not previously using formal health services (see Exhibit 5).
- ▲ Promotional efforts by the government, especially when the program was first launched, have succeeded in informing the public about the insurance program and, therefore, about health services in general. Many clients cited hearing about the program through public announcements on radio and television, and in community *charlas* (informal discussions).
- ▲ Primary level facilities now have greater control over funds and are better able to fulfill their specific needs for drugs and supplies. Accordingly, there are signs of increased availability of drugs in these facilities, although problems with stock-outs persist.
- ▲ The rise in utilization has led to greater use of the existing public health infrastructure, and, although data in this area are scant, the evidence suggests that hospitals are still operating below full capacity.

Program successes are summarized in *Exhibit 6*.

### Remaining challenges

- ▲ The increase in client flow has had a negative impact on health worker motivation. Though clients report a high level of satisfaction during exit interviews, medical staff indicate that quality of care has suffered with the increase in volume, especially in some tertiary facilities. This is partly supported by data suggesting that, in social security facilities, insurance patients are being discriminated against in terms of the amenities they receive, their length of hospital stay, the number of beds available to them and, in some cases, the treatment they are prescribed.<sup>1</sup> Under the SNMN system, remuneration for health personnel is not linked to the amount of services they provide.
- ▲ Reimbursement amounts for drugs, supplies, hospitalization and laboratory exams are insufficient to cover actual costs incurred by the facility, see *Exhibit 7*. The reasons are manifold. Reimbursement rates set by the MOH are unrealistic. In some cases key inputs were excluded from the rate calculation; in others, inputs were under priced. Additionally, many facilities do not follow the MOH service protocols that were used in establishing reimbursement rates, and social

**Exhibit 5: Distribution of SNMN clients by socio-economic level and age, and percentage whose last delivery was in the home**

	Socio-economic level*		Age	Previous delivery
	Low	Middle	14 to 20	at home
Maternity	68%	32%	25%	31%
Prenatal	76%	24%	30%	24%
Other outpatient	74%	26%	18%	14%

\* Due to the lack of socio-economic data prior to the implementation of SNMN, before and after comparisons of utilization based on socio-economic level are not possible.

### Exhibit 6: Program successes

- △ Utilization of maternal and child health services increased.
- △ The poor and adolescents are using SNMN services.
- △ Government promotional efforts informed the public.
- △ Primary level facilities increased drug availability.
- △ Utilization of public health infrastructure increased.

security facilities have different official protocols. Whether protocols should be revisited or facilities made to comply with existing protocols is an issue for further investigation. The solution likely lies somewhere in between. Finally, there is evidence that facilities do not minimize costs due to built-in inefficiencies.

- ▲ Reimbursement rates are homogeneous across facility types, while the data suggest that costs for drugs, supplies, hospitalization and laboratory exams are higher at more complex levels of the service delivery network. This discrepancy is explained because hospitals see more complicated cases of any given illness, and by the presence of specialists, who tend to prescribe more advanced treatments, and the availability and use of laboratories and more advanced drugs. The extra costs of services higher up the service delivery network are not only the result of inputs covered by the SNMN, but because other costs like labor, utilities and building maintenance are more expensive in hospitals than in health posts.
- ▲ This problem of excessive costs at tertiary level facilities is aggravated by the disproportionate increase in utilization of facilities at this level. Since the implementation of the SNMN, the percentage of maternal and child health services being delivered in secondary and tertiary facili-

**Exhibit 7: Average direct costs and reimbursement rates for SNMN services** (by level, in US \$)<sup>1</sup>

Intervention	Actual Average Costs <sup>2</sup>			Reimbursement from SNMN
	Primary Level	Secondary Level	Tertiary Level	
<b>MATERNITY</b>				
Prenatal				
First consultation	9.68	10.43	18.62	3.00
Repeat consultations	4.10	3.17	8.19	0.37
Preeclampsia	5.40	6.52	7.82	10.24
Delivery				
Attended delivery	10.06	11.73	10.80	8.38
Delivery and episiotomy	13.60	16.95	16.20	8.38
Induced delivery	12.66	14.53	15.46	11.17
Eclampsia	---	38.55	44.32	20.30
Cesarian section	---	65.36	68.16	48.60
Sepsis	---	51.77	70.20	67.04
<b>NEONATAL COMPLICATIONS</b>				
Pneumonia	---	55.49	100.56	37.99
Sepsis	---	81.38	136.68	37.99
<b>CHILDREN UNDER 5 YEARS OF AGE</b>				
Acute respiratory illnesses				
Ambulatory	1.68	2.79	3.35	0.37
Ambulatory with pneumonia	3.91	5.21	5.59	0.37
Inpatient	11.36	151.96	248.04	29.80
Diarrhea				
Without blood	3.17	2.98	2.79	0.37
With blood	3.91	5.77	6.33	0.37
Inpatient	---	22.35	19.93	7.45

1. These costs in US \$ are converted from original tables (Dmytraczenko et al., 1998) in bolivianos; US \$1 = 5.37 bolivianos.
2. Actual costs at Primary and Secondary Levels represent drugs, supplies and lab tests. At the Tertiary Level, actual costs represent drugs, supplies and lab tests for outpatient services and hospitalization, drugs, supplies and lab tests for inpatient services.

ties has increased, while the opposite is true at the primary level. It would appear that because interventions are free-of-charge to the consumer (except for transport costs), patients are increasingly seeking services in higher level facilities where they perceive the quality of care to be better. If the cases are complicated, this is appropriate, but in most others it represents an inefficient use of public health resources.

- ▲ The fact that the SNMN does not cover costs like labor and building maintenance poses a problem, particularly for participating NGOs and social security facilities that pay for these costs out of their own funds and that were previously able to

charge user fees as a means to, at least partially, finance these costs. As seen above, some social security facilities have reacted by rationing care to SNMN patients. Additionally, in some municipalities, social security hospitals have erected artificial barriers to access by requiring insurance patients to present the SNMN card or other documents, such as birth certificates, before receiving services.

- ▲ In addition to being insufficient, reimbursements are often delayed. Delays can be attributed to two sources. The administrative system is overly complex: forms are poorly designed, making the process of generating summary reimbursement requests unnecessarily time consuming; multiple verifications of reimbursement amounts are the norm; approval by the DILOS, which meet irregularly, is required. Additionally, administrative capacity at the facility and municipal authority levels is usually weak. Facilities are frequently at risk of drug shortages because the SNMN does not provide for working capital funds. The only way around the problem for many facilities is to purchase drugs on credit from local retail pharmacies, but this is more expensive.
- ▲ Part of the cost of delivering services is being passed on to the consumer. A significant portion of patients claims to have been required to pay for something. These payments may have been for additional medications not included in the protocols or for other items not included in the insurance program. However in at least some instances, patients paid for services that are, in theory, covered by the program. These payments included outside purchases of SNMN drugs that were not available at the facility, in addition to the 6% of maternity clients who stated that they made payments directly to medical personnel.

Challenges and programmatic recommendations are summarized in *Exhibit 8*.

### Programmatic Recommendations

- ▲ Reforms, such as the SNMN, generally have a direct impact on the environment in which health professionals operate. **Incentive systems for provider personnel** to reward efficiency and good quality care can have powerful effects on system performance. These incentives can be both monetary and/or non-monetary.

## Exhibit 8: Challenges and recommendations

### Challenges

The increase in clients has decreased health worker motivation.

Reimbursement rates do not cover facilities' actual costs.

Costs differ across facility type, but reimbursement rates do not.

Free services encourage patients to seek care at higher level facilities.

Reimbursements are delayed, as well as insufficient.

Substantial changes in utilization rates and patterns are affecting central and municipal funding requirements and public-private mix.

### Recommendations

Establish incentive system that rewards providers for efficiency and quality care.

Adopt a cost accounting system to generate information for monitoring performance, promoting efficiency and reassessing reimbursement rates.

Differentiate reimbursement rates across the different service delivery levels.

Establish a referral system that provides incentives for clients to initially seek services at primary level facilities.

Streamline the administrative process to reduce costs and speed up reimbursements.

Establish ongoing monitoring system for utilization, quality, capacity and public-private mix.

- ▲ Currently, funding outside of the SNMN system is allocated to public health facilities according to historical budgets. This allocation does not reflect actual costs nor is it based on the facility's record of satisfying the needs of its target population. Adopting a **cost accounting system** within each facility would generate the information needed to periodically assess and adjust the SNMN reimbursement rate structure and continuously evaluate facility performance. Evaluating facility performance is a prerequisite to establishing **performance based allocation criteria**. In the longer-term, the implementation of performance based budgetary allocations, especially for tertiary hospitals, will stimulate competition among facilities vying for scarce public resources and promote greater efficiency in the use of those funds. It could also promote greater quality and efficiency in the delivery of SNMN services.
- ▲ **Reimbursement rates should be differentiated** across the various levels of the service delivery network to reflect the fact that actual costs justifiably rise in direct relation to the level of complexity of the institution. At the primary level, reimbursements should be paid directly to the facilities, not to the districts.
- ▲ A **referral system that provides demand as well as supply incentives** for clients to initially seek services in primary level facilities when appropriate would greatly improve efficiency in the system. These incentives could be in the form of quality improvements, especially at the primary level. They might also include progres-

sively higher co-payments across the service delivery network, and bypass charges in cases where adequate referral was not sought or the severity or urgency of the illness did not warrant treatment at higher level facilities. These latter suggestions require careful study to ensure that the incentives do not inadvertently create barriers to access.

- ▲ **Streamlining the administrative process** would reduce unnecessary costs and compress the timeline for reimbursements. Lengthy periods between when expenses are incurred and reimbursements are received at the facility lead to liquidity constraints and force providers into procuring drugs and supplies from sources outside of the public sector. This increases working capital requirements and decreases quality. Several steps can be taken in this regard, including revision and redesign of the current administrative system, provision of working capital funds and building capacity among facility and municipal administrators to manage the system.

*The fact that SNMN does not cover costs such as labor and building maintenance poses a problem, particularly for participating NGOs and social security facilities that pay for these costs out of their own funds... (some) have reacted by rationing care to SNMN patients.*

## System-wide recommendations

- ▲ The SNMN program has increased utilization, especially among people who did not previously utilize formal health services (*see Exhibit 5*). The challenge now is to keep those clients. In order to achieve this goal, providers must deliver a service that is technically good and meets the needs of the patient. Development of a system to measure both **client and provider satisfaction** and to respond to the problems uncovered would enable the MOH to create a demand based system as well as work with health care personnel to improve performance. Adoption of a **total quality management** approach is an alternative that has been used elsewhere to integrate quality aspects into the provision of services. When successfully implemented these measures have led to a direct increase in utilization rates. Quality improvements that meet client needs, especially at the primary level, could be a pull for consumers who currently bypass lower level establishments. Improvement of provider–client relations, a greater sensitivity to clients’ cultural needs and a more reliable supply of medications would be three issues that are frequently mentioned as important.
- ▲ Issues related to the appropriate **public/private mix** in service delivery need to be addressed. Offering services free-of-charge across the board appears to have led clients who previously sought private sector services to turn to public providers. Evidence shows that clients shop around: they seek prenatal care services in public facilities which are easier to access, but go to social security hospitals when it is time for delivery because additional benefits are available to social security members. As quality in public facilities

improves, the balance is likely to shift away from the private sector toward the public sector. The costs to the government of Bolivia of this substitution are important and the benefits need to be weighed. An alternative approach to the general subsidy for SNMN services could be to implement means testing or targeting of subsidies. Relatively wealthier people would be asked to pay for SNMN services in public facilities. Some would pay, some would seek care in private facilities; in both cases, government resources would be saved and targeted for priority populations and services for which private funding is unavailable or insufficient.

- ▲ No system is perfect, nor can it be, given that it is providing solutions to a continuously changing environment. For this reason, it is essential that a **monitoring and evaluation system** be put in place to periodically assess the system’s performance and indicate when and where it needs to be adapted. Monitoring utilization, clinical protocols and capacity utilization as well as other financial, management and standards of care indicators would give public health officials the means to continuously evaluate performance of the insurance program. A monitoring and evaluation system that includes such measures would reflect the MOH’s priorities, which include the efficient delivery of quality services.

## Endnotes

1. Since there were only three social security hospitals in the sample, any conclusions about social security hospitals drawn from the data can be considered a valid indication of a problem but not statistically significant. Nevertheless, the number of social security hospitals in the sample is fairly representative of their proportion of the total number of facilities providing SNMN services.



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