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Applied Research on  
Decentralization of Health  
Systems in Latin America:

Bolivia Case Study

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## Bolivia Case Study

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## ACRONYM LIST

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ADL	Administrative Decentralization Law
ADN	Alianza Democrática Nacional (National Democratic Alliance)
COB	Bolivian Workers Central
COREDES	Corporaciones Regionales de Desarrollo (Regional Development Corporations)
CSUTB	Syndical Unions and Peasant Workers
DIDES	Departmental Health Directorates
DILOS	Local Health Directorates
DITES	Territorial Health Directorates
FCO	Compensatory Department Fund
FIS	Social Investment Fund
IBSS	Instituto Boliviano de Seguro Social (Social Security System)
IEH	Special Hydrocarbon Tax
IPB	Property Tax
Law 1493	Ley de Ministerios del Poder Ejecutivo (Executive Ministerial Power Law)
Law 1606	Ley de Modificaciones a la Ley de Reforma (Modifications to the Reform Law)
LLP	Law of Popular Participation
MBL	Free Bolivia Movement
MNR	Movimiento Nacional Revolucionario (National Revolution Movement)
MOH	Ministry of Health
MSPS	Ministry of Health and Social Welfare
NMS	Nuevo Modelo de Salud (New Health Model)
OTBs	Organizaciones Territoriales de Base (Territorial Base Organizations)
PAE	Strategic Action Plan
PAO	Plan Anual Operativo Municipal (Annual Municipal Operative Plan)
PDM	Municipal Development Plan
SILOS	Sistema Local de Salud (Local Health Care System)
SNIS	National System of Health Information
SNMN	Maternal and Child National Insurance (Seguro Nacional de Maternidad y Niñez)

SRS	Regional Health Secretariates
UBAGES	Basic Health Management Units
UDPASO	Social Policy Analysis Unit
UPROS	Health Programming Unites

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## INTRODUCTION

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In the last two decades, health sector decentralization policies have been implemented on a broad scale throughout the developing world. Decentralization, often in combination with health finance reform, has been touted as a key means of improving health sector performance and promoting social and economic development (World Bank 1993). The preliminary data from the field, however, indicate that results have been mixed, at best. In some cases, these limitations have resulted in a backlash against the reforms and an initiative for recentralization. We believe that this rejection is often premature or misplaced, and that the issue at hand is how to better adapt decentralization policies to achieve national health policy objectives. In this context, it becomes increasingly important adequately to understand the dynamics of health sector reform processes in diverse contexts, to draw both general and case-specific lessons, and to formulate effective strategies for future research and policy making.

The term “decentralization” has been used to connote a variety of reforms characterized by the transfer of fiscal, administrative, and/or political authority for planning, management, or service delivery from the central Ministry of Health (MOH) to alternate institutions. These recipient institutions may be regional or local offices of the same ministry, provincial or municipal governments, autonomous public service agencies, or private sector organizations. Decentralization has been predicted to improve health sector performance in a number of ways, including the following: (1) improved allocative efficiency through permitting the mix of services and expenditures to be shaped by local user preferences; (2) improved production efficiency through greater cost consciousness at the local level; (3) service delivery innovation through experimentation and adaptation to local conditions; (4) improved quality, transparency, accountability, and legitimacy owing to user oversight and participation in decision-making; and (5) greater equity through distribution of resources toward traditionally marginal regions and groups. At the same time, fears have been raised about potential macroeconomic destabilization and the aggravation of interregional disparities in wealth and institutional capacity as a result of decentralization (Prudhomme 1995).

The recent proliferation of decentralization policies is part of a broader process of political, economic, and technical reform (World Bank 1998). These include “democratization” and, perhaps more importantly, the neo-liberal “modernization” of the state. The latter movement promotes institutional and territorial decentralization as a means to introduce competition and cost-consciousness into the public sector, and develops a new role for the state in “enabling” and “steering” rather than replacing private sector activities. The promotion of cost-effective investment in primary care and outreach services, beginning with the Alma Ata Conference on Primary Health Care in 1978 and reinforced in the World Bank’s 1993 World Development Report, have provided a further technical impetus for health sector decentralization.

The range of policies grouped under the rubric of “decentralization” is quite diverse with respect to objectives, mechanisms, and effects. In this report, we will make use of widely accepted terminology developed by Rondinelli (1981), who identifies three principal categories of decentralization: deconcentration, delegation, and devolution. *Deconcentration* is generally the most common and limited form of decentralization, and involves the transfer of functions and/or resources to the regional

or local field offices of the central government agency in question. Within a deconcentrated system, authority remains within the same institution (e.g. the Ministry of Health) but is “spread out” to the territorially decentralized instances of this institution. *Delegation* implies the transfer of authority, functions, and/or resources to an autonomous private, semi-public, or public institution. This institution assumes responsibility for a range of activities or programs defined by the central government, often through the mechanism of contracting. *Devolution* is the cession of sectoral functions and resources to autonomous local governments, which in some measure take responsibility for service delivery, administration, and finance.

## **METHODOLOGY & THE DECISION-SPACE APPROACH**

Our analytical framework for the evaluation of these cases is based on a principal-agent approach. In this perspective, the central government, generally in the figure of the Ministry of Health, is viewed as setting the goals and parameters for health policy and programs. Through the various modes of “decentralization” described above, the central government delegates authority and resources to local agents—municipal and regional governments, deconcentrated field offices, or autonomous institutions—for the implementation of its objectives.

This approach acknowledges that the central and local governments have at least partially differing objectives. Agents often have distinct preferences with respect to the mix of activities and expenditures to be undertaken, and respond to a differing set of stakeholders and constituents than national-level principals. Local institutions, therefore, may have incentives to evade the mandates established by the central government. Moreover, because agents have better information about their own activities than does the principal, they have some margin within which to “shirk” centrally defined responsibilities and pursue their own agendas. The cost to the principal of overcoming this information asymmetry is often prohibitively high. Within this context, the central government seeks to achieve its objectives through the establishment of incentives and sanctions that effectively guide agent behavior without imposing unacceptable losses in efficiency and innovation. Diverse mechanisms are employed to this end, including monitoring, reporting, inspections, performance reviews, contracts, grants, etc.

The process of decentralization may be seen as one of selectively broadening the “decision-space” or range of choice of local agents, within the various spheres of policy, management, finance, and governance (Bossert 1998). The central principal voluntarily transfers formal authority to the agent in question in order to promote its health policy objectives. The degree and nature of this transfer differs by case, and shapes the function of the principal-agent relationship and the decentralized system as a whole. The case studies presented in this report do not seek to quantify formal decision-space, but rather to offer a preliminary characterization of its range—narrow, moderate, broad—within an array of health system functions. The nature and extent of decision-space is presented through “maps,” similar to Map 1 presented below, which are complemented by an analysis of the history and context of decentralization reforms.

Figure 1. Standard Decision Space Map

FUNCTION	RANGE OF CHOICE		
	NARROW	MODERATE	WIDE
<b>Finance</b>			
Sources of revenue	⇒	⇒	⇒
Allocation of expenditures	⇒	⇒	⇒
Income from fees & contracts	⇒	⇒	⇒
<b>Service Organization</b>			
Hospital autonomy	⇒	⇒	⇒
Insurance plans	⇒	⇒	⇒
Payment mechanisms	⇒	⇒	⇒
Contracts with private providers	⇒	⇒	⇒
Required programs/norms	⇒	⇒	⇒
<b>Human resources</b>			
Salaries	⇒	⇒	⇒
Contracts	⇒	⇒	⇒
Civil service	⇒	⇒	⇒
<b>Access rules</b>			
Targeting	⇒	⇒	⇒
<b>Governance rules</b>			
Local government			
Facility boards	⇒	⇒	⇒
Health offices	⇒	⇒	⇒
Community participation	⇒	⇒	⇒

There are other channels of control that the central government has to shape or override local decisions. The central government may offer incentives to local decision-makers to encourage them to make choices in favor of national priorities. These incentives can be in the form of matching grants in which the national government will provide funding for a priority activity if the local government will provide counter-part funding and implement the activity. Incentives can also come in the form of guidelines – for instance, model fee schedules – and other forms of technical assistance to upgrade local capacity and to influence local decisions. They may also come in the form of specific training and skill development in the areas that would strengthen central priorities. There may also be mechanisms for special recognition of achievements in priority areas – such as competitions for highest immunization rates among municipalities. Finally, the central government can simply provide services that are centrally directed – such as continuing to provide malaria control programs and vaccination campaigns run and funded by the central government.

A central question however, is how do the different choices allowed at the peripheral level affect the performance of the system. We often expect health sector

reforms to produce improvements in equity, efficiency, quality and financial soundness of the health system. (Bossert, 1998) For us then it will be important to assess how decentralization as implemented in Bolivia, has affected system performance along these dimensions.

This report presents the case of health sector decentralization in Bolivia, one of the few countries in recent years to adopt and implement a significant decentralization of a highly centralized national public sector health system. We seek to evaluate several closely related dimensions of decentralization policies. First, we review the background to the decentralization process – the characteristics of the system prior to decentralization. Second, we assess the process by which decentralization was adopted and implemented. Third, we look at the ways in which the reforms affect local health sector decision-makers and the range of choice available to them, using our analytical framework and “decision space” analysis (see below). Finally, we analyze the effect of decentralization on performance of the health system in providing equity, efficiency, quality, and financial soundness.

## OVERVIEW OF THE HEALTH SYSTEM IN BOLIVIA

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### BACKGROUND: DEMOGRAPHICS, HEALTH INDICATORS, PUBLIC FINANCE

Bolivia's population of 8 million is both highly rural (40%) and ethnically diverse, with Quechua, Aymara, and Guarani indigenous people's representing approximately 70% of the nation. Its health indicators, like its per capita annual income (~US\$800), are some of the poorest among Latin American countries. As of 1995, the infant mortality rate was around 71 per 1000 live births, down from 100 in 1985, but still the highest in Latin America and more than twice the regional average. The average life expectancy at birth is approximately 60, nearly a decade less than the regional average. Perhaps not surprisingly, there is a marked disparity in these indicators between urban and rural areas. For instance, while the infant mortality rate in 1989 was 79 in the cities, it was 112 in rural areas. Poor health indicators are considered to coincide not only with the country's low income and rural character, but also with limitation in water and sanitary infrastructure and high rates of illiteracy. Potable water availability is 80% in urban areas, but only 30% in rural areas. Likewise, adequate sanitation is available to 35% of the urban population and only 15% of the rural population (CIHI, 1996). Illiteracy is estimated at 21% of the population, though functional illiteracy may reach 55% (Dennis, 1997).

Bolivia has had a somewhat tumultuous political history, particularly in the last two decades. Having been ruled by military dictatorship since 1971, the country was restored to democratic rule in 1982. During the administration of Hernan Siles Zuazo (1982-1985) economic crisis pushed the country to the brink of instability during the early '80's, with inflation soaring to a hemispheric record of 24,000%. The structural adjustment policies implemented by the Paz Estenssoro government elected in 1985 reduced inflation to 20% by 1988, providing a return to macroeconomic stability, but at the cost of drastic reductions in social spending. As of 1997, inflation had been further reduced to 8% and real GDP growth was averaging 4%. Bolivia remains one of the most indebted countries in Latin America (US\$ 5.2 billion in 1997), debt service accounting for nearly 30% of its annual public expenditures (Dennis, 1997).

The health system is predominantly public, with the Ministry of Health (MOH) directly attending 38% of the population. The MOH provides curative and preventive care through a network of 101 general and regional hospitals, 418 health centers, and 910 health posts, primarily located in rural areas. Another 26% is attended by the Social Security System (Insituito Boliviano de Seguridad Social/IBSS). The IBSS covers sickness, maternity, and work injury curative care for insured wage earners in industry, commerce, mining, and government. Services are provided directly to the beneficiary population in IBSS facilities in urban areas. Private non-profit providers, mainly internationally funded NGOs, attend an additional 5% of the population. The private for-profit sector attends less than 5% of the population, and a remaining 25-30% of the population has no access to formal health care. Reliance on traditional medicine, particularly in rural areas, is prevalent (CIHI, 1996).

Overall health expenditures in Bolivia in 1998 were equivalent to roughly 4% of the country's GDP, 60% of which was public sector spending. Official foreign aid (primarily by USAID, the World Bank, and UNDP) accounted for fully 20% of health care expenditures in Bolivia, the highest rate in Latin America. Public sector health spending accounted for approximately 4.43% of government spending in 1992, roughly equivalent to its share in 1980. This share had dropped dramatically in the interim, dipping as low as 2% during the height of the inflationary crisis of the mid-1980's (CIHI, 1996).

## POLITICAL DECENTRALIZATION REFORMS

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Under the Sanchez de Lozada government elected in 1993, Bolivia enacted a series of political decentralization reforms, which have had far reaching effects for the health sector. The most significant of these reforms was the Law of Popular Participation (LPP), passed in 1994, which provided mechanisms for popular participation in government and radically altered Bolivia's administrative and political landscape. Perhaps most importantly, the LPP established some 311 municipalities in the country to be governed by democratically elected councils. Prior to this reform, only 40 of Bolivia's 311 provincial sections had functioning municipal governments, corresponding primarily to the largest urban centers. These previously existing municipalities were not territorially based; they included only urban areas and left rural populations effectively underrepresented and largely unserved by government.<sup>1</sup> This was particularly problematic for Bolivia's large rural indigenous population, which was culturally, linguistically, and politically marginalized from urban municipal, regional, and central governments.

The new municipalities established by the LPP are governed by directly elected municipal councils presided over by a mayor, elected as the council member with the largest portion of the popular vote. In the first municipal elections held in 1995, indigenous and peasant councilors were elected to 435 out of a total 1,624 offices. Indigenous and peasant councilors held posts in 173 of 311 municipalities and gained a majority in 73 (Gray Molina and Molina 1997).

The number and geographic scope of municipalities was expanded to give them full geographic jurisdiction over the country. Municipal governments have been granted ownership of and responsibility for a wide range of public infrastructure including schools, health facilities, culture and sports facilities, local roads, and micro-irrigation projects. They are also responsible for the oversight of health, education, and social services programs and are ostensibly given prerogatives in advising the regional and central governments on human resource decisions in these sectors.

The LPP also provided for the legal recognition of over 20,000 Territorial Base Organizations (Organizaciones Territoriales de Base/OTBs), including indigenous and campesino organizations and cooperatives, neighborhood *juntas*, and so forth, thus permitting more effective grassroots and community participation in government. OTBs were granted an official role in the identification, prioritization, and proposal of municipal projects, as well as the right to participate and monitor their execution. The OTBs were also granted representation on the Vigilance Committees ("Comites de Vigilancia") as well as in the administration of specific sectors such as health and education. The Vigilance Committees are charged with:

- Mediating community demands and participation in the annual municipal budget process

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<sup>1</sup> Rural regions outside the established municipalities had been "administrated" by representatives of the regional prefectures known as "corregidores," but attention was infrequent and accessibility to the local population almost nonexistent.

- Enforcing the equitable distribution of resources between urban and rural areas
- Enforcing the 15% limit on recurrent expenditure within co-participation transfers (to be discussed below)
- Supervising and monitoring public works projects

The Vigilance Committees have formal petition and veto power and may censure mayors in case of abuses (Gray Molina and Molina 1997).

The LPP brought significant governmental finance reform, with central government transfers now being allocated directly to municipal governments on a per capita basis rather than on the basis of local revenue generation. The 1986 Law of Tributary Reform had established a division of national revenues on the following basis: 75% to the central government; 10% to the departmental development corporations (CORDES); 10% to the municipalities; and 5% to public universities. The LPP eliminated the subsidy to the departmental development corporations, and mandated that fully 20% of central governmental spending must be allocated to the municipal governments through the mechanism of tributary co-participation (Grindle 1998; Toranzo Roca, 1994). The distribution of municipal transfers was also significantly altered. Whereas the three major departmental capitals (with 68% of the national population) had previously received 91% of the municipal allocation, this has now decreased to 32% (though the absolute levels of funding to these cities has not declined appreciably) (Grindle 1998; O'Neil 1999).

The expansion of co-participation revenues is presented in table 1, which breaks down the transfers by department:

Table 1. Distribution of Co-participation Revenues by Department (1993-97)

(Thousands of Bolivianos)

DEPARTMENT	POPULATION	1993 (PRE LPP)	1994	1995	1996	1997
La Paz	1,900,786	110,927	128,666	183,822	233,582	291,269
Santa Cruz	1,364,389	57,302	92,594	131,955	167,673	209,073
Cochabamba	1,110,205	34,220	67,656	107,366	136,429	170,123
Potosí	645,889	1,596	29,975	62,447	79,355	98,973
Chuquisaca	453,756	6,180	22,639	43,869	55,747	69,531
Oruro	340,114	7,011	19,600	32,873	41,774	52,117
Tarija	291,407	4,545	16,116	28,182	35,810	44,654
Beni	276,174	779	12,952	26,700	33,927	42,319
Pando	38,072	111	1,744	3,668	4,664	5,834
<b>BOLIVIA</b>	<b>6,420,000</b>	<b>222,116,000</b>	<b>391,946,000</b>	<b>620,885,000</b>	<b>788,966,000</b>	<b>983,898,000</b>

Source: Van Cott (1998)

The LPP and the associated Law 1606 (Ley de Modificaciones a la Ley de Reforma Tributaria) also significantly increased the fiscal authority of local governments. Not only are the municipalities now responsible for the collection of certain national taxes, they are also given exclusive control of the Tax on Property (IPB), Real Estate, and

Automobiles. Between 1994 and 1995 the overall proportion of municipal income from own-source revenues went from 35% to 55%, primarily as a result of the transfer of the property tax to municipal governments (Ruiz and Giussani 1997). However, it should be noted that the structure of municipal revenues and level of fiscal autonomy differs significantly according to the size and urban or rural character of the municipality. These differences are reflected in table 2 which compares investment financing in departmental capitals with that of other municipalities:

Table 2. Sources of Municipal Investment (%)

REVENUE SOURCE	CAPITAL CITIES	OTHER MUNICIPALITIES	BOLIVIA
Own-Source	30%	2%	18%
Co-participation	29%	64%	43%
Treasury	0%	0%	0%
Community	0%	2%	1%
Credit	13%	0%	8%
Other	23%	14%	19%

Source: Gray Molina (1996)

The municipal investment policy process essentially includes three phases: the establishment of a municipal development plan (PDM), the formulation of annual operative plans (PAOs), and Senate approval of the annual municipal budget. The players in this process include municipal officials, civil society representatives (OTBs), departmental government officials, and the central government. While the level of popular participation in the initial development planning phase is relatively high, the budgeting process leading to the formulation of the PAOs is much less participatory and often at odds with the preferences designated in the PDMs (Van Cott 1998).

The first 18 months of implementation of co-participation showed a notable bias toward urban works and housing investments (48.6%) as opposed to sanitation (16.9%), education (16.8%) or health (Grindle 1998). As a result, in December of 1995 modifications to the law were enacted in requiring "set-asides" of 30% of funding to human development and 25% to support for production activities. Although not mandatory, municipalities that do not comply will not be eligible for matching development funds, including the Social Investment Fund (FIS). Moreover, no more than 15% of co-participation funds were to be used for administration, the remainder being used for public investment (Ruiz and Giussani, 1997; Grindle 1998).

The FIS has become an important element of municipal social investment financing, with 67% of municipalities having sought funding for health or education through this mechanism by 1997 (Ruiz and Giussani 1997). Apparently, the central government's policy of providing incentives to reorient investment away from the productive and urban infrastructure priorities elicited in the PDMs and toward health, education, and sanitation has been successful. A 1996 UDAPSO study concluded that the linkage of access to matching grant funds with social investment set-aside requirements was the greatest factor in the reorientation of municipal resources toward the social sector (Van Cott 1998).

As a result of changes in the intergovernmental transfer system, devolution of investment responsibilities, and central government incentives, the level and distribution of social investment has changed considerably in the first several years of

decentralization. Overall, social investment as a percentage of GNP has doubled between 1993 and 1995, increasing from 1.72% to 3.61%. Moreover, the governmental level at which this expenditure is made has also changed considerably. In 1993, municipal governments controlled only 15% of social investment in Bolivia. By 1996 this proportion had increased to greater than 40%, including over 60% of all infrastructure investment in health, education, and basic sanitation, while the central government's share of social investment decreased to 11% (Gray Molina 1996). Finally, the investment priorities of different types of municipalities also varies considerably. For instance, with respect to health, it is noted that whereas the capital cities invested US\$ 0.73 per capita, other municipalities invested US\$ 1.70, nearly two and a half times as much (Gray Molina 1996). Tables 3 and 4 illustrate these changes, and the differences in investment patterns between departmental capitals and other municipalities.

Table 3. Programmed Municipal Investments by Sector (1995)

SECTOR	CAPITAL CITIES	OTHER MUNICIPALITIES	BOLIVIA
Health	2%	6%	3%
Education	6%	30%	17%
Sanitation	15%	20%	17%
Urbanism	68%	23%	49%
Production	9%	21%	14%

Source: Gray-Molina (1996)

Table 4. Evolution of the Distribution of Municipal Investment by Sector (1994-1997)

SECTOR	1994	1995	1996*	1997*
Urban infrastructure	50.02%	48.61%	32.67%	31.09%
Social Investment	28.05%	36.90%	44.56%	45.90%
Productive Investment	15.77%	11.25%	20.82%	21.00%

\* Investment figures for 1996-97 includes own-source revenues.

Source: Van Cott (1998)

As the LPP established municipal governments, the passage of the 1995 Administrative Decentralization Law (ADL) further extended the decentralization process through the establishment of regional or departmental administrations (prefectures) in the country's nine regions. These administrations are given responsibility primarily for departmental planning and the administration of social service programs and human resources, including health and education. The regions also have responsibility for public investment in transportation, electrical, and irrigation infrastructure, as well as support for production, tourism, conservation, and the strengthening of municipal government. The regional administration is presided over by a departmental Prefect, named by the president, in coordination with a series of regional representatives of the central government including the Secretariats of Coordination, Sustainable Development Economic Development, Human Development, and Participation. The departmental prefecture is advised and monitored by a Departmental Council, consisting of provincial representatives elected by the municipal councils. It is significant to note that while the Council does provide a mode of electoral participation in regional administration, the Prefectures are essentially not regional governments, but rather regional representatives or instances of the central

government. This is in accord with the 1994 reforms to the Bolivian Constitution and represents a point of major political significance, one to which we will return below.

The departmental prefectures are empowered to collect and administer royalties based on the volume of natural resources (petroleum, minerals, and timber) extracted from their territory. The LDA provides for central government transfers to the prefectures in the form of a Compensatory Departmental Fund (FCD) to bring revenues of departments with lower income from royalties up to the national average. The law also calls for the prefectures to receive 25% of the revenues from the Special Hydrocarbon Tax (IEH), as well as the assignment of 25% of the national budget for health, education, and social services personnel (Ruiz and Giussani 1997). As of 1996, the Prefectures were managing 30% of the national investment program, as compared with 40% managed by the municipal governments (Gray Molina and Molina 1997).

## HEALTH SECTOR DECONCENTRATION AND THE “NUEVO MODELO DE SALUD”

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The organization of the public sector health system has been changed dramatically in order to adapt to the foregoing decentralization reforms. During the Paz Zamora government (1989 to 1993) there had already been a programmatic effort to restructure the system to better attend maternal/child health, decentralize attention through the establishment of health districts and local health units, and increase citizen participation (Dabdoub, 1994). In the pre-1993 model, the system was divided into three levels: central, regional, and local. The central level (Ministerio de Previsión Social y Salud) attended to policy formulation and the administration of large hospitals and special institutes and service, while the regional level administrated district hospitals and oversaw some 24 urban and 48 rural health districts (Sistema Local de Salud/SILOS). At the local level, the SILOS themselves provided health care through a network of clinics and health posts. During this period, it is noteworthy that expenditures on primary care rose from 24 to 41% of total public health expenditures (Martinez, 1995).

The reforms enacted under the Sanchez de Lozada government have brought a further restructuring. In 1994, Law 1493 (Ley de Ministerios del Poder Ejecutivo) reformed the structure of the central administration, consolidating the number of ministries from 17 to 10. These were grouped under three “super-ministries”, Economic Development, Sustainable Development, and Human Development, the last of which embraces the Ministry of Health and Social Welfare (Ministerio de Salud y Previsión Social/MSPS)<sup>2</sup>. The managerial structure of the MSPS was reformed in 1996 by the Decreto Supremo 24237 establishing the Participatory and Decentralized Public Health System, or the New Health Model (“Nuevo Modelo de Salud”/NMS). The managerial structure of the MSPS, under this model, is divided into four levels: central, regional, subregional, and local.

- The **central level of the MSPS** is responsible for determining policy, human resource administration, and financing through a series of directorates (health, epidemiology, health services, administrative and finance, health insurance, etc.).
- National policy is applied at the regional level through regional planning carried out by **Departmental Health Directorates (DIDES) or Regional Health Secretariats (SRS)**. The DIDES are linked to the departmental prefectures described above.
- At the subregional level, the system is administered by **Territorial Health Directorates (DITES)**, which are composed of a number of municipalities. The DITES are charged with assuring vertical access of the population to health care, and coordinating infrastructural investment and epidemiological programs.
- The DITES are also to oversee the **Basic Health Management Units (UBAGES) or Local Health Directorates (DILOS)** operating at the municipal level. Larger municipalities have one DILOS, whereas municipalities of less than 6,000 people are grouped into “mancomunidades” each to be served by a dedicated DILOS. The

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<sup>2</sup> Under Law 1493, the health ministry was originally named the Secretaría Nacional de Salud, but this has been changed to the Ministerio de Salud y Previsión Social as of 1996.

DILOS are governed by a board presided over by a municipal representative, a representative of the regional administration (DIDES), and a representative of local community organizations (Organizaciones Territoriales de Base/OTB).

- Health establishments under the DILOS are referred to as **Health Programming Units (UPROS)**, each of which is supposed to be jointly governed by representatives of the municipal government, the SNS, and the OTBs.

This complex managerial system has only partially been implemented (more on this later), and was accompanied by the implementation of a national program of maternal child health insurance (Seguro Nacional de Maternidad y la Niñez). This program provides free pre- and peri-natal attention, within defined parameters, at public sector and participating non-governmental facilities. The program is co-financed by the central and municipal governments, the latter providing 3% of its “tributary co-participation” resources for the purchase of necessary medication and materials.

The intersection of the “devolution” of certain functions to the municipalities, the establishment of the regional prefectures, and the reorganization of the MSPS raises significant and complex issues for the administration of the Bolivian health system. Under this model the core functions of health care management are essentially divided between the central and regional (DIDES) instances of the Ministry of Health and Social Welfare, and the municipal governments.

The central Subsecretary of Health (under the MSPS) is charged with:

- formulating policy and regulating the health system, including technical and infrastructural norms
- budgeting and financing of public sector health programs, in coordination with the Departmental Prefectures
- defining human resources policy, salaries, etc.
- determining criteria for health service fees
- coordinating official international aid and agreements with non-governmental organizations
- provision of medications

The Departmental Prefectures, by means of the DIDES, have responsibility for:

- the application of national health policy within their region
- health sector planning and budgeting for the region
- the establishment and administration of the basic health networks

The municipal governments, in turn, are administratively and financially responsible for the maintenance of local health infrastructure and equipment transferred under the popular participation law (primary and secondary care facilities) as well as the construction of such new infrastructure as is necessary for the development of the basic health networks. Under the rubric of the maternal-child health insurance program, the municipalities also provide some medications and materials to participating health care facilities.

The mechanism for the operative coordination of these distinct levels and functions is essentially the Local Health Directorate or DILOS, which integrates representation of the MSPS through its regional secretariat, the municipal government, and grassroots organizations (OTB's). The DILOS are supposed to supervise and coordinate the budgets of the supporting health care facilities, to propose the health budget to the municipal government, and to advocate for the assignment of adequate health care personnel by the MSPS (DIDES). The division of responsibility for human resource management and infrastructure between the MSPS and the municipal governments, respectively, has noteworthy consequences. Municipal governments endowed with new resources from "tributary co-participation" may tend to over-invest in infrastructure without adequate consciousness of personnel and recurrent costs borne by the central administration (MSPS). While the DIDES have been constituted in all nine regions, their role in personnel and program management has, in most cases, not been consolidated. Moreover, because the DILOS are instances of coordination rather than decision-makers per se, they are not properly accountable for health facility management (Ruiz and Giussani 1997). These questions will be taken up at greater length below in the analytical section of this report.

## **POLICY PROCESS & HISTORY OF DECENTRALIZATION**

The reform of the Bolivian health system enacted in the 1989-1996 came on the heels of a rather long history of attempts at political and administrative decentralization. The 1967 Constitution explicitly called for decentralization through the establishment of elected departmental governments, but this remained unimplemented during successive governments due to the political inertia of Bolivia's highly centralized government, particularly under the military regimes of the 1970's. However, due to gross inequities in the distribution of government resources, coupled with the growing influence of the capitals of Bolivia's nine regions, political decentralization had already been a major item on the national political agenda for nearly two decades before the passage of the Popular Participation Law in 1994.

The *Comités Cívicos*, representing business and labor interests at the regional level, were initiated in the 1950's in Santa Cruz. They had spread only to Chuquisaca and Tarija by 1971, but under the military dictatorship of Hugo Banzer (1971-78) they expanded to all of the country's nine regions. Banzer established the *Corporaciones Regionales de Desarrollo (COREDES)*, directed by centrally named presidents, as a means to promote central government policy in the regions. The *Comités*, for their part, gradually allied themselves under the rubric of the so-called *Movimiento Cívico*, which provided a regional counterpart to the central government under the Banzer years. Over time, however, the *Movimiento Cívico* gained power as an advocate of regionalism in opposition to the center, and by 1982 was an active proponent of democratization and decentralization (Toranzo y Roca, 1994).

Over the course of the ensuing decade, the *Movimiento Cívico* became the primary advocate of decentralization on the basis of regional governments, resulting in the development of numerous proposals and legislative projects. In the decade leading up to the passage of the Popular Participation Law no fewer than 22 decentralization bills were developed (O'Neill, 1999). Many of these were the product of a long and

intensive process of consensus-building among the various stakeholders, including the Movimiento Cívico, resulting in the development of several concrete proposals for administrative decentralization between 1989 and 1993. The cohort of models developed shared a focus on the establishment of elected departmental governments (as opposed to simple deconcentration to the regional level) and the equitable redistribution of resources among the departments. Ultimately, a bill was passed by a narrow margin in the Senate in 1993, immediately prior to the election of the Sanchez de Lozada government. It was allowed to languish afterwards in the lower house and was never enacted.

The derogation of the governmental character of the Departmental Prefectures by the Constitutional Reforms of 1994 and the move toward “municipalization”, through the LPP, represented a significant departure from the foregoing trend. O’Neill (1999) argues that this is explainable on the basis of the contest for political support between the leading parties. The ruling Movimiento Nacional Revolucionario’s (MNR) constituency, she argues, was primarily locally based, outside of the big regional capitals, making municipalization politically preferable to regionalization as a mode of decentralization. While the MNR only won 35% of the total vote, it gained a clear majority in 72% of the districts polled. Not only was its electoral support stronger at the local level, but the MNR had also actively pioneered the territorial form of party organization which would allow it to take better advantage of the establishment of municipal governments. In the context of a highly volatile electoral system with strong interparty competition, the MNR chose to use its ascendancy to tip the political scales in its favor vis a vis its main competitor, the Alianza Democrática Nacional (ADN), which had a strong power base in the regional capitals.

The MNR had been instrumental in the blocking of regional decentralization legislation proposed by the ADN in 1987. During that same period, the party had proposed that health and education be decentralized to the municipal level, and that it be funded by the regional development corporations (COREDES). This proposal may be seen as primarily motivated by a desire to cut government spending in order to meet international loan stipulations (O’Neill 1999). The initiative was rejected, however, on the basis of strong opposition from public sector employees (Toranzo Roca 1994). As was mentioned above, in 1993 the MNR again opposed an ADN-sponsored regional decentralization bill in the lower house of the legislature after its narrow victory in the Senate.

While the foregoing electoral politics model may contribute to our understanding of the Bolivian decentralization reforms, Grindle (1998) offers a more nuanced discussion focusing on the specifics of the policy process within the Sanchez de Lozada government. Following Sanchez de Lozada’s defeat in the 1989 elections<sup>3</sup>, he formed an independent think tank called *Fundación Milenio* with a distinguished international board, to consider a major constitutional and political reform initiative. The result was the *Plan de Todos*, a platform for the 1993 elections based on privatization, the establishment of a social development foundation, and “popular participation” by means of municipal decentralization.

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<sup>3</sup> Sanchez de Lozada actually won a plurality of the popular vote, but failed to build effective backing in the Congress and was thus outmaneuvered by the ADN and MIR which formed a coalition and successfully installed Jaime Paz Zamora as president.

The objectives of decentralization, according to Grindle (1998), were primarily associated with overcoming the long-standing political fragmentation, lack of legitimacy, and poor governance of the Bolivian state. Municipalization would provide a means of strengthening legitimacy and weakening corruption through the penetration and unification of the national territory at a governmental level closer to the largely rural and indigenous population. Sanchez de Lozada felt that regional decentralization constituted a recipe for the political and economic division of the country among the already powerful elites of the departmental capitals, which would only perpetuate the concentration of wealth and power in urban centers.

When Sanchez de Lozada won the presidency in 1993, decentralization was high on the list of priorities. While the "Plan de Todos" made reference to Sanchez de Lozada's intention to implement administrative decentralization by means of municipal government, but little or nothing was formulated regarding how, specifically, this would be carried out. The Popular Participation Law, who was to be the foundation of the government's reform package, was formulated by a presidentially appointed technical team whose deliberations were conducted away from the public eye. This team was composed of numerous consultants, including Hugo Carlos de Molina, author of *La Descentralización Imposible y la Alternativa Municipal*, and a strong advocate of municipalization. Many of the consultants involved were either indigenous or sympathetic to indigenous claims, leading them to lean in favor of the establishment of municipal governments capable of representing and responding to Bolivia's rural indigenous population. Interestingly, Sanchez de Lozada's Aymara vice-president, Hugo Cárdenas, was relatively uninvolved in the formulation of this policy. The negotiations and deliberations of the technical team, closed from the outset, were made totally clandestine due to the intense opposition to municipalization on the part of the Movimiento Cívico, and particularly the Comité Pro-Santa Cruz (O'Neill, 1999). The team had to work essentially from scratch to formulate the scheme for decentralization, but in the end it was Sanchez de Lozada who directed its formulation.

The Popular Participation Law was made public nearly a year before its enactment, during which period the Sanchez de Lozada government aggressively promoted it throughout the country. The law was at first opposed, not only by the Movimiento Cívico and several traditional political parties, but also by the rural peasant union CSUTB and the COB and teachers' unions, which saw the law as usurping their role as a legitimate representative of grassroots groups. In the context of its authoritarian efforts to control the labor unions' opposition to its economic policy, the Sanchez de Lozada government had difficulty building grassroots support for "democratization" through municipal decentralization.

The administration's advocacy and communications strategy was ultimately successful, however, resulting in the passage of the law in 1994. An attempt in 1995 to enact regional decentralization was defeated, and Sanchez de Lozada succeeded in passing the Administrative Decentralization Law instead. The MNR was successful in the municipal elections of 1995, winning nearly two times as many council members as its traditional rivals, the UCS, AND, and MBL, and gaining nearly 40% of the mayorships through political coalitions. Nevertheless, the real winners were the smaller less institutionalized parties, which posted much more significant political gains than the MNR through the 1995 elections. In general, the municipal picture was extraordinarily heterogeneous in terms of party control and coalition membership, and it is doubtful

that any one party stands to monopolize the new political space opened by the reforms.

As in the case of several other countries pursuing devolution, Bolivia's political decentralization process has been somewhat at odds with administrative deconcentration reforms already in progress. This is particularly true in the Bolivian health sector, where it has been a major challenge to harmonize the devolution of capital investment responsibilities to newly created municipal governments with the already existing health service delivery network administered by the MOH.

## **ANALYSIS OF DECISION SPACE**

In order to analyze the decision space of municipal governments with respect to the health sector, it is crucial to reemphasize the separation between the broader program of political and administrative decentralization and the reform of the health sector. While the "municipalization" process has been nothing short of radical in terms of democratization and devolution of governance functions and fiscal resources, the health sector itself remains relatively centralized. This is the result of the decision to pursue devolution "by factor" rather than through a sector-wide approach. Municipal governments have been given responsibility for the construction and maintenance of infrastructure in the health and education sectors, but the central government has retained responsibility for the administration and finance of service delivery and human resource management.

The MSPS remains essentially a deconcentrated central government agency, some of whose infrastructure needs are met through municipal governments. Although not necessarily a unified civil service for health, it is financed by the central MSPS and slated for management at the level of the departmental prefectures, which has been a major constraint to the decision space of local governments. The MSPS is mainly responsible for contracting personnel and salaries payments. Although the municipalities and communal organizations do have a formal role in health sector management in the figure of the DILOS, the implementation of these institutions has been limited and the local governments themselves do not consider themselves central agents in health service delivery (Ruiz and Giussani 1997). At the same time, the municipal governments are to be increasingly involved in local service delivery financing, not only through capital investment, but also through management of user fee revenues and the financing of the maternal-child health insurance scheme. It is not clear how this will affect the decision space of municipalities vis a vis health facilities and the MSPS over the longer term.

A picture of the range of choice available to local governments within different functions of health sector management is presented in Figures 2 and 3. Figure 2 shows the initial range of choice established by the Population Participation Law in 1994. Figure 3 shows how that range was reduced two years later by the Maternal and Child Health Insurance.

Figure 2. Local Decision Space: Municipal Government after Popular Participation Law (1994)

FUNCTION	RANGE OF CHOICE		
	NARROW	MODERATE	WIDE
Finance			
Sources of revenue			Municipality can assign between 0-60% of co-participation resources to health. No restriction on assignment of local tax revenues to health.
Expenditure allocation		Non-salary expenditures relatively unrestricted, but no control over salary and cannot spend more than 15% of coparticipation in contract salaries.	
Income from fees & contracts		Facilities can establish own fees within ranges approved by MOH	
Service Organization			
Hospital autonomy		Unclear rules over municipal hospital management structure allows some variation	
Insurance plans	No local insurance for public facilities		
Payment mechanisms		Salary paid by central government through regional offices. Payment to facilities for non-salary items has wide range.	
Contracts with private providers		Limited private contracts are allowed	
Required Programs and service norms		Service norms defined by MOH but allow moderate local choice within the norms	
Human Resources			
Salaries	Salary levels and payments determined by Regional Office of MOH, minor participation of local community in hiring and firing		
Contracts	Little or no contracting of non-permanent personnel; any contracting determined by Regional Offices of MOH		
Civil service	Centrally administered unified civil service		

Figure 2. Local Decision Space (cont.)

Access Rules			
Targeting			Only minor targeting by central authorities
Governance Rules			
Local government			Democratically elected municipal governments
Facility boards	No facility boards		
Health offices	Popular Participation Law defines roles of municipal government, DILOS, and health facilities		
Community participation	Community participation in municipal government through OTBs and Vigilance Committees and in DILOS – determined by national level law		

Figure 3. Bolivia Formal Decision Space after Maternal and Child Health Insurance (1996)

FUNCTION	RANGE OF CHOICE		
	NARROW	MODERATE	WIDE
Finance			
Sources of revenue		Municipalities are "forced" to assign 3.2% of their co-participation resources to a specific benefits package for health. No restriction on assignment of local tax revenues to health	
Expenditure allocation		Non-salary expenditures relatively unrestricted, but no control over salary and cannot spend more than 15% of coparticipation in contract salaries.	
Income from fees & contracts	Facilities required to provide free basic package of benefits for mothers and children. For other services, facilities are allowed to establish fees within ranges approved by MOH		
Service Organization			
Hospital autonomy		Unclear rules over municipal hospital management structure allows some variation	
Insurance plans	No local insurance for public facilities		
Payment mechanisms		Salary paid by central government through regional offices. Payment to facilities for non-salary items has wide range.	
Contracts with private providers		Limited private contracts are allowed	
Required Programs and service norms	Service norms for basic package of maternal and child health more specifically defined by MOH.		
Human Resources			
Salaries	Salary levels and payments determined by Regional Office of MOH, minor participation of local community in hiring and firing		
Contracts	Little or no contracting of non-permanent personnel; any contracting determined by Regional Offices of MOH		
Civil service	Centrally administered unified civil service		

Figure 3. Bolivia Formal Decision Space (cont.)

Access rules			
Targeting	Mothers and children targetted by MOH Seguro program.		
Governance rules			
Local government			Democratically elected municipal governments
Facility boards	No facility boards		
Health offices	Popular Participation Law defines roles of municipal government, DILOS, and health facilities		
Community participation	Community participation in municipal government through OTBs and Vigilance Committees and in DILOS – determined by national level law		

The maps above show that in general there is only a moderate range of choice allowed to local municipalities. No municipalities had a full range of choice over key functions such as finance or human resources. The central government retained control over several key functions. There was a tendency over time to narrow the choice over key functions. For example, the introduction of the *Seguro Materno Infantil* earmarked a percentage of local funding for specific expenditures and reduced choice over fee collection.

### Finance Decision Space

Finance functions are important in terms of the control the local level has in terms of revenues allocated to the health sector, expenditures within the health sector, and setting and retaining fees. In Bolivia, this control over revenues is a major means by which local governments can exercise their choice over whether health is a priority compared to other local activities like education, civic facilities, and roads. This choice was quite large in Bolivia after the passage of the Popular Participation Law that allowed municipalities to assign a wide range of their intergovernmental transfers to health (0-60%). This choice was later restricted by the Maternal and Child Health Insurance Law, which earmarked 3% of these funds specifically to supplies and equipment for the benefits package for mothers and children.

Choices about expenditures in the health budget are also an important part of decentralization in that local managers can make choices that respond to local conditions and preferences. It may also allow for more technically efficient choices, since local managers may know more about local staff, local input markets, and other factors. In Bolivia, municipalities could assign health resources within a wide percentage range, but later restricted this choice was restricted through the earmarked assignment of health funds to the maternal and child benefits package.

Control over setting and retaining fees is another important financing function. Retaining fees at local levels can increase incentives for local managers to collect fees and to be more responsive to local consumer demand. Bolivia originally had only a

moderate range of choice over fees, however this changed when Maternal and Child Insurance required that the basic package of services be provided free of charge.

### **Service Organization Decision Space**

Service organization involves the ability of local governments to allow their facilities a certain degree of autonomy which could be an important means for local governments to improve technical efficiency and quality through more flexible hospital management. In Bolivia, local hospitals were granted different degrees of autonomy by the local authorities, with little guidance from the national government.

Another tool of local management for manipulating local incentives is the ability to determine the means of payment to local providers. In Bolivia, the municipalities did not have jurisdiction over civil service salaries and were not expected to provide bonuses. They did have limited authority, however, to pay contract workers under the municipal code.

A major tool used by the central authorities to control local choice is the ability of the Ministry of Health to define norms and standards of service and of special programs. These norms can be general sets of priorities or they can specify assignment of personnel, infrastructure, equipment, and supplies to specific tasks and priorities. In Bolivia, the Ministry's inability to disseminate and enforce norms and standards limited its ability to control local choice, initially allowing a greater range of choice. However, with the implementation of the Maternal and Child Health Insurance, there was an effort to define and disseminate more standards, thereby restricting local choice.

### **Human Resource Decision Space**

Local control over human resources may be a major means of improving the technical efficiencies and quality of service. If local managers have more control over their staff, through the provision of appropriate incentives and the power to hire and fire staff, they may be able to improve services considerably. This capacity, however, may be undermined by local pressure to provide patronage employment, rather than hire the most qualified staff. In Bolivia, local governments were given no control over local salaries or civil service staffing. Salaries, hiring and firing were controlled by higher authorities. Municipal government could contract additional health staff, with some restrictions.

### **Access Rules and Local Governance Decision Space**

Access rules for targeting might affect how local authorities assign resources to the poor in their communities. More choice may lead to more innovation to find newer means of targeting the poor or it may decrease effort to target their resources toward the poor and needy. Bolivia granted moderate choice over local targeting before the Maternal and Child Health Insurance, however this act specifically targeted local resources to mothers and children.

Local governance is also a way to assess the range of local influence on health systems. Locally elected governments tend to make decisions more in line with local

popular preferences. In Bolivia, however, the organizational requirements for government instances are defined by national law.

The Law of Popular Participation defined an active role for the community organizations (OTB and NGOs) without allowing municipal choice over the forms.

The above decision-space maps attempt to provide a rough ranking of the ranges of choice in Bolivia, however the ranges of choice are somewhat subjective and should be interpreted with caution.

## BRIEF OVERVIEW OF METHODOLOGY OF BOLIVIA STUDY

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### BACKGROUND

The present study seeks to analyze in depth the impacts of health sector decentralization suggested in broad strokes by the foregoing decision space maps. The study seeks to assess the variations in resource allocations and in performance that have emerged in the process of decentralization at the municipal level.

Using the framework outlined in the introduction, the current study attempted systematically to assess the variations that emerge with decentralization at the municipal level. The framework asks two basic questions: 1) what kinds of choices did local governments make now that they had additional discretion (wider "decision space")? And 2) did these choices make any difference in the performance of the system in terms of equity, efficiency, quality and social soundness? This is an exploratory analysis that depended on previous studies, the data available at the national level, and access to field cases.

Other secondary questions we will attempt to answer in our analysis are:

- What kind of formal decision-space structure has been introduced through decentralization?
- What type of decisions have been decentralized and what level of decision space is found at the municipal level?
- What type of decisions are local level agents taking as a result of the increased capacity for decision making that has been granted to them?
- How has the formal decision space been applied? Is there an informal decision space in addition to the formal decision space? Upon what factors do local level decisions depend?
- Are there central level instruments—incentives, selective monitoring, sanctions, and conditions—that affect the decisions adopted at the local level? In what way are the decisions affected?
- What has been the initial impact of decentralization in terms of public health system performance?
- What changes have been observed in the performance indicators? What factors determine the patterns of change observed in the performance of the health services?

Due to the limitations on the availability of information, we had trouble answering the questions related to local decision making. At the macro level the data bases were incomplete and not highly reliable. At the municipal level quantitative data relevant to decentralization was, in the majority of cases, nonexistent. Additionally, the quantitative data available immediately after decentralization was incomplete and lacking any order.

The limitations on information made it difficult to identify the type of decisions that were made at the local level, especially in terms of health care performance. In order to overcome these limitations, we have put more of an emphasis on the qualitative field work. In this way,

we hope to better understand the new ways decision space is used in relation to the results that we observed. We focused mainly on the main actors and the relationships between them.

In the following sections, we first present the results of the analysis of the macro information which emphasizes the spending patterns, investments, and utilization in order to identify the main determinants. Then we present the analysis of the case studies where we looked to identify the type of decisions and innovations present—the main determinants—relating them to certain performance indicators.

## **DESCRIPTION OF THE INFORMATION**

Ideally, the analysis of the effects of decentralization implies a before/after comparison. This comparison requires continuous, periodic, and consistent data for both before and after decentralization. In particular, the information should be available for each geographic jurisdiction that has a local government.

In the case of Bolivia, this presents a problem, due to the creation of new territorial divisions since decentralization. The new divisions do not coincide in all cases to the previous geographic country divisions. As a consequence, in the majority of cases there is no data available at the municipal level that describes the situation before decentralization. This means that the data previous to decentralization does not correspond jurisdictionally to the data post-decentralization, making a comparison impossible.

Additionally, there were significant problems with the quality of available data due to 1) the registered information that is available is very limited; 2) in most cases the information has not been cleaned; and 3) the data that is collected does not have clear criteria or a uniform period of collection.

Finally it is worth noting that the experience of decentralization in Bolivia is relatively new. It is possible that up until now we do not have enough results to unleash the methods of decentralization. As a consequence the evaluation should be understood as an evaluation of the initial impact of the decentralization.

The limitations in the national secondary information have promoted the need to expand and amplify the gathering of primary information at the municipal level, in order to increase reliability of the results. This objective implied the carrying out field studies in 17 municipalities corresponding to three departments (La Paz, Cochabamba, and Santa Cruz). For this part of the study, we had to take into account two limitations: the geographic accessibility and financial restrictions. Given these limitations, the municipalities were elected taking into consideration various aspects. In the first instance, we prioritized those municipalities whose size and socioeconomic characteristics we thought would be the most representative. This meant, working mostly with small, rural municipalities. On the other hand, we also had to consider the availability of additional and complementary information due to the situations of the health care systems in the municipalities. This information principally was gathered from the MotherCare database and the recently finished Evaluation Study on the National Maternal and Child Insurance Program.

## THE SOURCES OF INFORMATION

The secondary national level information comes several institutions. Data was obtained from a number of different sources, the majority of which were not easily accessible to the public. The information related to investments in health by municipalities was obtained from the National System of Investments under the Ministry of Housing. The expenditure data was obtained from the General Controller of the Republic. The information on health indicators was supplied by the National Health Information System of the Ministry of Health and Social Provisions. Information on popular participation came from the Ministry of Sustainable Development and Planning. Population and poverty figures were gathered from the National Census on Population and Living from 1992 and the Poverty Map from 1995.

The primary field study information was collected through interviews with distinct local actors within the health sector. In the visits to the municipalities included in the sample, we interviewed the main political authorities of the elected municipalities. These authorities included mayors, major officials, those responsible for the health of the area, councilors, and representatives of the DILOS. We also interviewed health personnel of the municipality that held more weight of importance within the sector. This included such persons as the directors of the main public health facilities of each municipality, doctors, nurses, health auxiliaries, and facility administrators. We interviewed beneficiaries who used health care facilities and those responsible for in charge of the social control mechanisms and accountability. This included such persons as representatives of the Watch Committees, of the OTBs, patients, and persons from the general population.

## FIELD WORK

Given the limitations on the macro information from the field, we expanded the study from the initial eight municipalities to 17 municipalities. Taking into consideration the time, budget, and access restrictions, we selected the municipalities with the aim of establishing a sample that would allow the identification of those factors that seemed to play an important role in defining the changes in performance. With this goal in mind, we took into consideration aspects such as availability of information, evidence of susceptible changes to be evaluated such as how to invest in infrastructure and the innovations in the provision of services.

We visited the following municipalities:

<b>LA PAZ</b>	<b>SANTA CRUZ</b>	<b>COCHABAMBA</b>
Patacamaya	Montero	Sipe-Sipe
Mecapaca	San Julian	Punata
Tiahuanacu	San Javier	Capinota
Guanqui	Warnes	Tarata
Laja	Yapacani	Villa Rivero
Pucarani		
Batallas		

During the field visits we interviewed functionaries of the Municipal Government, functionaries of the health sector, and in some cases NGOs or projects tied to the sector and the population.

During the field visits we made an effort to interview, as much as possible, 4-6 persons per municipality; insure that the profile of those interviewed was varied; obtain detailed justifications of the opinions we noted; and verify the comments and opinions obtained by crossing them with other information provided in other interviews.

In order to be consistent and minimize the level of subjectivity inherent in the interviews, we developed an interview guide which detailed the areas of focus for the interview that would provide consistent information (see Annex I).

The information obtained in the field visits was summarized using a systematic form. Each form had a section on General Characteristics, the general aspects of the municipality and the population from the information provided by the interviewed persons. There was a section on the Initial Decentralization Situation, which detailed the initial situation in relation to installed capacity, availability of alternative forms of health care (accessibility to services provided in other municipalities), and the municipal health care experience. Another section of each form covered External Factors. This included incentives, external support (NGO cooperation or projects) for the health sector, and the specific characteristics of the municipality that could affect management of health care. There was a section on Institutional Aspects, detailing the form in which key facilities operate such as the mayor's office, health facilities, the DILOS, the Watch Committees, and the OTBs. The information from this section was used to describe aspects of informal decision space and institutional capacity. Characteristics of the Main Actors comprised another section, including the profiles of the mayor and the person principally in charge of the health sector (doctor in charge), along with the relationships between the mayor, the doctor of the community, and the council. Changes in performance of the health system were summarized in another section covering any details on observations concerning innovations such as change in performance indicators, especially in terms of quality, utilization, equity, and efficiency (allocative and service provision). Finally, other observations were given describing the factors observed that could have some incidence in the behavior of the principal actors or institutions and in the health service performance.

The variables assessed were:

<b>INITIAL SITUATION</b>	<b>RELATIONSHIPS</b>	<b>CHANGES IN PERFORMANCE</b>
Installed Capacity	Mayor-community	Quality
Availability of Alternative Form of Health Care	Mayor-doctor	Utilization
Experience	Doctor-community	Equity
	Mayor-Council	Allocation Efficiency
		Provision Efficiency
<b>EXTERNAL FACTORS</b>	<b>MAYOR'S PROFILE</b>	<b>INNOVATIONS</b>
Incentives Support	Council Support	Variable
	Experience	
	Knowledge of the Law	
	Respect for the Law	
	Initiative	

<b>INSTITUTIONAL CAPACITY</b>	<b>DOCTOR'S PROFILE</b>
DILOS	Knowledge of the Law
Other Institutions	Experience
	Initiative
	Sensibility

Except for the variables related to the changes in performance, the classification of the variables was based on a scale of 1-3 where, in general terms, 1 denoted an unimproved or limited situation, 2 a neutral situation, and 3 an improved situation. In the case of the variables related to change in performance (the dependent variables) we used a scale of 1-4 where one denoted a worsening in performance, 2 no change, and 3 and 4 denoted distinct grades of positive change. Annex II details more specific characteristics in terms of classification.

With the aim of identifying which factors were associated with changes in performance, we used correlations between the distinct variables. The patterns observed in the correlations are interpreted in the conclusion and recommendations sections that follow.

## NATIONAL DATA ANALYSIS AT THE MUNICIPAL LEVEL

### The Data Base and Its Limitations

The current study is based on both national level data analysis and seventeen case studies of specific municipalities. As we have noted above and will expand on below, the quality of the national level data was so limited that we decided to focus more of our efforts and analysis on the case studies, including a sufficient number of cases to draw more comparative conclusions. In this section we review the national level data that was collected and analyzed for this project. In the following section we summarize the results of the 17 case studies.

The national level data base covered the period from 1994-1996 and included 101 variables from all of the 312 municipalities. The data covered utilization, expenditures, socio-economic variables and health indicators.

There were several problems with the data available from these sources, the greatest of which was the large number of missing values as shown in Table 5.

Table 5. Summary of the Variables in the Database

CATEGORIES	NUMBER
Variables in the Data Base	101
Variables with more than 300 valid values	32
Variables with more than 100 missing values	34
Variables with mode of zero	76
Variables with median of zero	36

Of all the variables, only 32 variables had values for more than 300 municipalities and 34 variables had missing values for almost a third of the municipalities. This situation presented a problem in terms of analyzing cross tabs of the information—the inevitable reduction in the effective sample size. Such a situation was particularly a problem if the missing values among

the variables being used do not correspond to the same observations (in this case to the same municipalities). This problem occurred frequently in this data base.

A second limitation was the large number of observations having the value of zero. Seventy-six of the variables in the data base have a mode equal to zero and 36 have a median equal to zero. This situation skews and lowers the variable means, distorting any possible correlation that might otherwise present themselves. Finally, it is also possible that some values have been registered as a zero when they should have been coded as missing values. There were also significant outliers, often in expenditure data, which needed to be excluded from the analysis.

Finally, we found that the municipalities in the departments of Santa Cruz and Chuquisaca reported the most accurate data on health care coverage, skewing the results toward the behavior of these municipalities. Santa Cruz and Chuquisaca had special characteristics that made them quite unrepresentative of national trends.

These data weaknesses significantly limited our analysis and led us to place more emphasis on the case studies.

## **PRINCIPAL TRENDS**

Despite the weakness in the data, we were able to do the following analyses based on the municipalities with the best reporting record. All of the following analysis is unrepresentative of the country as a whole. It is biased toward the best reporting municipalities and toward the two departments of Santa Cruz and Chuquisaca.

## MUNICIPAL REPORTS ABOUT HEALTH SPENDING

The analysis of the trends shows that there has been an important increase between 1994 and 1996 in the number of municipalities reporting on health care spending, as is shown in the Table 6. This trend suggests that data on health spending is improving over the period and not necessarily that more municipalities are spending on health. Our data for 1996 is likely to be better than earlier years as more municipalities reported figures.

Table 6. Number of Municipalities Registering Spending in Health Care

	TOTAL	1994	1995	1996
Mun. Reporting	312	106	190	188

In 1994, the year that the law of Popular Participation was passed, only 106 municipalities out of 312 in total, reported any type of health care spending. This number increased in 1995 to 190 municipalities and then fell marginally in 1996 to 188 municipalities. Santa Cruz and La Paz are the departments with the highest number of municipalities reporting health care spending, while Beni and Oruro have the least. Table 7 details the number of municipalities in each department that report health care spending, for the years 1994-1996.

Table 7. Number of Municipalities Registering Spending in Health Care

	TOTAL	1994	1995	1996
Beni	19	5	8	4
Chuquisaca	28	14	26	26
Cochabamba	44	12	25	24
La Paz	75	11	36	37
Oruro	34	4	7	16
Pando	15	2	0	4
Potosi	38	20	32	33
Santa Cruz	48	31	45	37
Tarija	11	7	11	7

### MUNICIPAL SPENDING ON HEALTH

With the caveat that the reporting municipalities are not likely to be representative, we were able to examine three measures of health care spending among reporting municipalities from 1994 to 1996 as shown in Table 8. Figures have been adjusted according to the consumer price index for 1996.

Table 8. Mean Municipal Spending in Health

	1994	1995	1996
Health Care Spending (Bs)	9,443	70,041	182,194
Health Care Spending/Total Spending (%)	7.3	5.6	6.3
Health Care Spending per Capita (Bs)	0.12	5.4	6.6

The average total health care spending has increased from Bs. 9,443 in 1994 to Bs. 182,194 in 1996, which is equivalent to a 19 fold increase from the initial value. In the same way, one can see from Table 8 that the average health care spending per capita also has increased in a significant manner, from Bs. 0.12 in 1994 to Bs. 6.6 in 1996.

The data on the ratio of health care spending to total spending in the municipality does not have a clear trend. Among the reporting municipalities, the proportion of the municipal budget allocated to health was higher in 1994 than in either of the subsequent year. One possible explanation is that Bolivia decentralized only in mid 1994 so the expenditure figures for this year still reflect the greater allocation to health made by the central authorities. In 1995 and 1996, the allocation to the health sector was completely in the hands of the municipal governments.

The increase in total health care spending at the department level maintains a similar pattern to that researched at the National Level (see Table 9). However, the department of Santa Cruz shows the highest average increase during the period in question, from Bs. 23,343 in 1994 to Bs. 642,647 in 1996. This increase is attributable in great part to the health care spending in 1996 by the municipality of Santa Cruz de la Sierra, which in this year invested Bs. 24,574,000 in health alone. This amount invested by Santa Cruz de la Sierra is equivalent to 80% of the department's total investment in health. In the same way, the department of Beni shows an increase in investment from Bs. 14,342 in 1994 to Bs. 135,356 in 1995. This increase is mostly attributable to the investment of Bs. 730,000 by the municipality of Riberalta during the last year. The figures have been adjusted according to the consumer price index for 1996.

Table 9. Total Municipal Spending in Health by Departments

	1994	1995	1996
Beni	14,342	135,356	83,250
Chuquisaca	9,740	111,711	107,963
Cochabamba	11,488	69,187	101,500
La Paz	2,802	40,008	100,404
Oruro	1,702	5,500	89,375
Pando	3,421	*	11,167
Potosi	4,401	46,692	41,447
Santa Cruz	23,343	103,849	642,674
Tarija	18,812	81,410	92,400

The health care spending as a percentage of the total municipal spending in general, has a pattern of change that is different in each one of the department of Bolivia, which has little consistency with the national pattern as seen below in table 10.

Table 10. Total Municipal Spending in Health/Total Municipal Spending in General

	1994	1995	1996
Beni	6.72	4.00	18.37
Chuquisaca	4.19	8.82	8.94
Cochabamba	11.31	4.53	4.07
La Paz	2.00	4.40	5.00
Oruro	8.38	6.73	5.84
Pando	5.78	*	4.31
Potosi	11.92	5.31	6.45
Santa Cruz	11.23	6.72	7.59
Tarija	3.88	4.59	6.39

For example, the department of Cochabamba, Oruro, Potosí and Santa Cruz show a level of health care spending in terms of total spending more than the national average in 1994 (7.3—seen in first column of Table 8), but only the last two have patterns of change that replicate that of the national pattern. Cochabamba and Oruro, on the other hand, exhibit a gradual decrease in their health care spending in terms of total spending over the three years. In contrast, the departments of La Paz, Chuquisaca and Tarija show a continual and important increase during the study period. Finally, the department of Beni, has a consistent behavior with the national pattern, but in 1996 reaches a level higher than any other of the departments in terms of its ratio of health care spending to total spending. This increase is after starting with a ratio below the national average in 1994.

Municipal health care spending per capita has increased consistently and significantly between 1994 and 1996 to a regional level in line with the national pattern. Figures have been adjusted according to the consumer price index for 1996. The major increases were registered in the departments of Tarija and Chuquisaca and the smallest increases in Beni and Cochabamba, as can be seen in Table 11.

Table 11. Total Municipal Spending in Health per Capita by Departments

	1994	1995	1996
Beni	1.83	4.89	4.94
Chuquisaca	1.01	8.69	13.51
Cochabamba	1.02	3.70	5.40
La Paz	0.32	3.63	4.38
Oruro	1.30	6.58	5.82
Pando	1.49	*	3.78
Potosi	1.15	5.02	5.04
Santa Cruz	1.90	7.13	7.57
Tarija	0.83	3.98	10.77

Table 12 shows total health care spending per capita in terms of population deciles. The population of Bolivia in 1994 was used to calculate total health expenditure per capita for the years 1994, 1995, and 1996. The population deciles were constructed based on 1994 data. The numbers in the parenthesis show the number of municipalities in each decile that actually reported expenditure figures for that year. The total number of municipalities that reported population figures was 310 or 31 municipalities per decile. As can be seen below, the number of municipalities reporting was low for the smaller municipalities.

Overall, the smallest municipalities had higher levels of health care expenditure per capita than the larger municipalities. Over the years, the spending gap between the smallest and largest municipalities decreased from 0.09 to 0.23. Figures have been adjusted according to the consumer price index for 1996.

Table 12. Total Health Care Spending per Capita by Population Decile

DECILES	1994	1995	1996
1	12.52	21.58	19.82
2	3.83	8.46	10.56
3	4.60	6.03	19.92
4	3.72	5.01	8.06
5	3.51	7.89	8.87
6	3.22	4.07	7.71
7	1.83	7.21	4.64
8	0.96	7.87	6.18
9	1.43	4.46	5.64
10	1.14	4.40	5.54
Average	2.90 (105)	6.85 (189)	8.74 (187)
10 <sup>th</sup> /1 <sup>st</sup>	0.09	0.20	0.23
# reporting	105/310	189/310	187/310

Note: Only those municipalities that report a non-zero spending figure were included in the calculation  
Source: MOH

Table 13 shows the ratio of total health care expenditure to total general expenditure (%). From table 13, we saw that the smallest municipalities had the largest ratios while the largest municipalities had the smallest ratios. The largest municipalities tended to spend the least on health in terms of general spending.

Table 13. Total Health Care Spending/Total General Spending by Population Decile

DECILES	1994	1995	1996
1	53.50	14.84	20.97
2	27.00	6.60	9.04
3	18.53	5.32	14.34
4	32.20	10.40	5.90
5	14.85	8.37	10.34
6	19.21	4.89	7.57
7	9.54	8.47	6.40
8	5.77	8.48	6.17
9	14.53	5.55	5.11
10	7.54	4.00	5.35
Average	17.52 (105)	7.18 (189)	8.31 (187)
10 <sup>th</sup> /1 <sup>st</sup>	0.14	0.27	0.26
# reporting	105/310	189/3100	187/310

Source: MOH

Tables 14 and 15 show the total health expenditure per capita and ratio of total health expenditure to total general expenditure by income deciles. Figures have been adjusted according to the consumer price index for 1996. The income deciles were created using the data from only those municipalities that reported expenditure information for that year. The total number of municipalities reporting expenditure data for each decile was less than the total number of municipalities in the population deciles. Poorer municipalities spent more on health per capita than wealthier municipalities.

Table 14. Total Health Care Spending per Capita by Income Decile

DECILES	1994	1995	1996
1	4.71	11.41	12.74
2	2.16	6.24	6.63
3	2.62	2.95	9.13
4	2.11	3.04	6.03
5	2.62	7.84	6.67
6	1.94	7.11	15.35
7	2.34	6.23	4.31
8	1.90	6.64	9.63
9	2.02	5.74	8.04
10	1.13	3.9	8.79
Average	2.35 (105)	6.10 (189)	8.73 (187)
10 <sup>th</sup> /1 <sup>st</sup>	0.24	0.34	0.69
# reporting	105/106	189/190	187/187

Source: MOH

In terms of the ratio of THE to TGE, poorer municipalities spent more on health care in terms of total general expenditures. The gap between the poorer and richer municipalities decreased over the years.

Table 15. Total Health Care Expenditure/Total General Expenditure by Income Decile

DECILES	1994	1995	1996
1	41.74	15.43	16.72
2	26.29	7.59	8.10
3	22.32	5.55	9.48
4	17.80	5.14	8.01
5	20.34	8.14	8.21
6	9.11	7.84	10.41
7	15.31	6.17	4.09
8	9.68	7.62	6.02
9	9.17	5.19	7.26
10	2.68	3.44	4.59
Average	17.52 (106)	7.21 (190)	8.32 (187)
10 <sup>th</sup> /1 <sup>st</sup>	0.06	0.22	0.27
# reporting	106/106	190/190	187/187

Source: MOH

## UTILIZATION OF MUNICIPAL HEALTH CARE SERVICES COEFFICIENTS

We attempted to analyze the comparative utilization of the formal and informal sectors in different municipalities since our data on utilization only allowed this kind of comparison. In Bolivia, use of traditional medicine is widespread and due to cultural as well as substitution effects.

We analyzed the coefficients of utilization of formal and informal health care services in the municipalities, defined as the percentage of the population that utilizes the health services in formal sector and the percentage of the population that utilizes the informal health care services, respectively. These figures are summarized in Table 16.

Table 16. Coefficients of Utilization—National Averages

	1994	1995	1996	Average
Coefficient of Formal Utilization	0.14	0.12	0.12	0.13
Coefficient of Non-Formal Utilization	0.32	0.17	0.23	0.24

Note: The average include all municipalities that reported no utilization of health care services

As one can see in Table 16, the coefficient of utilization of the formal sector is smaller than all the coefficients of utilization of the non-formal sector, which indicates that in Bolivia the population is using traditional medicine more than allopathic medicine. At the same time, while there is little fluctuation of the coefficients for the formal sector there is considerable fluctuation in reported use of traditional medicine. Since decentralization is likely to have affected use of formal sector and not the traditional sector, the stability of use of the formal sector might suggest that decentralization had little impact.

Table 17 shows the coefficient of formal utilization by population decile. The smallest municipalities have the largest percent of persons using allopathic forms of medicine.

Table 17. Coefficient of Formal Utilization by Population Decile

DECILES	1994	1995	1996
1	0.89 (4)	1.03 (10)	0.45 (12)
2	0.76 (11)	0.16 (14)	0.20 (11)
3	0.25 (8)	0.08 (14)	0.36 (14)
4	0.62 (10)	0.22 (15)	0.14 (21)
5	0.23 (7)	0.22 (19)	0.29 (23)
6	0.57 (15)	0.13 (20)	0.22 (21)
7	0.25 (12)	0.24 (21)	0.17 (22)
8	0.10 (14)	0.20 (24)	0.11 (20)
9	0.24 (13)	0.11 (25)	0.11 (24)
10	0.11 (11)	0.06 (26)	0.07 (19)
Average	0.37 (105)	0.20 (188)	0.19 (187)
10 <sup>th</sup> /1st	0.12	0.06	0.15
# reporting	105/106	188/190	187/187

Note: These figures exclude any municipalities that reported no formal utilization of health care services  
Source: MOH

Table 18 shows the coefficients of non-formal health care utilization. The smallest municipalities have the largest coefficients of non-allopathic health care.

Table 18. Coefficient of Non-Formal Utilization by Population Decile

DECILES	1994	1995	1996
1	3.41 (4)	0.47 (10)	1.31 (12)
2	1.70 (11)	0.24 (14)	0.36 (11)
3	1.29 (8)	0.37 (14)	0.88 (14)
4	1.15 (10)	0.30 (15)	0.19 (20)
5	0.79 (7)	0.20 (19)	0.46 (23)
6	0.54 (15)	0.18 (20)	0.27 (21)
7	0.33 (12)	0.22 (21)	0.20 (22)
8	0.34 (14)	0.40 (24)	0.30 (20)
9	0.79 (13)	0.25 (26)	0.20 (24)
10	0.36 (11)	0.24 (26)	0.28 (19)
Average	0.89 (106)	0.27 (189)	0.39 (187)
10 <sup>th</sup> /1st	0.11	0.51	0.21
# reporting	106/106	189/190	187/187

Note: These figures exclude any municipalities that reported no formal utilization of health care services  
Source: MOH

Tables 19 and 20 report the formal and non-formal utilization coefficients in terms of income deciles. As can be seen from the tables, the poorest municipalities have higher rates of both formal and non-formal utilization rates.

Table 19. Coefficient of Formal Utilization by Income Decile

DECILES	1994	1995	1996
1	0.60	0.73	0.46
2	0.97	0.18	0.17
3	0.33	0.14	0.18
4	0.56	0.15	0.17
5	0.40	0.14	0.25
6	0.12	0.22	0.28
7	0.22	0.12	0.09
8	0.24	0.19	0.12
9	0.15	0.08	0.15
10	0.05	0.05	0.06
Average	0.37 (105)	0.20 (188)	0.19 (187)
10 <sup>th</sup> /1st	0.08	0.07	0.13
# reporting	105/106	188/190	187/187

Note: These figures exclude any municipalities that reported no formal utilization of health care services  
Source: MOH

Table 20. Coefficient of Non-Formal Utilization by Income Decile

DECILES	1994	1995	1996
1	2.52	0.43	0.90
2	0.49	0.28	0.62
3	1.11	0.21	0.39
4	1.15	0.15	0.32
5	0.83	0.30	0.36
6	0.58	0.20	0.39
7	0.72	0.42	0.17
8	0.39	0.23	0.23
9	0.49	0.32	0.29
10	0.27	0.20	0.20
Average	0.89 (106)	0.27 (190)	0.39 (187)
10 <sup>th</sup> /1 <sup>st</sup>	0.11	0.47	0.22
# reporting	106/106	190/190	187/187

Note: These figures exclude any municipalities that reported no formal utilization of health care services  
Source: MOH

Table 21 shows the coefficient of certain types of formal health care services by population deciles. There was little variation between the small and large municipalities in terms of the ratio of repeated visits to first visits, in terms of outpatient visits, or in terms of prenatal visits. There was quite a bit of variation, however between the small municipalities and large municipalities in terms of immunizations, physician visits, and human resources. The ratios between the 10<sup>th</sup> and 1<sup>st</sup> deciles for these variables were 195.54, 203.83, and 62.29 respectively.

Table 21. Coefficient of Utilization by Population Decile (1994)

DECILES	REPEATED/ 1 <sup>ST</sup> VISIT	OUT PATIENT VISITS	PRENATAL VISITS	IMMUNIZA -TIONS	PHYSICIAN VISITS	HUMAN RESOURCES
1	0.20	0.94	0.059	64.39	770.10	4.5
2	0.18	0.58	0.043	174.68	2073.76	11.55
3	0.20	0.53	0.046	345.48	3537.10	7.79
4	0.19	0.48	0.039	456.81	4395.90	6.38
5	0.20	0.60	0.051	690.43	7663.73	9.30
6	0.28	0.66	0.051	949.90	10624.61	14.72
7	0.21	0.67	0.052	1215.07	13673.87	14.50
8	0.22	0.63	0.051	1610.58	15807.68	17.07
9	0.28	0.88	0.059	2313.45	27596.35	21.30
10	0.38	0.96	0.078	12590.77	156971.50	293.81
Average	0.24 (295)	0.93 (293)	0.53 (293)	2045.53 (309)	24365.69 (309)	47.50 (291)
10 <sup>th</sup> /1 <sup>st</sup>	1.90	1.02	1.32	195.54	203.83	62.29
# reporting	295/310	293/310	293/310	309/310	309/310	291/310

Note: These figures include all municipalities except for Human Resources where those municipalities reporting zero's were considered as missing.  
Source: MOH

## **CORRELATION ANALYSIS**

The next analysis is an attempt to explain the variations in health care spending and utilization by differences in the health infrastructure and municipal characteristics.

To measure municipal health care spending the annual series of three variables were used: 1) the total municipal spending in health; 2) the spending in health in relation to total spending; and 3) health care spending per capita. Additionally, for each of the variables the difference between 1994 and 1996 was calculated. In the case of the utilization coefficients the annual series for formal and non-formal utilization were used as dependent variables.

## RELATIONSHIP BETWEEN HEALTH EXPENDITURE AND FORMAL AND INFORMAL SECTOR UTILIZATION

In Table 22, the correlation coefficients are presented between the coefficients of formal and informal utilization are crossed with three measures of municipal health spending for the different years. We are attempting to see if higher levels of spending are related to higher levels of utilization.

Table 22. Utilization and Health Expenditure

HEALTH EXPENDITURES	INFORMAL 1994	FORMAL 1994	INFORMAL 1995	FORMAL 1995	INFORMAL 1996	FORMAL 1996
Total 1994	<b>0.346</b>	<b>0.393</b>	0.222	-0.008	0.055	-0.031
Total 1995	-0.031	-0.082	<b>0.417</b>	0.095	0.004	-0.040
Total 1996	-0.034	-0.033	-0.032	-0.022	0.081	0.032
Ratio 1994	<b>0.674</b>	<b>0.768</b>	0.212	0.110	0.241	0.020
Ratio 1995	0.116	0.091	<b>0.608</b>	<b>0.571</b>	0.085	0.124
Ratio 1996	<b>0.332</b>	-0.006	<b>0.288</b>	0.008	<b>0.697</b>	<b>0.715</b>
PerCap 1994	<b>0.610</b>	<b>0.466</b>	<b>0.260</b>	0.015	<b>0.368</b>	0.015
PerCap 1995	0.130	0.013	<b>0.441</b>	<b>0.423</b>	0.113	0.106
PerCap 1996	0.136	-0.030	0.190	0.015	<b>0.462</b>	<b>0.527</b>
Total 94-96	0.111	0.103	0.098	0.125	0.248	0.261

Note: Figures in bold are significant to  $p=0.0001$

Table 22 shows that there are significant correlations between spending and use of both the formal and informal sectors. Higher spending in the formal sector tends to be associated with higher utilization of both allopathic and traditional medicine. This is somewhat unexpected and suggests that there is not much of a substitution effect between the two sectors.

### HEALTH CARE SPENDING AND OTHER UTILIZATION VARIABLES

We next attempt to relate expenditures to other health care utilization variables and number of personnel in the health sector. Again, we expect higher levels of expenditure to be related to higher levels of utilization and higher levels of staffing.

Table 23 presents the correlation coefficients between health care spending and several utilization variables including: the ratio between repeated appointments and first appointments; the total number of external visits; the number of pre-natal medical visits (services for women); the number of vaccinations given; the total number of medical visits; and the total number of human resources in health care in the municipality.

Table 23. Health Care Spending and Utilization Variables

HEALTH SPENDING	REPEAT/FIRST	OUT PATIENT VISITS	PRENATAL VISITS	IMMUNIZATIONS	PHYSICIAN VISITS	HUMAN RESOURCES
Total 1994	0.122	0.083	0.040	0.044	0.080	0.066
Total 1995	0.173	<b>0.269</b>	<b>0.263</b>	<b>0.202</b>	<b>0.274</b>	<b>0.229</b>
Total 1996	0.089	<b>0.514</b>	<b>0.569</b>	<b>0.799</b>	<b>0.523</b>	<b>0.603</b>
Ratio 1994	-0.011	-0.088	-0.083	-0.093	-0.093	-0.079
Ratio 1995	-0.018	-0.092	-0.088	-0.095	-0.090	-0.085
Ratio 1996	0.074	-0.017	-0.010	0.009	-0.017	0.004
Percap 1994	0.001	-0.066	-0.065	-0.078	-0.070	-0.054
Percap 1995	-0.020	-0.071	-0.067	-0.079	-0.070	-0.066
Percap 1996	0.113	0.020	0.029	0.057	0.021	0.038
Total 94-96	0.021	0.036	-0.008	0.026	0.003	0.004

The general results of Table 23 show only that municipal health care spending in 1995 and 1996 had significant correlation with utilization and staffing. Higher health care spending were related to higher levels of total medical visits, outpatient visits, pre-natal visits, and vaccinations.

The total health care spending also has an important correlation with the number of human resources in health care in the municipality. Given that human resources are not financed by the municipality, but instead by the Department Prefectures, the causality is not direct, as the above results would suggest. Instead the results imply that a high concentration of human resources in the municipality obligates the authorities to spend a certain amount in infrastructure, equipment, and services.

Table 24 shows the correlation between certain per capita utilization variables and health care spending. The only significant relationship was seen between per capita health expenditures and human resources per capita. In this year alone, the more that was spent in health care per capita was related to more staff available per capita.

Table 24. Health Care Spending and per Capita Utilization Variables

HEALTH SPENDING	REPEAT/FIRST	OUT PATIENT VISITS	PHYSICIAN VISITS	HUMAN RESOURCES
Total 1994	-0.0487	0.1720	0.1380	-0.0243
Total 1995	-0.1477	0.2181	0.1937	0.0185
Total 1996	-0.0432	0.0248	0.0050	0.0103
Ratio 1994	0.1575	0.0735	0.0760	0.0795
Ratio 1995	0.0418	0.0250	0.0545	0.0240
Ratio 1996	0.0959	0.1007	0.1539	0.0112
Percap 1994	0.1358	0.1695	0.1766	<b>0.3061</b>
Percap 1995	0.0427	0.0152	0.0495	0.0328
Percap 1996	0.098	0.0639	0.1346	-0.0186

## HEALTH CARE SPENDING FOR INFRASTRUCTURE AND EQUIPMENT

Table 25 presents the correlation coefficients for health spending and investment in infrastructure and equipment in the municipality. The variables related to infrastructure and

equipment are the following: the actual amount spent in infrastructure in the year in question (infra); the actual amount spent on equipment in the year in question (equip); the municipal participation in the Basic Health Care Program (basic); and the number of projects funded by the Social Investment Fund in the municipality (proj).

Table 25. Health Care Spending and Infrastructure and Equipment

HEALTH SPENDING	INFRA 1995	EQUIP 1995	INFRA 1996	EQUIP 1996	BASIC 1996	PROJ
Total 1994	0.014	0.000	0.126	-0.014	0.124	0.105
Total 1995	<b>0.368</b>	0.225	0.069	0.064	0.087	<b>0.330</b>
Total 1996	0.028	0.007	0.002	<b>0.395</b>	-0.033	0.043
Ratio 1994	-0.031	-0.034	-0.018	-0.065	-0.072	-0.009
Ratio 1995	0.110	0.067	0.030	0.099	0.139	-0.101
Ratio 1996	-0.005	-0.022	0.293	0.032	-0.020	-0.158
Percap 1994	-0.019	-0.059	0.013	-0.060	0.009	0.060
Percap 1995	0.117	0.080	0.014	0.023	0.026	-0.015
Percap 1996	-0.006	-0.010	0.186	0.066	-0.025	-0.175
Total 94-96	0.034	0.025	0.036	0.026	0.015	0.016

There is little evidence of any correlation between the infrastructure variables and independent variables.

### HEALTH CARE SPENDING IN RELATION TO MUNICIPAL CHARACTERISTICS

Table 26 presents the correlation between health spending and variables associated with the characteristics of the municipality.

The variables related to municipal characteristics are the following: the number of inhabitants of the municipality; the total number of "base territorial organizations" in the municipality (BTO); the number of NGOs currently working in the municipality (NGO); the municipal poverty indicator or percentage of unmet basic necessities (NBI); the indicator of human development in the municipality; and the indicator for education level in the municipality.

Table 26. Health Care Spending and Municipal Characteristics

	POPULATION	BTO	NGO	NBI	DEVEL	EDUCATION
Gsal 1994	0.038	0.038	0.017	-0.219	0.190	0.106
Gsal 1995	0.191	<b>0.403</b>	<b>0.321</b>	-0.245	0.213	0.223
Gsal 1996	<b>0.708</b>	<b>0.387</b>	<b>0.338</b>	-0.275	0.238	0.210
Gsalgt 1994	-0.099	-0.182	-0.123	0.027	-0.003	-0.004
Gsalgt 1995	-0.105	0.009	-0.117	0.056	-0.029	-0.004
Gsalgt 1996	-0.002	-0.027	-0.028	0.054	0.073	0.040
Gsalpc 1994	-0.085	-0.134	-0.122	-0.008	0.083	0.053
Gsalpc 1995	-0.089	-0.000	-0.092	0.042	0.035	0.034
Gsalpc 1996	0.040	0.035	0.001	0.051	0.024	-0.028
gsal 94-96	<b>0.612</b>	0.212	0.165	0.017	0.013	0.162

There is little evidence that the characteristics of the municipality effect the health care spending variables. The only evidence of such a relationship is seen with the larger number of BTOs and NGOs in the municipality. This result corresponds, however, with the finding that the larger number of human resources in health is related to higher health spending. Similarly, a higher concentration of BTOs and NGOs in the municipality may have an influence on the municipality functionaries so as to increase health care spending. The relationship between spending and population in 1996 is basically affected by the unusually high amount spent by Santa Cruz de la Sierra in this year.

## **FINAL COMMENTS**

The poor results in the obtained above suggest that further analysis using more sophisticated techniques would be of questionable utility. The biased reporting and the large number of mission values suggest that the findings above are not representative of the national sample of municipalities and the findings of more complex analysis would be misleading.

The data did not allow us to really address questions of the relationship between decentralization and performance since all municipalities were decentralized at the same time and the change in decision space brought by the Seguro occurs in 1996 before it is likely to have had an impact on the budgetary data available to this study.

## DESCRIPTION AND ANALYSIS OF CASE STUDIES

The case studies included seventeen municipalities from the departments of La Paz, Cochabamba and Santa Cruz. While not nationally representative, these departments represent the three major geographic/topological areas of the country. Limited resources restricted our sample to three circuits that could be visited economically by our interview teams. The interview teams had interview guides for loosely structured interviews that would allow scoring of a series of specific variables so that systematic comparative analysis could be done.

The information obtained in the field interviews was analyzed to establish correlations to determine the factors that predicted an improved (or declining) performance.

The variables were analyzed in three groups. The first group included variables that described the external factors and characteristics of the municipality that were considered important from the point of view of the key informants. The second group focused on the innovations made by the municipality since decentralization. The third group included several variables that characterized the general performance of the health sector. Table 27 presents a list of the variables along with their descriptions.

Table 27. Description of Variables

Group One	
External Factors	
Financial Incentives	More invested in health more funding from central gov't
Support	More NGOs, more services (especially from private providers), more capacity (in certain situations)
Municipal Characteristics	
The Initial Situation	capacity before decentralization, the experience in health care at the municipality level, and use of alternative forms of health care,
Institutional Capacity	Highly functional DILOS and organizations under its control
Effective Coordination	Capacity of the DILOS or other institutions to perform coordinating role
Key Players' Profiles	Mayor Doctor
Relationships	mayor-community (M-C), mayor-doctor (M-D), doctor-community (D-C), and mayor-municipal council (M-CN)
Group Two	
Innovation	Actions that differed from normal activity and/or predefined standard in terms of health care
Group Three	
Performance Indicators	Resource Allocation Efficiency (Assigned Efficiency)
	Provision of Service Efficiency (Technical Efficiency)
	Utilization
	Quality
	Equity

## **EXTERNAL FACTORS**

External factors were defined as financial incentives from the central government and/or external support from other non-governmental services. An example of financial incentives would have been the allocation of resources to municipalities through the Development Funds and/or Sector Programs. Every municipality received a certain amount of funding based upon a per capita formula. However, if the municipalities invested a certain amount of these funds in the health sector, they could receive increased funding from other government sources. The incentive behind external support from other sources worked in a similar manner. External organizations, such as NGOs, in a municipality often provided additional resources, such as health care services and/or development of increased capacity, for the municipality. It was likely that the external resources, either in the form of financial incentive or external support, would eventually increase the investment and spending in health care and/or generate increased levels of capacity.

## **MUNICIPAL CHARACTERISTICS**

### **The Initial Situation**

The situation at the outset of decentralization was characterized by two factors: the installed capacity, both general and in health, before decentralization and use of alternative forms of health care.

A municipality with a larger installed capacity (in terms of infrastructure, equipment, availability of human resources), as well as previous experience in providing health care, and more functional health care facilities (generating certain custom and comfort from the population), could be classified as a stronger municipality. Such a capacity would influence the municipality's ability to take on new responsibilities of decentralization. The availability of alternative forms of health care, in terms of easy access (distance and cost) to other municipality health centers, to private services, and/or traditional medicine, could be factors that reduced the need or demand for the allocation of resources to health and diminished utilization.

### **Institutional Capacity**

One of the main functions of the DILOS was to ensure that the organizations under its control had the needed management capacity. This being the case, the highly functional DILOS was used as a proxy for highly functional municipal organizations under its control. Following this logic, the higher the capacity of the local organizations, the higher the functioning level of the DILOS. We hypothesized that this would be related to an increased fulfillment of municipal health care responsibilities.

## **EFFECTIVE COORDINATION**

The DILOS were started as a coordinating institution whose principal function was to organize the key players in each municipality, in a coherent and ordered decision making process. We hypothesized that since certain key players had a significant influence on health care provision, the level of functioning of the DILOS would be important for overall system performance.

In some instances, other organizations or actors besides the DILOS took on tasks and decisions. This variable assessed the principal functions in each municipality, if they were assigned and fulfilled, and if these tasks were carried out by the DILOS or by another institution.

## **KEY PLAYERS' PROFILES**

### **Mayor**

Due to the limited institutional capacity of the municipalities—associated, mostly, with their recent creation—the individual role of the mayor could be extremely important.

The profile of the mayor was based five variables: the support he received from the Council, his experience (both in terms of schooling and training or practical experience), his knowledge of his own duties (attributes and responsibilities according to the law), respect for the law (fulfillment of his required duties), and initiative (capacity to propose alternative solutions and solicit support).

### **Doctor**

The profile of the doctor was based upon the individual characteristics of the person principally responsible for health care at the municipal level. In general, this person was the Director of the Health Center or the most important hospital. The doctor's characteristics were based on four aspects: knowledge of the law, his/her experience, his/her initiative and his/her social and political skills.

His/her knowledge of the law draws on aspects of the information obtained from the doctor concerning his/her responsibilities in terms of municipal health, level of functioning of the DILOS and the SNMN, and other items related to the sector's management. The doctor's experience was assessed based upon the his/her level of specialization and the number of years he/she had been working. The doctor's level of initiative was evaluated based upon the capacity to negotiate with municipal authorities, to manage other types of support for the sector and to undertake the health related projects (related to information, education, communication, and management). Finally, social and political skills were assessed based upon the presence of specific actions recognized by the community.

In frequent situation where institutional capacity was weak, especially with a frequent turnover in municipal personnel, the characteristics of the doctor could be an important factor in terms of management and performance in the sector. In general terms we hypothesized

that the greater the doctor's knowledge of the law, the more experience he/she had, increased initiative, and social and political skills would result in a more effective health system.

## **RELATIONSHIPS**

The form in which decentralization was adopted in Bolivia required a high degree of interinstitutional coordination. In situations where institutional coordination was not strong, the relationships among key persons in the sector would be the important means of effecting coordination.

In this study four different types of relationships were identified: mayor-community (M-C), mayor-doctor (M-D), doctor-community (D-C), and mayor-municipal council (M-CN). The relationships were evaluated in order to detect characteristics that could be related to the functioning of services.

### **The Mayor-Community (M-C) Relationship**

This relationship was based upon level of support from the community (number of votes and support thereafter), the level in which he/she consulted the population during the preparation of the municipal PAO (Plan Annual Operativo), and evidence of any negative attitudes from the population concerning the mayor's actions.

### **The Mayor-Doctor (M-D) Relationship**

This relationship was assessed based upon the regularity of insurance repayments, payments from the municipality to the services, and the communication between health care personnel and the mayor concerning certain health topics (the situation, necessities, and priorities).

### **The Doctor-Community (D-C) Relationship**

This relationship was based upon aspects such as the ease of communication (if the doctor spoke the native language of the area), availability (number of home visits made and hours available for visits), respect for the customs of the area, and social sensibility.

### **The Mayor-Council (M-CN) Relationship**

This relationship was based upon the frequency of meetings, the level at which the projects were consulted and discussed, and the councilors' knowledge of topics related to municipal management and how much the mayor relied on them.

We hypothesized that better relationships would be associated with better improvements in performance variables. For example, a better mayor-community and mayor-doctor relationship could result in better efficiency while a better doctor-community relationship could result in better utilization.

## **INNOVATIONS**

Innovations were defined as action that differed from normal activity and/or predefined standard in terms of health care. These activities could be new, more creative adopted by the actors in order to fulfill their responsibilities and challenges. We hypothesized that using innovations were good for the municipality in order to facilitate overall sector operations.

The innovations in each municipality were identified and classified into groups. The score given to each municipality for level of innovation summed the total number and quality of new innovations.

## **PERFORMANCE INDICATORS**

This section describes variables in the third group that attempted to assess the changes in performance related to the provision of health care services in general. We tried to find a relationship between the change in the provision of health care services and the variables in the first and second sets of variables.

Due to the lack of records about health care performance at the municipal level it was necessary to estimate many of the changes in the provision of health care services and performance from the perceptions after the interviews and from changes directly observed by the interviews.

### **Resource Allocation Efficiency (Assigned Efficiency)**

Resource allocation efficiency was evaluated by assessing the perception of key actors of level of inclusion of population's preferences in the drawing up of the annual plans. We also examined the perceptions of appropriateness of investments, in infrastructure, equipment, and human resources.

### **Provision Efficiency (Technical Efficiency)**

Change in technical efficiency was assessed in terms of perceived changes in the proportions of health personnel, the availability of needed medical resources, availability of adequate resources of minimum quality, and the level of basic services offered.

### ***Utilization***

To assess changes in utilization we assessed perceptions of changes in the number of visits, the number of persons that had access to services, and the types of services offered. Estimates were used, given the lack of reliable and complete registers, to observe the results of decentralization.

### ***Quality***

The changes in quality of services was assessed in terms of the perceived changes in infrastructure availability and conditions; equipment and instrument availability; the level of medical resource diversity, availability, and opportunity; and the number and qualification of the available health care personnel.

## Equity

To assess the change in equity we examined the perceived change in the availability of appropriate services provided and the change in accessibility of the services for poor and vulnerable groups.

## CASE STUDY RESULTS

The following section presents the results of the case studies.

### External Factors

Table 28. External Factors

Financial Incentives	Number of Municipalities
None	8/17
Some	6/17
Significant	3/17
Level of Support	
Significant	6/17
Not significant	9/17
No Support	2/17

From the sample of municipalities, we observed a diverse presence of external incentives. In eight of the cases, we did not observe any sign of incentives, in six of the cases we identified some sort of incentive, and in three cases (17%) there was evidence of significant incentives. We did not detect any signs of a pattern in terms of incentives that may have helped us predict the politics of the sector and/or any specific intentions on the part of the government. The presence of external factors, predominantly financial incentives (funding), seemed to be related to the number of projects in the municipality.

In terms of external support, the presence of NGOs and/or different projects with international cooperation, we observed a strong presence. Fifteen municipalities had some type of support, six of which whose support was considered significant and important.

The incentive and support variables were not related significantly to the performance variables. In the case of incentives, there were no significant correlation whereas in the case of support there was one significant correlation between support and the presence of innovations (5.73).

## MUNICIPAL CHARACTERISTICS

Table 29. Municipal Characteristics

INSTALLED CAPACITY	NUMBER OF MUNICIPALITIES
High Level	6/17
Low Level	9/17
Experience	
High Levels	5/17
Low Levels	11/17
Intermediate	1/17
Alternative Forms of Health Care	
Yes	11/17
No	6/17
Institutional Capacity	
Adequate or good	1/17
Intermediate	2/17
Limited or non-existent	14/17
Key Informant Profiles	
Mayor	
Highest Average Score	Santa Cruz
Lowest Average Scores	La Paz and Cochabamba
Characteristics of Mayor	
The best attribute	Experience
The worst attribute	Respect for the Law
Attribute with most variance	Initiative
Characteristics of Doctor	
Highest Average Score	Santa Cruz
Lowest Average Score	La Paz
The best attribute	Knowledge of Law and Social Sens.
	The worst attribute
Relationships	
Mayor-community (M-C)	
Good	6/17
Adequate	7/17
Acceptable to poor	4/17
Mayor-doctor (M-D)	
Good	7/17
Adequate	5/17
Acceptable to poor	5/17
Doctor-community (D-C)	
Good	9/17
Adequate	5/17
Acceptable to poor	3/17
Mayor-council (M-CN)	
Good	10/17
Adequate	2/17
Acceptable to poor	5/17

## **INITIAL SITUATION—INSTALLED CAPACITY, EXPERIENCE, AND ALTERNATIVE FORMS OF HEALTH CARE**

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The initial situation in the municipality was analyzed based upon the installed capacity before decentralization, the experience in health care in the municipality, and the number of alternative forms of health care available to the municipality.

The variable that characterized installed capacity showed a certain degree of polarization. 53% of the cases fell in the extreme low level of installed capacity while 35% of the cases fell in the extreme high and/or appropriate end of installed capacity. In terms of experience, 11 of the 17 cases were assessed with low or limited levels, and 5 of the remaining 6 had a high level of experience. Experience and installed capacity were related to one another, showing a stronger relationship in municipalities with a larger installed capacity. A relatively large number, 11 out of 17 of municipalities, had alternative forms of health care.

The initial situation did not show any significant correlation with the outcome or performance indicators. The availability of alternative forms of health care was negatively correlated with the extent to which other organizations (mainly people) offered these alternative services, when DILOS were not present. This implied that when there were alternative forms of health care, the population had less incentive to support the DILOS. Finally, the level of experience showed a small correlation with the functioning level of the DILOS implying that DILOS function better in municipalities that have a certain amount of experience in health care.

### **INSTITUTIONAL CAPACITY**

In general, institutional capacity of the municipality (measured by the degree to which the DILOS was formally functional) was very low. In 14 cases, it was considered limited or non-existent; in one it was intermediate; and in two it was adequate or good.

The institutional capacity was correlated with efficiency in the provision of services (technical efficiency) and with equity. This implied that the same organizational capacity that facilitated the functioning of the DILOS also contributed to certain efficiencies in the provision of services and improvements in their quality (correlation not shown).

On the other hand, this same variable that measure the functioning level of the DILOS was correlated with the mayor's respect for the law, which in a minor way, was also related to the mayor-doctor relationship. This being the case, functioning level of the DILOS was also related to the doctor's knowledge of the law and his/her experience in terms of health care in the municipality. This implied that the DILOS, utilized as a proxy for institutional capacity, depended not so much on the actual institutional capacity but other factors related to the key informants such as the mayor and the doctor. There was a correlation between experience and institutional capacity.

## KEY INFORMANTS PROFILES

### The Mayor

The profile of each mayor was very different. We observed extreme cases where the mayor was assessed positively in all five measuring categories (scoring a total of 15 out of 15 points or a mean of 3). We also observed the worst case in which the mayor scored only five points in total.

The mayor's profile was assessed based upon the level of experience, knowledge of the law, respect for the law, and initiative. The mayors that tended to score higher were from the municipalities of Santa Cruz (three of the five categories had the scored highest scores and only one of the five received a low score). Those that scored the lowest were from the municipalities of Cochabamba and La Paz (scoring high in only one category and low in two of the five).

The variable related to the knowledge of the law, with a mean score of 1.76 (1.6 in La Paz and Cochabamba and 2.2 in Santa Cruz), was the variable that scored the lowest, while the experience variable (in terms of the average) scored the highest. The initiative variable showed the largest variance between departments. The six categories that scored the lowest were in La Paz and Cochabamba (scoring three points in each), equaling an average of 1.6 for each department. The highest average score was in the municipalities of Santa Cruz (2.4).

Table 30 shows the main results of the correlation.

Table 30. Correlation Matrix for Characteristics of the Mayor

	RES. ALLOC EFF.	PROV. SERV. EFF.	UTILIZATION	QUALITY	EQUITY
Capacity	0.162	0.036	0.177	-0.014	0.129
Experience	0.402	0.303	0.439	0.308	0.411
Knowledge	<b>0.556</b>	0.333	0.310	0.351	0.468
Respect	<b>0.828</b>	<b>0.731</b>	<b>0.521</b>	<b>0.722</b>	<b>0.602</b>
Initiative	<b>0.726</b>	<b>0.593</b>	<b>0.579</b>	<b>0.544</b>	<b>0.554</b>

Note: Bolded figures significant to 5%

The support that the mayor received from the Council (capacity) along with his experience did not show any correlation with the dependent variables. This implied that the general support of the Council was not a critical factor in terms of sector performance. The lack of significance in terms of experience may have been related to the fact that experience was measured within a limited range (from what was considered low to high). What was considered "good" experience was actually an excessive amount of experience and what was measured as "poor" experience was not excessively low. This limited range did not allow for a large enough area in order to discriminate between the experience of the mayors from the different municipalities.

Having knowledge of the law showed a small correlation with resource allocation efficiency (0.556). This implied that those mayors that had more knowledge of their legal obligations in relation to health assigned more resources to health, had tried to improve the combination of resources (the relationship between infrastructure, equipment, and human resources), had adopted mechanisms for inter-municipality compensation (making payments

for the services received in other municipalities by residents of his municipality and vice versa), and had tried to consider the priorities of their population.

The two characteristics of the mayor that showed the strongest correlation with performance indicators were those related to the law (respect for more than knowledge of) and his level of initiative. In terms of respect for the law, a significant correlation (greater than 0.70) was found in three of the five performance indicators, resource allocation efficiency, technical efficiency, and quality. Although not significant, a high correlation was also found with utilization and equity. In terms of the mayor's initiative, a significant correlation was found with resource allocation efficiency, and a high correlation was found with the four other performance indicators. These results lead to two important conclusions. The first was that in general terms, when the laws established through decentralization were understood and correctly applied, positive results ensued. The second conclusion was that the mayor's personal initiative was related to positive results. We took this second conclusion a step further to say that, even with a weak institutional system, the creativity of the mayor could help confront weaknesses at the local level.

### The Doctor

Similarly to the mayor, the doctors evaluated also had very diverse profiles, some with very low scores, some with very high scores, and some with in-between scores.

Of the four cases with high assessment scores (averages greater than 2.5), two were from Cochabamba and two were from Santa Cruz. At the other extreme, of the five cases with very low assessment scores (less than 1.5), one was from Santa Cruz, two were from Cochabamba, and two were from La Paz. There was a certain level of variation among the three departments in terms of average scores. In seven cases (four from Santa Cruz and three from Cochabamba) the assessments of the doctor's distinct attributes were concentrated between scores of two and three, while in five cases (all from La Paz) the assessments varied from the values one to three. In the other five cases there were at least two attributes that received the lowest score possible. The average profile score for the doctors was greatest in Santa Cruz (2.35). Cochabamba scored 2.15 and La Paz 1.89.

In general, the doctors scored the lowest in terms of experience and the highest in terms of knowledge of the law and social skills. There were distinct differences at the departmental level, however. In La Paz, the doctors scored the lowest in level of experience and the highest in social skills. In Santa Cruz the lowest score was in the knowledge of the law (the other three categories scored the same). In Cochabamba the highest score was in level of legal knowledge and the lowest was for initiative and social skills.

Table 31 shows the results of the correlation between the doctor's qualities and the five performance indicators.

Table 31. Correlation Matrix for the Characteristics of the Doctor

	ASSIGNED EFF.	EFF OF PROVIS.	UTILIZATION	QUALITY	EQUITY
Know. Of Law	0.165	0.160	0.387	0.355	0.362
Experience	0.165	0.041	0.340	0.178	0.410
Initiative	0.206	0.420	0.488	0.475	0.492
Social Skills	<b>0.510</b>	0.457	<b>0.679</b>	0.463	<b>0.552</b>

Note: Bolded figures significant to 5%

The profile of the doctor did not have a strong relationship with the performance indicators. Social skills showed a significant correlation with resource allocation efficiency, utilization, and equity. The correlation with resource allocation efficiency implied that a municipality with a doctor that had more social sensibility would be able to better prioritize its health care needs. The fairly strong association between social skills and utilization implied that a municipality with a doctor that had a certain amount of social skills would have a population with a more developed confidence in the health care services. In terms of equity, a more sensible municipality tended to organize their health systems in favor of the disadvantaged population.

We noted that when all five performance variables were grouped and correlated together with the doctor's initiative, the outcome was significant (0.504). When utilization, quality, and equity were grouped together, the correlation became even stronger (0.558). From these results, we concluded that medical initiative had a greater impact in a more general form (grouped form); whereas, individually, medical initiative was a deterrent in terms of performance.

### **Relationships**

The assessment of the relationship variables showed a more balanced dispersion than individual characteristics. In general we observed all types of scores, but the averages were generally between 2.1 and 2.4. In terms of departments, the best scores for the four relationships (averages of 2.75 or better) were in La Paz and Santa Cruz (two in each department). The worst four scores (with averages of 1.5 or worse) were found in La Paz (2), Santa Cruz, and Cochabamba (one in each). In six cases, the scores for the distinct relationships fell in the range of two to high three, which were generally adequate or relatively good scores. The other six cases showed quite a bit of variation in scoring. At least two of the last four cases scored very poorly.

In terms of the mayor-community relationship, 6 of the 17 cases showed a "good" relationship, 7 scored adequately, with acceptable relationships, and in the last four, a poor relationship was seen. The relationship between the mayor and the doctor revealed a similar pattern, with 7 of the 17 cases having a good relationship and 5 with an adequate or acceptable relationship. The rest had poor relationships. The doctor-community relationship in general scored better. Nine cases were considered "good", five adequate, and three bad. On average, this relationship was significantly better in the municipalities of Santa Cruz (with an average of 2.8) than in the municipalities of La Paz (with an average of 2.14). The greatest variability between departments was found in the relationship between the mayor and the council. This relationship had an average score of 2.71 in La Paz and 1.80 in Cochabamba. The scores for this relationship were the highest. Ten cases were classified as "good", two as adequate, and five as poor.

The main results of the correlation for the four relationships were summarized in table 32.

Table 32. Correlation Matrix for the Relationships between key players

	Assigned Eff.	Eff of Provis.	Utilization	Quality	Equity
M-C	<b>0.543</b>	0.179	0.486	0.232	0.482
M-D	<b>0.576</b>	<b>0.756</b>	0.341	<b>0.751</b>	0.433
D-C	0.363	0.3520	<b>0.598</b>	0.392	<b>0.687</b>
M-Council	0.093	-0.070	0.011	-0.118	-0.061

Note: Bolded figures significant to 5%

The relationship between the mayor and the community was correlated with the resource allocation efficiency variable. This implied that, among other things, there was a greater participation from the population in reference to the definitions of PAO and this was related to a more efficient allocation of resources.

The relationship between the mayor and the doctor was correlated with three of the five performance indicators, two of which showed significant results. The correlation with resource allocation efficiency, demonstrated that a municipality that had a larger participation from the medical community in terms of defining priorities (hence a better relationship between the mayor and the doctor), tended to have a more efficient allocation of health care resources. The fact that the correlation for efficiency in provision of services was greater than that for resource allocation efficiency and quality implied that the provision of services was more dependent upon the mayor and the person responsible for health care. The correlation with quality implied that a better relationship between the doctor and the mayor might lead to an improvement in the conditions of infrastructure, the availability of equipment, and the availability of medical resources.

## INNOVATIONS

Table 33. Innovation Results

INNOVATIONS	NUMBER OF MUNICIPALITIES
High Level	10/17
Moderate Level	5/17
None	2/17

In ten of the 17 municipalities we found a high level of innovation. In five municipalities there was a moderate level of innovation. In two municipalities there were no innovations. The two municipalities with the lowest levels of innovation were from the department of La Paz.

The innovation variables were correlated with three out of the five performance indicators: allocation efficiency (0.535), utilization (0.584), and equity (0.764). The correlation with resource allocation efficiency implied a connection to innovation such as personnel contracts, inter-jurisdictional (inter-municipal) compensation for services, inter-municipal cooperation, more discretion in terms of resource allocation, and inter-institutional conventions. The correlation with the utilization variable implied that better strategies for communication and information in order to increase coverage and negotiations with private or other institutions would be related to improved services. The correlation with equity reflected

specific efforts to decrease prices, subsidize services, and provide free care to those patients with more economic restraints.

There were other significant correlation between innovation and the relationship variables. In general terms, the presence of innovations was related to the nature of the relationships between the key informants, especially those that involved the mayor and the doctor, and certain characteristics of these persons. This implied that in general innovations were usually introduced by either of these two people. It was also interesting to note that, although not as strong, the presence of support (for example in the form of NGOs) was another factor that increased the number and level of innovation.

## **EFFECTIVE COORDINATION**

Table 34. Level of Effective Coordination

<i>EFFECTIVE COORDINATION</i>	NUMBER OF MUNICIPALITIES
High level of coordination	6/17
Moderate level of coordination	6/17
Low level of coordination	5/17

In six of the 17 observed municipalities, there was a high level of coordination among all key institutions. This was either due to the fact that the DILOS were operating well or to the fact that other organization or persons were fulfilling the task that normally would be carried out by the DILOS. In six cases, we found a moderate level of tasks being accomplished and in five other cases we found a low level of task accomplishment. Of the six municipalities with a high level of task accomplishment, three were from Santa Cruz, two from Cochabamba and one from La Paz. Similar to this pattern, of the five cases with low levels of task accomplishment one was from Cochabamba and four were from La Paz.

The level of effective coordination was correlated with four of the five performance indicators: service provision efficiency, utilization, quality, and equity. This implied that the same capacity that facilitated the DILOS functioning, or their lack of functioning due to increased activities of other institutions, contributed in an important way to the improvement of services. At the same time, it suggested that given the scheme of decentralization, the tasks entrusted to the DILOS were of special importance.

We noted that the variable that did not show an important correlation with effective coordination was that of resource allocation efficiency. Even though the DILOS were responsible for responsible coordinating resources among the different levels, the lack of significance meant the DILOS and/or other organizations besides the DILOS, were coordinating mostly at the local level (allocating municipal resources) rather than among government levels.

It was interesting to note that the level at which the DILOS carried out their tasks was correlated with a few of the explanatory variables and the level of innovation. The correlation with level of innovation was the stronger of the two. This implied that the capacity for innovation, which depended a great deal upon the characteristics of and relationships with the mayor and the doctor, was what permitted the DILOS to function. This result differed from what we had established in the formal decision space maps. Additionally, the presence of a correlation with variables having to do with knowledge of the law on the part of the mayor and the doctor might be a good indication of DILOS task fulfillment.

## PERFORMANCE

Table 35. Performance Indicators

PERFORMANCE INDICATORS	NUMBER OF MUNICIPALITIES
Before and after decentralization	
Good performance	8/17
Moderate performances	6/17
Poor performance	3/17
Resource Allocation Efficiency	
Improved Performance	1/17
Neutral Performance	2/17
Declining Performance	7/17
Service Provision Efficiency	
Improved Performance	-----*
Neutral Performance	6/17
Declining Performance	5/17
Utilization	
Improved Performance	5/17
Neutral Performance	6/17
Declining Performance	0/17
Quality	
Improved Performance	7/17
Neutral Performance	3/17
Declining Performance	8/17
No change	2/17
Equity	
Improved Performance	14/17
Neutral Performance	0/17
Declining Performance	1/17

\* data not available

The performance variable that had the highest average score was equity, followed very closely by utilization. The lowest average score was for allocation efficiency. The quality variable had the greatest variance. The variables that showed the greatest concentration in terms of score were service provision efficiency and utilization.

The utilization variable had the most improvements over time whereas allocation efficiency showed the most negative changes over time.

There were no municipalities that had a significant improvement (a score of four) in all of the performance variables. The municipality that showed the best improvement had three variables with significant improvement and two with moderate improvement. There were four cases in which there were two or more variables that had negative improvements. In 14 of 17 cases there was at least some type of general improvement (taking the average of all changes in all of the performance variables). In four of the 14 cases the improvement was the greatest in the indicator that was related to insurance.

In eight of the 17 municipalities the performance after decentralization, in terms of each of the scored variables, was equal to or better than the performance before decentralization.

This implied that in those eight cases, decentralization had a positive effect on performance. In six cases some positive improvements were along with some negative improvements (although in all of these cases the averages showed at least a small improvement). In the last three cases the general effect (the average) was negative.

Looking at all the municipalities together, on average, there was an improvement (average score of 2.46). This improvement was greatest among the municipalities of Santa Cruz (2.72) followed by those of Cochabamba (2.56) and then those of La Paz (2.2).

Table 36 shows that there were two types of variables that were correlated with the five performance variables: those related to the key informants and those that reflected behavior observed at the local level. In the first group, the variables were related to the relationships between key players and certain characteristics of the mayor and the doctor. In the behavioral group, the variables were related to innovation and the fulfillment of DILOS functions.

Table 36. Summary Correlation Matrix

	ASSIGNED EFF.	EFF OF PROVIS.	UTILIZATION	QUALITY	EQUITY
M-C	<b>0.543</b>	0.179	0.486	0.232	0.482
M-D	<b>0.576</b>	<b>0.756</b>	0.341	<b>0.751</b>	0.433
D-C	0.363	0.351	<b>0.598</b>	0.392	<b>0.687</b>
Knowledge of Law (mayor)	<b>0.556</b>	0.333	0.310	0.351	0.469
Respect for law (mayor)	<b>0.828</b>	<b>0.731</b>	<b>0.521</b>	<b>0.722</b>	<b>0.602</b>
Initiative (mayor)	<b>0.726</b>	<b>0.593</b>	<b>0.579</b>	<b>0.544</b>	<b>0.554</b>
Social Skills (doctor)	<b>0.510</b>	0.457	<b>0.679</b>	0.463	<b>0.552</b>
Effective Coordination	0.359	<b>0.666</b>	<b>0.579</b>	<b>0.649</b>	<b>0.613</b>
Innovation	0.535	0.469	<b>0.584</b>	0.438	<b>0.764</b>

As described above, the last two variables were each correlated with the relationship variables and with the characteristics of the mayor and the doctors. This pattern implied that, in both a direct and indirect form, the characteristics of the mayor and the doctor, similarly to the relationship between them and with the community, played an important role in determining the type of change observed at the beginning of decentralization.

When we used an average of all indicators, the sum of the five performance variables, as the outcome, we observed a significant correlation with eight variables: the relationship between the mayor and the doctor, the relationship between the doctor and the community, respect for the laws by the mayor and his level of initiative, the initiative and social skills of the doctor, and the innovations and effective coordination. Of all these, the respect for the law on the part of the mayor was the most significant (0.835) followed by the mayor's initiative (0.730) and the relationship between the mayor and the doctor (0.707). These results emphasized the critical role of the performance of the mayor. These three variables showed a even larger significant correlation with a variable that summed the averages of the resource allocation efficiency variable and provision of service efficiency variables (these results are not shown here).

## RESOURCE ALLOCATION EFFICIENCY

The average for the resource allocation efficiency variable was 1.82. This implied, in general terms, a somewhat negative result. We observed only one case in which there was a

significant improvement and two cases with a moderate improvement. There were seven cases with negative results.

The variables that were correlated most significantly with the resource allocation efficiency variable were respect for the law and the mayor's initiative. Respect for the law, which implied knowledge of the municipalities obligations in terms of health and an attempt to include the priorities of the population, was related to larger investments in health. Such an investment, in improving the availability of resources and equipment as well as the conditions of infrastructure, was related, in many cases, to a better balance of resources in the sector. This in turn was related to improved resource allocation efficiency. The initiative of the mayor, expressed in concrete results such as leverage on resources, cooperative agreements, and/or agreements between private providers, was also related to resources for the sector and a more balanced combination of resources allocation.

## **PROVISION OF SERVICE EFFICIENCY**

The general average for provision of service efficiency (technical efficiency) was 2.06, showing little evidence of any significant change. In the six municipalities that actually experienced any type of improvement, the improvement was moderate. Five cases showed negative results.

Provision of service efficiency was most significantly correlated with the relationship between the mayor and the doctor and the respect for the law on the part of the mayor. A good relationship between the mayor and the doctor was related to a greater awareness and knowledge, on the part of the mayor, of the sector's needs (through better access to the mayor on the part of the doctor). At the same time, this good relationship was related to a greater receptiveness to the requirement of the sector and a more opportune response to the sector's needs. Finally, this good relationship allowed the doctor to have greater participation in decision making (even though this may have been through a greater discretion and/or a greater participation in defining priorities). This allowed for better decisions to be made that reflected the characteristics and needs of the population in terms of provision of services.

Legal knowledge was directly related to a more regular fulfillment of the municipal obligations to the sector (making basic service payments and/or allocating resources for insurance). This was directly linked (in a certain way) to a better functioning DILOS. Both factors contributed to a more stable and ordered system that facilitated the decision making process and improved provision of service efficiency (technical).

## **Utilization**

In terms of the utilization variable, the average was 2.94, which was significantly large, implying general improvement. We observe no negative results in terms of utilization. On the contrary, in 5 of the 11 cases we saw significant improvements.

It was interesting to note that one of the critical factors in the increase of utilization was the insurance. We did not predict this factor would have such an effect since it was adopted in a uniform way in all the municipalities. However, even though it was decentralization that allowed the introduction of insurance, insurance became part of the politics of the sector and therefore its effects were not considered results of decentralization. As it was suggested in the discussion of the conceptual framework, it was not possible to discriminate between increases

in utilization due to the insurance and increases due to decentralization (and not forget about the factors that characterized the conditions of each municipality).

The average utilization observed was very close to three, which was also the value assigned to the increase in average utilization induced by insurance. The variation around this average reflected the way in which the local conditions permitted a large or small increase in the utilization given decentralization and the introduction of insurance.

Utilization was correlated most significantly with social sensibility on the part of the doctor, followed by the relationship between doctor and the community. This implied that the doctor-community relationship generated a sense of confidence in the doctor on the part of the population, and therefore confidence in the health care services. Lack of confidence in the doctor had traditionally limited utilization in the past. Additionally, the innovations and the initiative of the mayor, manifested through increased information promoting utilization, seemed to have had a certain influence, as was seen in the correlation.

### Quality

Quality, with an average of 2.47, showed an improvement. This improvement was concentrated in 7 cases, 3 of which had significant improvement. In 8 cases (almost 50%) there was no observed change while in 2 cases the situation worsened.

The change in service quality was most significantly correlated with the relationship between the mayor and the doctor and with respect for the law on the part of the mayor. This implied that, even in the absence of a direct method of measuring service quality, the indirect method adopted was associated with the decision making capacity and the availability of adequate resources, materials, and equipment. For this reason, the pattern of correlation for service quality was highly associated with the efficiency in provision of these services.

### Equity

The average score for equity was three, which implied, in general terms, an improvement. We observed 14 cases where there was an improvement, 4 of which were significant. There was only one case that demonstrated a worsening of outcome.

Similarly to utilization, the changes observed in terms of equity of services reflected the impact of insurance in that it introduced certain types of free services. These services tended to be utilized by the those with lower income for which the insurance had a positive impact in terms of equity of service provision.

The innovation variable was most significantly correlated with change in equity. This correlation was due to, even more than the impact of insurance, practices introduced by the health care personnel that emphasized or supported those that had more economic possibilities.

## CONCLUSION

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As one of the few major country experiences in decentralization in Latin America, Bolivia demonstrated two key factors about the process of decentralization. First, through the “decision-space maps” we were able to show that the range of choice over many key functions was rather limited – reserved for central decisions. And we found that the areas of allocation and other financing choices were significantly reduced over time by the earmarking of some funds for specific benefits package and the requirement that these services be offered without tariff.

In our attempt to assess the kinds of choices made by local authorities within this limited decision space, we found that the analysis of the national level data in Bolivia was inconclusive. The quality of the data was not sufficient for us to have confidence in the analysis we performed. Although we found some interesting relationships – such as poorer municipalities had higher per capita spending than richer municipalities – we cannot explain this unusual finding which is contrary to findings in other countries.

The case studies based on the perception of key local actors did provide a systematic means of evaluating the relationships between local characteristics and perceived changes in performance. First, we found that there were low institutional capacities in most municipalities in the sample. This is an important finding in that local institutional capacities appear to be crucial to effective decentralization. However, our study found that individual characteristics of key local actors and the relationships among those actors may be a substitute for institutional capacity. We found a cluster of variables about local mayors and local health officials that were related to perceived improvements in equity, efficiency and quality of services. In particular we found that mayors who knew and respected the laws of decentralization and who took special initiatives in the health sector were more likely to have better performance. We also found that better relationships among key local actors were associated with better performance.

These findings suggest that in situations of low institutional capacity, governments should focus on making sure that the local authorities know and respect the laws and know that there are options for initiating new activities in health care. It would also be useful to develop means of improving the relationships among key local actors.

This suggests that the central level of the government should initiate programs to educate newly elected local officials in the content of the laws and to disseminate information on “best practices” of other local initiatives in health. In order to encourage improved relationships among the key actors, it might be useful to have special training programs on developing consensus and resolving conflict at the local level. It is likely that such programs of dissemination and training would have to be repeated periodically, at least once after each election of local officials and/or each change of local health directors.

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## ANNEX I. BOLIVIA FIELD RESEARCH GUIDE

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### MUNICIPAL CHARACTERISTICS

This guide was used to obtain information on certain characteristics of the municipality that allowed us to explain observations in relation to changes in 1) performance, 2) the capacity for innovation in terms of providing services, 3) informal decision making structure, and 4) the decision-making process and the coordination mechanisms that have been adopted. The hypothesis is that the differences observed in these four areas should be related to the characteristics of the municipality. We looked for characteristics related to the community, the municipal government, and the representatives of health at the municipal level.

#### Community

- Does the community participate in defining spending priorities? Through what mechanism?
- Are there any leaders, especially those with certain specified skills?
- Are there NGOs operating in the health sector? In addition to providing services, do the NGOs promote larger allocations to health? How?
- Are there active OTBs? What is the relationship between the OTBs and the Vigilant Committees?
- What is the role of the OTBs and the Vigilant Committees in terms of planning health care spending? (Investigate the priorities that these institutions grant to the sector and if they effectively play a role in prioritization, control, fiscalization, etc.?)
- Are there Popular Committees for Health, Committees for Institutional Administration, or any other type of communal organization that promotes health? What role do they fulfill? Have they assumed tasks related to coordination and promotion not contemplated or assigned to other institutions?
- What is the attitude of the community in relation to health care services?

#### Municipal Government

- What type of experience does the mayor have? Is there support for the mayor? Is he popular? How many mayors have there been since the passing of the Popular Participation Law?
- What is the partisan composition of the municipal council? (Investigate any evidence for conflict).
- Does the Mayor have sufficient resources to contract skilled personnel? Is there anyone in charge of the health sector in the mayor's office? How much time do these functions consume? Does the mayor know/understand the functioning and the legal framework of the sector? Does he participate in the assigning of resources?

- How many times have they reprogrammed the POAs in the last few years? Are there significant gaps between what is programmed and what is executed?

### **Health Care Personnel**

- What is the experience of those responsible for health care? Does this experience translate into a better management at the central level? Are there better quality services?
- What is the level of participation of those responsible for health in terms of municipal programming? What type of relationship exists between those responsible for health care and the municipal government?
- What special initiatives have been adopted by health care personnel? Do these initiatives substitute in any way for institutions or organizations that do not fulfill their duties?

### **INCENTIVES**

Our goal is to identify programs, projects or the presence of institutions involved in health that, through their presence, induce some type of action on the part of the municipality in terms of spending or management in the sector. We try to identify the type of compromises that the Municipal Government makes that result in the presence of these institutions and establishes if, in terms of the existent resources, there is a substantial or any type of effect.

- Is there a national program like FIS, PROISS, or CCH present in the municipality that acts as a co-financier of health care investments? What is the impact of this organization in the community?
- Did the municipality receive any type of international or NGO collaboration specifically related to the health sector? What is the impact of this cooperation in terms of assigning sector resources?
- What impact have the current programs or institutions had in terms of resource allocation toward the health sector? Are they substitutes or complementary?
- Are there NGO conventions that compromise the municipality to assign a certain amount of resources to the sector? Or that they compromise on a certain type of management?

### **INFORMAL DECISION-MAKING STRUCTURE**

At this point in the interview, we tried to establish how things really functioned within the municipality, especially in terms of decision space. We tried to establish who was a decision-maker and how decisions were really made including how reassigned responsibilities had been assumed. In order to do this we concentrated on certain aspects of the decision making process such as how POAs were elaborated, how the budget was decided upon, and how institutions such as DILOS or health centers operated.

- Who are the principal participants (institutions, organizations, persons) in the decision making process in terms of health themes (resource allocation, priority definitions, etc)?
- In what areas does individual initiative (personal or institutional) act as a important motor in the sector?

- Who participates in defining the POA? Is it the health centers, health care personnel, the OTBs, and/or the DILOS?
- How are the health requirements defined for the POAs? Does the municipal government accept suggestions about what to include in the POAs in terms of health? Does the government take these suggestions into consideration?
- Has PACO been reprogrammed? How many times per year? Who knows about the reprogramming?
- How are the DILOS functioning? What have been the role and the activities of the DILOS most recently? What are the most important that the DILOS have carried out most recently? What are the most important decisions the DILOS have taken most recently? In what kind of environment do the DILOS have the most influence? How have the DILOS have arrived at institutionalization?
- Who makes the human resource hiring decisions? Do the DILOS have any role in making these decisions? Does the mayor have any influence in these decisions? Does the director of the establishment have any influence in hiring and firing?
- In cases where the DILOS do not fulfill the functions assigned to them, is there another institution or person(s) that can assume this role? In what aspects?
- Are there any active Institutional Administration Committees? What role do they perform? Do they act as a substitute in any way for other institutions?
- How are allocations to health programmed? Who has the final decision in the allocation of resources to the sector? Do the Territorial Base Organizations have any influence? The Vigilance Committees? The health representatives (medical directors of the institutions)?
- Was there any reprogramming for the annual operating municipal budget this year? How were they reprogrammed?
- Once that PACO was approved how did they assign resources to the health sector? Who made the decisions on what and when to pay?
- Who pays the recurrent costs (electricity, water, administrative spending, etc.)?
- Are patients charged for any services? What types of services carry a charge? What are the fees? Who sets the fees and on what criteria are these fees based?
- Where does the income from these fees go? Who decides where this income goes?

## **INNOVATION**

In terms of innovation, we were interested in the information related to the patterns of spending at the central level. We tried, as much as possible, to establish what factors explain the decisions related to spending and what is their significance in relation to health care provision. Additionally, we wanted to try and establish if there were any qualitative innovations that would have an impact on the operation and performance within the sector. The qualitative innovations can take various forms. We tried to be particularly attentive to cases with a significant amount of autonomy in terms of center management, generating resources, contracting personnel, subcontracting of services and the inter-municipal coordination of these services.

## Management Autonomy

- Does the municipality decide how much to assign to the sector, without having to consult health care authorities? Is the funding granted through an account or in-kind? Is account reimbursement requested after the fact? If the municipality does not assign the funding or the account, are the funds made in a coordinated manner?
- What happens to the income from the health centers? Does the income go directly to the municipalities, so that the mayor or another person decides how to use the funds? Are the funds registered in the municipality and then later end up in the sector? Are they not registered with the municipality and the resources remain in the institution so that later it can be decided how to spend them?
- Who decides how the resources are spent in the institution? Are they used to cover the necessary expenses for the interventions in question? Are they put into a communal fund so that later they can be used for those things that seem necessary in the center?
- Is the refinancing of the National Insurance Plan for the Mother and Child sufficient to cover the prenatal services, births, services for infants, and children etc.? How are the deficits financed? Is the difference charged to the patient (that is, is the patient charged in order to received adequate services?

## Resource Generation

- Apart from co-participation funds, what are the most important sources of internal funding for municipalities?
- Are there taxes or any other type of funds collected to be used to cover the fees in the health sector?
- Are patients charged for any services? What are the services that they are charged for? For example: accidents, appointments, etc.? What are the fees? Upon what criteria are these fees defined? Who makes these decisions.

## Contracting Personnel

- Is there a margin of resources to be used in hiring health care personnel in the municipality (doctors, nurses, administrative personnel, cleaning personnel, cooks, ambulance drivers, etc.)?
- Who defines these contracts? How are they financed? Who makes the contract?

## Subcontracting of Services

- Are there NGOs that offer services in the municipality? Who are they?
- Are there agreements among NGOs and the municipal government in terms of providing services?
- What are the general terms of these agreements? Is there any type of contract between the NGOs and the municipality in terms of providing services? Is there any reimbursement mechanism for the NGOs working within the agreement?

- If any type of reimbursement mechanism is in place, what is it based upon? Is it defined on the basis of numbers of services provided? Is it a fixed amount? Is it tied to the quality of services offered? Is it tied to the type of person attended to?
- Is the agreement in line with the Law of Popular Participation, Administrative Decentralization, the New Sanitation Model, and/or the Basic Maternal and Child Insurance Plan?
- If the answer to the above question was yes, do the NGOs respect this agreement?
- Is the presence of NGOs in the municipality positive or negative?
- Are there agreements with these institutions for providing services to the general, non-affiliated public? If yes, what is the impact of this agreement?

### Inter-Municipal Coordination

- Are there people who are not residents of the municipality that solicit services in the municipality (institution)?
- Are there people in this municipality that are referred for health care services from another municipality? Are there patients in this municipality that go to other municipalities to receive health care?
- Why do you think that these patients prefer this health care facility? (Investigate about location, specialists available, better services, better quality, better infrastructure, etc.)
- Does the municipality have any control system to verify if services are provided only to inhabitants of this area?
- Are neighboring municipalities charged for attention given to their residents? Are there compensation mechanisms for services rendered between municipalities?
- Are there implicit or explicit agreements between this municipality and the neighboring or nearby municipalities in terms of providing health care services? Who is the person or institution that organizes such agreements?
- When health investment decisions are made, is the existence of institutions in neighboring municipalities taken into consideration?
- Is there a group that acts as coordinator between municipalities?

### PERFORMANCE

In the visits and interviews we tried to establish the changes that we observed in relation to performance in terms of health care services. We gave special emphasis to aspects related to quality, utilization, equity, and efficiency. It is important to establish when the changes occurred and, if possible, the causes that contributed to the changes. Due to the lack of reliable interviews this part of the evaluation had an large subjective slant. Where possible we tried to incorporate the opinions of those interviewed with more concrete observations that may have been related (i.e. increase in utilization, provided more services).

## Quality

- Has the municipality invested in the maintenance and improvement of the health care infrastructure? Has an improvement been noticed in terms of infrastructure and the endowment of equipment? Has the municipality been able to accumulate or gain access to funds for expenses in the health centers?
- Are the opinions of the health care centers taken into consideration in terms of which expenses are priorities? What expenses does the Municipality cover? Does the municipality have any form of measuring the quality of attention that is offered in the schools and health care centers?
- Is there any type of evidence that suggests that there has been a change (for better or worse) in the quality of health care services?

## Equity

- What criteria have the municipality used to decide in what schools and health centers to invest in first?
- Is the infrastructure and equipment comparable between the different schools and health care centers of the municipality? Have there been efforts made to ensure that they are equal? Is there some minimum requirement for infrastructure and equipment in each health care center?
- Are there any efforts made to facilitate the access to the most needed services? Has any mechanism been installed in order to discriminate between the difference in the cost of providing health care services and the capacity to pay for these services?
- In those cases where there exists some type of scheme to incorporate equity measures in terms of providing services is the criteria explicit? Is it defined in an objective manner? Is it applied in an objective or subjective way? Are there forms on how it is applied?
- Is there evidence that, in the cases where it exists, the equity schemes function in the desired manner? Can you give us any concrete examples with objective data or with evidence from distinct sources?

## Utilization

- Is there evidence of an increase in the number of persons attended to in terms of health care? Have they constructed a new infrastructure in order to attend to persons that before didn't have access to health care services?
- Has the range of services provided increased? What type of services? Is there objective evidence or patient registers that substantiate the changes? Has the infrastructure improved or the equipment increased so as to increase the number of services provided?
- Has the municipality invested in the construction of new health care infrastructure?
- Does the municipality have information that permits them to attend to a larger population (Schools/births?)
- Has the municipality increase the quantity of health care services that it can provide?

## Efficiency

- Is there evidence that the municipality is making better use of their health care resources? Are there possibilities of deciding how to assign resources to those who provide the services? Is there more flexibility in the terms of the budget when it comes to schools and health care centers? Is there or are they developing the necessary institutional capacity? Are there coordination mechanisms between the different institution involved in the provision of health care services? Are there mechanisms so that the population can express their opinions in terms of the quality and cost of services provided?
- In which cases does the Municipality coordinate with the other government organizations in term of health care decisions (SNE/SNS/Prefectures/Programs/NGOs)?
- Are there clear coordinating mechanisms? Are there constituted and operating DILOS?
- How is the municipal investment coordinated in relation to the hiring of personnel?
- Does the municipality coordinate with neighboring municipalities in terms of their actions related to health care?
- In the case that there has been major investments in infrastructure or equipment:
  - Did the population have alternative or options before the investment was made? (i.e. did they provide the services in a municipality nearby for easy access?)
  - How was the decision made? Who participated?
  - Was there any incentive, like a leverage of resources, that may have influenced the decision?
  - What has the result been? Is the infrastructure and equipment used? In what way? Is there sufficient demand to justify the investment? Are there enough human resources for the new infrastructure and equipment?

## ANNEX II. DESCRIPTION OF RANKING SYSTEM FOR SUBJECTIVE VARIABLES IN BOLIVIA CASE STUDIES

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Due to the limitation on information and the scarce availability of qualitative data it was necessary to make the observations in terms of variables with a qualitative nature. With the purpose of establishing correlations, and in the end to assure consistency in terms of each distinct case, we used a specific numeric system of variable classification. The classification of the independent or explanatory variables was based on a scale of 1-3. In general terms, 1 denoted an unfavorable or limited situation; 2, a neutral situation; and 3, a favorable situation. In the case of the variables related to change in the dependent variable or performance variables we used a scale of 1-4. One denoted a worsening in performance; 2, no change, and 3 and 4 denoted distinct grades of positive change. Below is a list of the variables, including the specific aspects of each variable that we considered in our analysis.

### I. Change in Performance

1. Change in Quality (resolution capacity)
  - a) infrastructure (change in the availability and conditions of space, access to services)
  - b) equipment and instruments (change in the availability of medical equipment and instruments)
  - c) Expenditure (change in the diversity, availability and opportunity of medical expenditures)
  - d) Human Resources (change in the number and the qualification of health care personnel)
2. Change in Utilization
  - a) Coverage (change in the number of persons that have access to the service)
  - b) Visits (change in the number of visits)
  - c) Services (change in the type of services offered)
3. Change in Equity
  - a) Focusing of Service Provision (change in the definition of what services to provide)
  - b) Accessibility (change in the coverage of poor or vulnerable groups—costs, better services for less money, better resolute capacity)
4. Change in Efficiency
  - Assigning of resources
    - a) priorities (change in the level in which the population's preferences are reflected—in terms of health)
    - b) investment (investment pertinence—justified investment in terms of the network)
    - c) Combination of expenditures (change in the relation between human resources, equipment or infrastructure—Better? Adequate?)
    - d) interjurisdictional compensations (have mechanisms been adopted and fulfilled)
  - Service Provision
    - a) doctor (change in the availability and reliability of services: water, electricity, communication)

- b) medical expenditure (change in the pertinence—adequate expenditures--, change in the availability—accessible when needed, quality-no past expenditures)
- c) basic services (change in the availability and reliability of the services: water, electricity, communication)

## **II. Profile of Key Informants**

### Mayor

1. Experience
  - a) Capacity (education level)
  - b) Experience as Advisor
  - c) Other experience in the mayor's office
  - d) Other experience in terms of management
2. Initiative
  - a) Negotiation Power (other system requests)
  - b) Capacity to propose solutions
  - c) Capacity to find support (population, cooperation, church)
3. Knowledge of the Rules
  - a) DILOS
  - b) Knowledge of their attributions
  - c) CAI's (Advisors of Information Analysis)
  - d) Participative Planning
  - e) SNMN
4. Respect for the Law
  - a) Agreement between programming and the execution of the POA's
  - b) Participative planning (participation in planning from health care personnel, OTBs and Vigilance Committees)
  - c) Fulfillment of what is stipulated under law (in terms of infrastructure and equipment maintenance and payment of operation expenses)
  - d) Participation from the DILOS according to the what is written in the law
  - e) Suspicion in terms of bad management (poor investment of funds)
  - f) Abuse of power (authoritarianism, particular use of public property)
  - g) "Prebendas" (family contracts, repartitioning of hits)

### Doctor

1. Knowledge of the Law
  - a) DILOS
  - b) CAIs
  - c) SNMN
2. Experience
  - a) Specialization
  - b) Previous similar experience (years of service)
3. Initiative
  - a) Level of external support (technical cooperation, training, donations, programs, etc.)
  - b) Power of negotiation with local authorities
  - c) Proper initiative in the creation and the undertaking of IECC health care programs (Information, Education, Communication, and Counseling)

**III. Relationships between Key Personnel**

1. Mayor-Community
  - a) Support from the community vote
  - b) Incorporation of priorities in POAs
  - c) Level of corruption and poor management in the population
2. Mayor-Doctor
  - a) Fulfillment of insurance payments
  - b) Fulfillment of service payments (light, water, etc.)
  - c) Good communication (good dialogue between health care personnel and the mayor in terms of public health problems—receptiveness from the mayor)
3. Doctor-Community
  - a) Accessibility (native language, home visits, 24 hour attention)
  - b) Quality (respect for customs, good treatment, trust)
  - c) Socially sensible
4. Mayor-Municipal Council

**IV. Initial Situation**

1. Installed capacity before decentralization in terms of the population (infrastructure, equipment, ambulatory availability, human resources)
2. Availability of Other forms of health care (easy access in terms of distance, cost of going to other health centers in other municipalities, traditional medicine)
3. Health experience (functioning of health care facilities-good, bad, knowledge of the public medical service by the population, trust in the system, presence of health care centers with strong resolute capacity, number of doctors, adequate functioning in the service network)

**V. External Factors**

1. Incentives (Government policy, programs, funding, NGOs, International Cooperation)
2. Support (District, NGOs, International Cooperation)
3. Municipal Characteristics (noting those that stand out in each case)

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