

Technical Reports Series No. 78
Health Sector Reform and Equity:
Bolivia and Brazil Study Cases



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Health Sector Reform and Equity:
Bolivia and Brazil Study Cases

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The technical Reports Series was created by the Public Policy and Health Program/Health and Human Development Division of the Pan American Health Organization (PAHO/WHO) as a means of promoting thought and discussion on the topics analyzed in meetings and seminars and to present the results of research promoted by the Program.

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Abstract

Equitable access to health care services is an intrinsic part of development. Over the last few decades health status across the American continent and the Caribbean has been steadily improving. However access to health care is far from uniform. Health indicators in rural areas are often not as good as those in urban areas. Differences also exist among people in different ethnic groups, as well as those at different socioeconomic levels.

Most of the countries in this region have adopted some form of Health Sector Reform. This paper takes a look at how equity indicators have been affected by health sector reform in two developing countries: Bolivia and Brazil.

Although disparities among geographical locations clearly exist in each of these countries, this paper finds that health care indicators have improved within departments in Bolivia, in spite of important limitations such as the lack of data from the private sector. The Brazilian data was more difficult to evaluate due to the lack of readily accessible data from the same source before and after the reform. Additional data collection is needed, especially from the private sectors to truly assess the health situation in both of these countries.

ACRONYMS

ACS	Community Health Agent (Agente Comunitario de Saúde)
AIS	Integrated Health Measures
ANS	National Supplemental Health Agency (Agencia Nacional de Saúde Suplementar)
BIC	Bipartite Intermanagerial Commission
DHS	Demographic and Health Survey
INAMPS	Ministry of Social Insurance and Welfare
IBSS	Social Security (Instituto Boliviano de Seguro Social)
INE	National Statistics Institute (Instituto Nacional de Estadística)
LDA	Administrative Decentralization Law
LOS	Organic Health Laws (Leis Organicas de Saúde)
LPP	Popular Participation Law (Ley de Participacion Popular)
MOH	Ministry of Health
MSPS	Ministry of Health and Social Welfare
NGO	Non Government Organization
OTB	Territorial Base Organizations (Organizaciones Territoriales de Base)
PACS	Community Agents Program (Programa de Agentes Comunitarios)
PAHO	Pan American Health Organization
PAO	Annual Operative Plan
PDM	Municipal Development Plan
PES	Strategic Health Plan
PGDES	General Economic and Social Development Plan
PNAD	Brazilian National Household Survey (Pesquisa Nacional Amostras de Domicilos)
REFORSUS	Project to Reorganize the Health System (Projeto de Reorganizacao de Sistema de Saude)

PSF	Family Health program (Programa de Saude Familiar)
SBS	Basic health insurance (Seguro Basico de Salud)
SEDES	Departmental Health Services
SNMN	National Mother and Child Health Insurance Program (Seguro Nacional de Maternidad y Niñez)
SUDS	Unified and Decentralized Health system (Sistema Unico e Decentralizado de Saude)
SUS	Sistema Unico de Saude (Unified Health System)
WHO	World Health Organization

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Health Sector Reform and Equity: *Bolivia and Brazil Study Cases*

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INTRODUCTION:

The provision and access to health care services in an equitable way is a fundamental part of development. In this paper, equity in health care is considered as the allocation of resources in accordance with need, so that services are received according to need and that the payment for these services may be realized within one's economic means. Equity in health care is but one of the factors that influences a person's state of health (1).

An intrinsic relationship exists between health and development. Lack of equity in health care is an issue that not only affects the people that do not receive adequate care; it hinders the progress of the nation as a whole. Over the last few decades health status across the American Continent and the Caribbean has been steadily improving. The region has reached its target average life expectancy of 70 years of age, which is a commendable achievement (2).

Health indicators such as infant mortality, life expectancy and a shift from infectious disease as the major cause of death to chronic degenerative diseases reflect the progress that has been made in the region mentioned above. However, when we pause to examine each country individually, certain discrepancies arise. Health care access is far from uniform and while on average the figures look good, the less affluent and rural areas usually lag behind the urban areas. Health indicators within different ethnic groups can also demonstrate marked differences from the national averages.

Most of the countries in this region have adopted some form of health sector reform. The Pan American Health Organization (PAHO) definition of health sector reform is "A process aimed at introducing substantive changes in the different structures and functions of the sector with a view to increasing the equity of its benefits, the efficiency of its management, the effectiveness of its actions and through this to achieve the satisfaction of the health needs of the population. It is an intensive phase of transformation of the health systems based on situations that justify and make it viable" (3).

Reforms can consist of structural changes, such as decentralization of health care services; changes in financing, policy, administration and management of health care services. Health reforms typically strive to attain sustained improvement in health care, and should include provisions for their own maintenance and continuation as well as information and decision systems capable of modifying their course when the need arises (4).

The majority of the Latin America and the Caribbean countries have the unique problems of dealing with health issues characteristic of developing countries as well as the issues associated with industrialized countries. These reforms were implemented to address the problems of inequity in health care access, as well as to improve the quality and efficiency of health care services. The challenge is not only to resolve these problems, but also to do so in a manner that is financially sustainable.

The purpose of this paper is to analyze the effect of Health Sector Reform on alleviating the problem of health care inequity in two developing countries - Bolivia and Brazil. Equity in health care will be examined from the perspective of coverage, distribution of resources, access and resource utilization. This paper seeks to answer the question: What has been the effect of Health Sector Reform on equity in health care?

Bolivia is classified as a country in incipient transition, with high mortality, high birth rate and moderate national growth. In 1994, the country occupied the 113th position on the Human Development Index (2). The Health Sector Reform that took place in Bolivia in 1994 took place at a time when the whole government was undergoing changes. These changes included decentralization of the entire health sector with a more equitable distribution of resources. Decentralization was used as a tool to improve equity and establish democracy (5). In this way the country's indigenous population benefited with a new health care system designed to improve their health status along with the rest of the country. An analysis of the effect of the structural decentralization of the healthcare system on the Bolivian population, especially the people living in the rural areas and the indigenous people would be beneficial to the country as well as to the other countries within the region.

The health care sector in Brazil faces intriguing challenges. Brazil is a country in full transition with a moderate birth rate, moderate or low mortality and moderate natural growth (2). It is a country that is known for having an extremely large gap between rich and poor. In Brazil, the concept of decentralization of the health sector actually began during the transition from military to civilian rule (5). The steps that the health sector is taking to improve the universal health care system and to resolve the problems of inequity, quality of care and efficiency in a country of this size and complexity is also a topic of interest. Brazil is a multicultural country with many different ethnic groups, so the study of this perspective will be a challenge.

These countries were chosen because in spite of their remarkable differences, they do share some common characteristics. Bolivia and Brazil are both ethnically and culturally diverse, they both have decentralized health care systems, and both countries are considering or have enacted new legislation to regulate the health sector. In Bolivia this is being done at the level of universal health insurance coverage, while Brazil is renovating and adding new programs to its universal health system and has recently implemented a legal framework for its previously unregulated private health sector.

DESIGN AND METHODOLOGY:

In order to evaluate the effect of health sector reform on equity, secondary data collected at the country level will be used. Data will be analyzed from existing databases, and the structure of the health care system under the current legislation will also be examined.

In order to monitor the access to healthcare services, the PAHO Guideline for Monitoring Equitable Access to Basic Services will be used. These guidelines are being used for this study because i) the focus is on the use of data that is readily accessible or reasonably possible to collect from existing information systems and ii) because this is a regionally accepted methodology. In accordance with these guidelines, the following indicators will be used:

To evaluate coverage, the immunization rate of children under 1 year; the percentage of the population regularly covered by a basic benefit package and the coverage of prenatal checkups performed by trained personnel will be used.

To evaluate the distribution of resources, the total out of pocket health expenditure; physicians and nurses per 10,000 population, and hospital beds per 1,000 population will be used.

To evaluate access, the following indicators will be examined: The percentage of deaths without any type of medical care; percentage of rural population more than one hour away from a health facility and the percentage of urban population more than 30minutes away from a care facility.

Finally, to evaluate resource utilization, outpatient consultations per 1,000 population; hospital admissions per 1,000 population, percentage of deliveries attended by trained staff and percentage of deliveries attended by trained personnel will be used.

The distribution of this data will be analyzed to evaluate the effect of the modified health sector. Health indicators in previously under served areas will be compared to the indicators in the more affluent and urban areas of the country to examine whether geographical differences in access to services exist, and whether the health needs of the particular area are being met. Wherever possible, these indicators will also be examined across different ethnic groups in order to evaluate whether they are receiving comparable services.

The Brazilian data will come from the Brazilian national household survey of 1998 (PNAD 1998), the Unified Health System (SUS) database, the Ministry of Health (MOH), and Demographic Household Survey 1996 (DHS). The Bolivian data will come from DHS 1998, the Ministry of Health and Social Welfare (MSPS), and the National Institute of Statistics (INE).

The administration and financial sustainability of the program will also be examined. This includes whether the program has included methods to ensure its own continuity and participation from outside agencies such as partnerships with NGOs.

LIMITATIONS

One of the major limitations is the availability of sufficient processed data. The author has relied on secondary data that is readily accessible. This introduces another possible limitation, which is the adaptability of the data to the research question. Data that has been collected for a different purpose may not be relevant to this case study.

The fact that this study is being conducted from the United States is also a limitation. Case studies are better conducted at least in part within the country under study to obtain a more realistic picture of the health situation.

Apart from the household survey data, the data being used in this study comes from the health ministries. This means that data from the private health care sector cannot be included in these case studies.

Finally the last limitation is the comparability of the data. While the examination of inequities in terms of geographical location, gender, ethnicity and socioeconomic status in a particular year will be comparable, data from before and after the reform may not be, since the data collected at a particular time period usually reflects the political necessity of the data at that time. The questions that were asked in a survey at one period in time may be different from those being asked in the most recent surveys. This is an important limitation as the effect of a new system is evaluated by comparing data from before and after the intervention was implemented.

BRAZIL

Background and Overview of the Health System.

The Federal Republic of Brazil is the largest country in South America with an estimated 2000 population of 166,112,518 and an area of eight and a half million square kilometers (6,7). Brazil shares its borders with all of the countries in South America excluding Chile and Ecuador. The country consists of 26 states, a federal district and 5,561 active municipalities (6). Five major geographical regions are recognized in Brazil. The North is the largest region, occupying 45% of Brazil's landmass but just has 7.5% of the population. Both the Northeast and the Central-West each occupy 18% of the territory, but have 28% and 7%, of the population respectively. The Southeast has the greatest concentration of the population - 42.5% but only 11% of the territory and the South has 7% of the territory and 15% of the population (6,7).

Two hundred and thirty different ethnic groups have been documented in Brazil, speaking more than 90 languages and 300 dialects (8). The major ethnic groups in Brazil include white (55%), mixed white and black (38%), black (6%) and others (Japanese, Arab, Amerindian, 1%) (9). The indigenous population makes up just 0.14% of the population. Seventeen percent of the population lives below poverty level (9).

According to the World Health Organization (WHO) 2000 Healthy Life Expectancy ratings, the average life expectancy in Brazil is a 59.1 years if age. Women can expect to obtain a healthy age of 62.9, while men have a healthy life expectancy of 55.2 years. Chronic and degenerative

diseases are the leading causes of death in Brazil. However communicable diseases still represent a major cause of mortality, especially in the North and Northeastern regions of the country (7). Inequalities in health status can be related to different factors, including lack of access to health services, socio-economic status, lifestyles, environment and education.

Based on this information, the challenges that the health sector in Brazil faces include the provision of comprehensive health care services to all who need them, the improvement of the unified health service and the improvement of overall health conditions, especially in the Northern Regions of the country.

History of Health Sector Reform

The first steps toward health sector reform in Brazil took place in the 1960s when academic teams began to analyze the health status, its socioeconomic determinants, and the characteristics of the health services system. Between 1979 and 1986 associations of health professionals, academic groups, leaders of public agencies, and parliamentarians formed a growing movement to support health sector reform (10).

In the first half of the 1980s a concept was formed that came to be known as Integrated Health Measures (AIS). This concept was based on a series of factors, including

- (a) The universal right of access to health services and measures guaranteed through sectoral and intersectoral public policies,
- (b) Regulation of relations between the public and private sectors,
- (c) Decentralization with unified command at each level of government,
- (d) Elimination of the separation between privately financed care to individuals and prevention and collective services,
- (e) Democratization of decision-making on policies and priorities (10).

The practical implementation of the AIS concept began in the second half of the 1980s, when the Unified and Decentralized Health System (SUDS) was implemented. Until 1989 the public health system in Brazil consisted of two distinct separate systems:

1. The Ministry of Social Insurance and Welfare (INAMPS). Medical care was provided to individuals covered by Social Insurance. These medical services were funded by the payroll contributions of employees and employers to the Social Insurance and Welfare Fund (FPAS). This system covered 71% of the outpatient and 64% of the hospital services provided in the country in 1987.
2. The Ministry of Health (MOH). The MOH provided public health services, including free medical care for the uninsured poor, the mentally ill, people suffering from Hansen's disease, tuberculosis, and other communicable diseases, as well as environmental programs to control those diseases. The funding for these services came from federal tax revenues (National Treasury), in conjunction with state and municipality operated services, which held contracts for specific public health programs (10).

Legal Framework

The Brazilian Federal Constitution of 1988 mandated the establishment of a decentralized universal health system. According to Title VIII, Chapter II, Section II on health:

Article 196. Health is a right for all and the duty of the State, and shall be guaranteed by means of social and economic policies aimed at reducing the risk of illness and other hazards and providing universal and equal access to actions and services for its promotion, protection and recovery.

Article 197. Health actions and services are of public importance, and it is incumbent upon the Government to provide in accordance with the law for their regulation, supervision and control, their execution may be carried out directly or by third parties and also by individuals or private legal entities

Article 198. Health actions and public services integrate a regionalized and hierarchical network and constitute a single system, organized according to the following directives:

- I. decentralization, with a single management in each sphere of government;
- II. full service, with priority being given to preventive activities, without prejudice to assistance services;
- III. community participation

Sole paragraph - The unified health system shall be financed, as set forth in article 195, with funds from the social welfare budget of the Union, the States, the Federal District and the Municipalities, as well as from other sources.

Article 199. Health assistance is open to private enterprise.

Paragraph 1 - Private institutions may participate in a supplementary manner in the unified health system, in accordance with the directives established by the latter, by means of public law contracts or agreements, preference being given to philanthropic and non-profit entities.

Paragraph 2 - The allocation of public funds to aid or subsidize profit-oriented private institutions is forbidden.

Paragraph 3 - Direct or indirect participation of foreign companies or capital in health assistance in the country is forbidden, except in cases provided by law.

Paragraph 4 - The law shall provide for the conditions and requirements which facilitate the removal of organs, tissues and human substances for the purpose of transplants, research and treatment, as well as the collection, processing and transfusion of blood and its by-products, all types of sale being forbidden.

Article 200. It is incumbent upon the unified health system, in addition to other duties, as set forth by the law:

- I. to supervise and control proceedings, products and substances of interest to health and to participate in the production of drugs, equipment, immunobiological products, blood products and other inputs;
- II. to carry out actions of sanitary and epidemiological vigilance as well as those relating to the health of workers
- III. to organize the training of personnel in the area of health
- IV. to participate in the definition of the policy and in the implementation of basic sanitation actions
- V. to foster, within its scope of action, scientific and technological development;
- VI. to supervise and control foodstuffs, including their nutritional contents, as well as drinks and water for human consumption
- VII. to participate in the supervision and control of the production, transportation, storage and use of psychoactive, toxic and radioactive substances and products;
- VIII. to cooperate in the preservation of the environment, including that of the workplace.

The Unified Health System (SUS) began in 1990 with the publication of the Organic Health Laws (Leis Organicas de Saúde- LOS) 8080 and 8142/90 and with the MOH taking over the duties formerly performed by INAMPS. The management and operation of health facilities now came under the control of the state and municipal health secretariats and had to provide service for 100% of the population (10).

The LOS state that the new SUS system must be:

Universal- Healthcare is a recognized right of every citizen. The State is responsible for the provision of unrestricted, unsegmented and undifferentiated access to health services for the entire population.

Decentralized- For more efficient planning, management, evaluation, and control of health services.

Regional- The system will consist of tiered service systems that permit the integration of the public and mixed networks and referral systems.

Comprehensive- all levels of care are provided, including health promotion, disease prevention, treatment, and rehabilitation.

Equitable- health care is provided for every citizen according to his or her needs. Services are delivered to each community in direct relation to its necessities in terms of pathologies and access.

Since then there has been a single unified system of public health services, consisting of federal, state, and municipal facilities and contracted private establishments, under the

management of the municipal and, in exceptional cases, the state governments, subject to the same standards throughout the country (10).

Financing

All three levels of government are responsible for financing the public health system. The funds used for this purpose come mostly from tax revenues and contributions to social funds collected by the federal government. Seventy percent of the resources available for the health sector are from the federal level. Its main sources of income in 1997 came from:

- Contributions to social funds, which generated 72% of the federal
- The Fiscal Stabilization Fund, 19%
- National Treasury bonds, 3.6%
- Direct collection (fines, sales of inputs, etc.)
- Regular taxes, 0.9%
- Others, 1.7% (10)

In each state, the Bipartite Intermanagerial Commission (BIC) determines the allocation of funds to each municipality. This commission consists of representatives from the state and health secretariats of the municipalities in the state. The services provided by public, private, and nonprofit establishments and contracted for by states and municipalities are paid for on the basis of utilization. Fixed payments are assigned for different procedures. Each municipality receives payment vouchers prospectively (for inpatient and outpatient services), which are then distributed to the patients or providers (10,11). The providers may then be reimbursed for the services provided from the federal government. Under this system there is a maximum amount payable to each municipality according to its predetermined financial ceiling. Other resources may be obtained internally through taxes. For patients that are enrolled in private health plans and admitted to SUS hospitals, the plans must reimburse the hospitals for the cost of treatment (10).

In 1996 about 26% of the federal resources went to primary care, 61% to secondary care, and 16% to tertiary care, while the municipal and state levels were mostly spending their money on primary health care. Financial incentives have been implemented to encourage the Family Health Program (PSF) and the Community Health Agent Program (PACS), which are aimed at primary care and preventive services. As a result, it is likely that federal contributions to primary care will increase (10,12).

Public health expenditure was approximately \$100 per capita in 1998. The government plans to increase this expenditure to \$125 per capita in 2004. Currently, between 17-25% of the total expenditure is on primary health care (12).

Functions

Each level of the system performs specific duties:

The municipalities are basically responsible for managing the facilities operating at the primary and secondary levels of care. They undertake the planning, organization monitoring, and evaluation of health measures and services (7,10).

The states' task is to coordinate, monitor, and evaluate the referral units and the tiered service systems in their jurisdictions, as well as to provide complementary measures and technical and financial cooperation with the municipalities. The state manages the tertiary care referral facilities and coordinates the regional referral and back-referral networks (7,10).

In addition to being under contract or agreement with the state and municipal health secretariats, commercial and nonprofit private facilities can also be paid directly by the patient or as participants in some form of supplemental medical care. However, these services are heavily concentrated in the more prosperous southeastern region (7,10).

The federal level fulfills a mainly regulatory role. It formulates, issues standards for, and evaluates national health policy, ensures the uniformity of the system, regulates relations between the public and private sectors, establishes standards and patterns for the quality control of products and services, evaluates technologies, and promotes their adoption, in addition to cooperating technically and financially with the states and municipalities (7,10).

All three spheres of government conduct health promotion campaigns with intensive media support, as well as campaigns for the early detection (7,10).

Private Health Sector

Aside from SUS, the Brazilian health sector consists of a purely private sector, insurance and group health institutions. As indicated in article 199, paragraph 1 of the Federal Constitution, the private health sector was intended to be a supplemental health system, with which the government could contract services for the population. This is perhaps why there was no practical regulation of the private sector until the year 2000.

However once the public sector began to show inadequacies in keeping up with the demand of the population for health services, due to lack of appropriate funding and management, the private sector began to grow (13,14). The people who could afford to pay for health insurance only used SUS for emergency care and sophisticated illnesses and treatment that were not covered by their health plans (14). As such, the private sector was transformed from a supplementary health system to a complementary source of health care services. Overall, SUS together with the private health services that work under contract with the Government provide care to 75% of the population (10).

In terms of the different levels of care, SUS provides primary care for 95%, secondary care for 70%, and highly complex care for 90% of the population. Approximately 30% of the

Brazilian population is covered by the private sector and health insurance for secondary care (10).

The private health care sector in Brazil is basically made up of five entities:

- i) *Prepaid Group Practice*, consisting of medical enterprises that usually administer health plans for individuals, families, and businesses on a prepaid basis, and have a care structure that includes their own and accredited facilities, accounting for about 42% of the private insurance market in 1997.
- ii) *Medical cooperatives*, which are set up by cooperating physicians and accredited hospitals and services, and also offer health plans for individuals, families and businesses, accounting for about 25% of the market in 1997.
- iii) *Health insurance* administered by insurance companies, which give the insured a free choice of physicians and hospitals and reimburse expenditures, accounting for 11% of the market in 1997
- iv) *Self-management*, where large employers finance and administer their own services, offering medical and hospital care exclusively to their staff and their dependents. 17% in 1997
- v) *Administration plans*, which are similar to self-management, except that financial intermediaries administer them, made up 5% of the market in 1997 (10,15).

Some form of private health plan covers 25% of the population. Seventy-eight percent of these individuals live in the southeastern region of Brazil. The types of services provided under these plans vary widely in terms of cost, quality and the services offered. However, they concentrate essentially on secondary care (10).

Regulation of Private Plans

On the third of June 1998, Law No. 9656 was published, which mandated the formation of a National Supplemental Health Agency (ANS) to regulate private health and insurance plans. This was followed by an amendment MP 1665 two days later. Together they constituted the first practical step in the regulation process that terminated in the creation of the ANS, which began operating in April 2000 (15).

The ANS is part of the MOH, and has the following objectives:

1. To improve the capacity and the participation of the members of the private health and health insurance plans, guaranteeing the improvement in coverage, and limiting or impeding the setting of prices and the type of coverage based on the health condition and age of the members
2. To guarantee the uniformity of information of the participants of the private sector, characterizing them as users, operators, care givers and the unified health service

3. To guarantee the uniformity and to maintain the stability of the private sector, establishing conditions to enter, leave and operate in the private market
4. To ensure that all users have access to services, the right to receive care and to defend their interests (15,16)

Current Projects

Health sector reform is a dynamic process. The current projects represent the latest strategies that are being developed in the health sector reform process. In September 1996 the Federal Government embarked on the beginning of a 10-year plan to revitalize the health care system. The first phase of this revitalization plan called-REFORSUS- (Projeto Reforço a Reorganização do Sistema Único de Saúde) is being financed through loans of \$300 million and \$350 million from the World Bank (WB) and the Inter-American Development Bank (IADB) respectively. In addition, the Brazilian Government is contributing approximately \$100 million to the project (17).

Through REFORSUS, the Brazilian Government plans to restore the capability of its health system by expanding and improving the delivery of services, providing new equipment and renovating SUS facilities (18). REFORSUS is part of the administration's Plurianual Plan, which outlines the objectives, goals and financial chronogram of the government's activities during the next four years (19). The implementation of REFORSUS was expected to take four years, between December 1996, and December 2000 (17).

REFORSUS objectives are: to improve coverage, efficiency, quality, accountability and sustainability of the (SUS) by:

- (a) Restoring the infrastructure, modernizing technical capability and improving management;
- (b) Encouraging investments in programs which provide public goods, health promotion targeting the diseases of concern to the population, and use of more cost-effective interventions
- (c) Improving the management, financial sustainability and quality of (SUS) hospital and ambulatory services (18).

In order to achieve these objectives, the project is divided into two components:

Investments- Component 1. This component involves reform of the hospital network, acquisition of new equipment, and the development of new managerial projects in order to complete unfinished projects, prevent further deterioration of the infra structure and eliminate the technological deficit. These activities are divided into four programmatic areas:

- i) Physical and technical improvement of the hospital network. The resources allocated to this area benefits urgency and emergency, maternity postpartum and perinatal services in public and philanthropic hospitals. These are the areas with the greatest indices of preventable death. The Bipartite Intermanagerial commission determines which hospitals shall receive these resources. 70% of the resources are distributed proportionally according to the population of each state, obtained from IBGE 1995. The remaining 30% are distributed inversely proportional to per capita expenditure. In this way, even though

the richest and most populous states will receive more money in absolute terms, the poorest states will receive a greater investment per habitant (17,18).

- ii) Family Health Program. This program is a means of improving the accessibility to care in under served areas, as well as a means of preventing the overuse of secondary and tertiary care facilities. Funds are provided for to the acquisition of equipment to improve the basic health units which house the family health teams. The resources allocated to each state are based on the number of teams serving each state.
- iii) Expansion of the hematology and hemotherapy network
- iv) Expansion of the network of public health laboratories

In the last two program areas, the distribution of funds follows the MOH guidelines. The funds are given out based on the different necessities of each state (17,18).

Institutional development is the second component. This component basically focuses on the sustainability of the programmatic areas in the first component. REFORSUS seeks to provide technical assistance including, consulting services, managerial and legal epidemiological and economic studies, and supervision services. It also supports the dissemination of activities through publications, workshops, seminars, training and study visits (17,18).

Ninety-two percent of the funds (a total of \$ 690 million) will go towards the first component, and the remaining \$60 million will finance the second (17).

The Family Health Program (PSF)

The Family Health Program (PSF) is the MOH's main strategy for organizing basic medical care as well as the whole health system at the municipal level. It establishes links of commitment and co-responsibility between the health services, health care professionals and the population. It actually expands upon the community agents program (PACS) started in June 1991(20).

The PSF embodies and reaffirms the basic principles of SUS- universal, decentralized, integral and community participation. It is structured from the basic Family Health Unit that its work on the following principles:

- Substitutive- The traditional practices for a focusing on diseases are substituted for a new strategy focused on resolving health issues, disease prevention and the improvement of the population's quality of life
- Integral and hierarchized. The family health unit serves as the gateway to primary care. It is linked to the local medical services network, so that the provision of complete medical attention is guaranteed to the members of the community. They are assured of referrals to clinics and more complex services when the need arises.
- Regionalized. Each family health unit works in a specific territory that is well defined. The team is responsible for the enrollment and the follow up of the residents in this territory. It is recommended that no team be responsible for more than 4,500 people.

- Multidisciplinary team. Each unit is composed of at least one *physician*, resident in the community that he or she serves, who looks after all members of the family irrespective of their age or gender and develops health promotion and disease prevention strategies with his team, a *nurse*, who supervises the work of the nurse's aide and the Community Health Agents (ACS), performs consultations in the health posts, and helps the people that need home nursing care, *nurses aides*, who perform nursing procedures at health posts, at home and provide sanitary orientation to the residents, 4-6 ACS, who serve as the link between the families and the health services. They visit each home at least once a month, map out each area, enroll the families and motivate the communities to adapt practices that help improve their quality of life. Other professional areas such as dentists, social workers and psychologists may be added to the teams, or may form support teams in accordance to the local necessities and possibilities. The sizes of the teams varied depending on the number of people in the area and the responsibilities. There is an average of one ACS for 575 people (20).

Each team is capable of knowing the reality of the families for which they are responsible. This occurs through enrollment and diagnosis of their social, demographic and epidemiological characteristics. The principal health problems and risks to which the population is exposed are identified, and interventions are planned with community participation to confront the determinants of the disease/health process. The teams supply complete service, responding in continuous, rational organized and spontaneous manner to community demand, as well as the follow up of ambulatory and hospital services (20).

The priority areas for the implementation of the PSF program are the areas with lower levels of development, high child mortality rates, high levels of infectious diseases and indigenous populations. The ACSs are trained specifically how to communicate with the indigenous population who speak many different languages (12).

In January 1994, the first family health teams went out. When functioning properly, each team can take care of 85% of the health necessities of their communities, in the areas of disease prevention and improving quality of life (20).

The PSF is a municipal plan. The Federal Government subsidizes 30-50% of the costs of each team. Financial incentives are also provided to the municipalities and the doctors participating in this program, including those municipalities that are demonstrated to be covering a greater number of people (12).

There are currently about 13,000 PSF teams serving 3,000 municipalities. The goal is to have 25,000 teams by the end of 2002, serving half the population. Each team serves approximately 1,000 families (an average of 3,450 people). 40 million people (25% of the total population) are already enrolled in the PSF program (12).

National Health Card

It has been five years since the conception of the National Health Card (Cartão Nacional de Saúde), popularly known as cartão SUS. The National Health Card is individual, containing the basic information of the user. This includes their unique registration number, name, and date of birth, gender, municipal name and code (21).

Any individual who uses SUS services regardless of the level of complexity may use the health card. Each level of government has a responsibility with the maintenance of the program. The municipality is responsible for the registering the users, giving them their cards and updating the database; the state is responsible for coordination of the municipalities, implementing the project and updating the database, while the Ministry of health regulates, coordinates and finances the project nationally (21).

The principal aim of the health card is to facilitate access to health services. This project has a series of objectives:

In relation to the user:

- Convenient clinical history database
- Immediate identification, improving medical attention
- Faster medical attention, with automated scheduling of consultations referrals
- Improved and expanded access to medication

In relation to the health system

- The establishment of uniform information systems, with the formation of a national, state and municipal database
- Knowledge of the usage of SUS services
- Control of the demand for services
- Facilitates epidemiological diagnoses
- Awareness of the referral and counter referral systems already used by the patient
- Establishment of a referral and counter referral system of necessary public health services
- Knowledge of the real health expenditures of the public sector
- Follow up, control and auditing of the expenditure made by the public sector
- Effective compensation
- Facilitates the planning of health promotion and disease prevention (22)

The pilot project testing the health card began two years ago in 44 municipalities within 27 states, involving approximately 13 million people and 2000 health units. The expansion of the

project is due to take place in April 2001, with the goal of registering about 130 million people by the end of 2001 (12).

Results:

The health sector reform currently taking place in Brazil consists of the strengthening of the universal health system and the implementation of new programs to increase coverage. The time period being studied is from the start of the new programs to the most recent available data.

Coverage:

Immunization rate of children under 1 year:

According to the MOH data illustrated in Tables 1 and 2, the total number of vaccines given to children under the age of 1 went up sharply between 1995 and 1999. The vaccinations under consideration are: BCG, Polio, Measles and DPT.

Table 1. Number and Type of Vaccinations given to children < 1 year old by region in 1995

Region	Resident Pop <1 year old	<i>Number and Type of Vaccinations given</i>			
		BCG	Measles	DPT	Polio
North	294,202	291,944	252,862	187,623	517,634
North East	1,085,355	1,424,936	1,113,830	977,495	3,282,832
South East	1,280,966	606,586	431,044	478,077	1,512,370
South	489,706	467,603	422,541	417,917	1,300,449
Central West	236,565	193,896	176,195	148,632	469,331
Total	3,386,794	2,984,965	2,396,472	2,209,744	7,082,616

Source: *Datasus*

The immunization data however refers to the number of vaccinations given, and not to the percentage of children vaccinated. This data only refers to the immunizations given in the SUS system. It does not cover the children under the age of one vaccinated in the private sector. Assuming that each child was vaccinated once, based on the 1999 data shown in Table 2, coverage for BCG is over 100% in all five regions. Measles coverage is over 95% in all regions except for the North and Central West (87% and 80% respectively). Nevertheless, both regions show an increase in coverage when compared to 1995 coverage (North 86%, Central West 74.5%).

Table 2. Number and Type of Vaccinations given to children < 1 year old by region in 1999

Region	Resident Pop <1 year old	Number and Type of Vaccinations given			
		BCG	Measles	DPT	Polio
North	315,034	343,259	275,095	237,901	630,217
North East	1,010,176	1,186,741	988,330	895,747	2,182,901
South East	1,235,892	1,516,906	1,336,797	1,283,280	2,671,650
South	456,625	488,184	437,001	427,801	941,467
Central West	233,552	272,010	187,533	221,268	482,628
Total	3,251,279	3,807,100	3,224,756	3,065,997	6,908,863

Source: Datasus

Percentage of the population regularly covered by a basic benefit package:

Under the Federal Constitution of 1988, health care is the right of every citizen and is guaranteed by the Federal Government. As such the “basic benefit package” is actually a comprehensive array of services that is guaranteed to cover the whole population, regardless of their ability to pay.

Seventy-five percent of the Brazilian population relies on SUS for health services, while 25% of the population uses private health care. According to PNAD 1998, 14% of people of mixed race use the supplementary health system, compared to 17% of Afro-Brazilians, 19% of the indigenous population, 32% of Caucasians, and 55% of Asian descendants (23).

By region, 12% of the people living in the North East, 17% in the North, 22% in the Central West, 25% in the South and 33% of the people living in the South East use supplementary health care services (23). Ninety-five percent of the people who are enrolled in private plans live in urban areas (15).

Coverage of prenatal checkups performed by trained personnel:

The years with this information readily available were 1997 and 1998. Not surprisingly as these are two consecutive years, there has been very little variation in the percentage of the population

having six prenatal visits or more. So this data only serves to compare prenatal care coverage between regions. Table 3 shows that the South East has the greatest coverage of women (56%) compared to the other regions of the country. The lowest coverage is in the North (38.0%).

Table 3. Percentage of the population by region with > 6 prenatal visits in 1997 and 1998

Region	% 6 or more prenatal visits 1997	% 6 or more prenatal visits 1998
North	38.6	38.0
North East	38.8	38.8
South East	58.6	56.3
South	51.2	53.9
Central West	53.5	55.3
Total	49.8	49.5

Source: Datasus.

In terms of socioeconomic status, according to the 1996 DHS survey, 64.2% of the pregnant women in the poorest quintile had two or more prenatal visits, compared to 97.2% in the richest quintile. Within the lowest income group, 76% of women living in urban areas had two or more prenatal visits, compared to 56% in rural areas (24). However it is interesting to note that as socioeconomic levels increase, the percentages of women covered in both urban and rural areas are very similar. In the second lowest quintile, 83.6% of women residing in urban areas have two or more prenatal visits compared to 85% residing in rural areas. In the middle quintile, 90.2% of women in urban areas and 92.9% of women in rural areas have two or more visits. In the fourth quintile and the richest quintile, 95% and 97.2% of pregnant women living in urban areas received prenatal care on two or more occasions respectively. The coverage for pregnant women in these quintiles living in rural areas is difficult to assess due to small sample sizes (24). In summary, based on these data, lack of equitable access to adequate prenatal coverage is more likely to occur for women in the lowest income group residing in rural areas.

Distribution of resources

Physicians per 10,000 Population:

The MOH data displayed in Table 4 shows that the average number of doctors increased by one doctor per 10,000 population between 1997 and 1999. The region with the greatest concentration of physicians is the South East of the country, with more than 20 physicians per 10,000 people. This figure is more than three times the number of physicians per 10,000 population in the North of the country (6.3 doctors per 10,000 people).

Table 4. Number of Physicians per 10,000 Population by Region in 1997 and 1999

Region	Physicians per 10,000	
	1997	1999
North	6.1	6.3
North East	8.0	8.2
South East	18.6	20.5
South	13.6	13.7
Central West	12.2	12.7
Total	13.5	14.4

Source: Data SUS.

Total out of pocket health expenditure:

According to PNAD 1998, the population in the South of the country has the greatest out of pocket health expenditures (Table 5). These expenditures include medicines, health plans, dentists, glasses, medical consultations, hospitalizations, exams and others (consultations with other health care professionals, home nursing care, orthopedic and medical devices) made during the three months prior to the survey. People living in the South and South East spend more than people living in the other regions of the country. The income per capita is higher in these regions than in the other regions. So even though the people living in the South and South East spend more in numerical terms, the out of pocket expenditure in the North and North East is proportionally greater than in the other regions. It is also important to note that the values for the North do not include people living in rural areas, except for the state of Tocantins (24).

Table 5. Total out of pocket health expenditure by Region 1998

Region	Income per capita R\$	Expenditure in medicines and health care	
		R\$	%
North	2425.85	107.02	4.41
North East	1710.68	82.65	4.83
South East	3483.33	220.59	6.33
South	2971.62	181.76	6.12
Central West	3051.84	169.73	5.56

Total	2857.48	169.49	5.93
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Source: PNAD 1998.

Table 6 shows the breakdown of the expenditures. In all regions, the most money is spent on health plans. In both the North East and the South East almost 50% of the total out of pocket health expenditure is spent on health plans. In the other regions, health plan expenditure accounts for approximately one third of total expenditure. Medicines account for almost 22% of health expenditures in the Central West; whereas in the North East this expense is 10% of total out of pocket expenditures.

Table 6. Type of Out of Pocket Health Expenditures by Region 1998

Region	Medicine	Health Plans	Dentist	Glasses	Medical Consultations	Hospitalization	Exams	Others*	Total
North	17.96	37.80	14.51	5.77	7.11	6.58	6.01	4.27	100.00
North East	19.24	48.86	10.02	7.70	4.34	2.12	3.05	4.68	100.00
South East	16.42	46.98	16.86	5.06	3.94	4.83	1.83	4.07	100.00
South	15.12	36.00	13.77	4.91	8.29	12.21	4.94	4.76	100.00
Central West	15.54	33.06	21.92	5.27	8.28	5.70	5.60	4.64	100.00
Total	16.53	44.03	15.74	5.40	5.16	5.89	2.92	4.32	100.00

Source: PNAD 98.

Hospital beds per 1,000 Population:

This data refers to the number of SUS beds per 1,000 population. No readily accessible data was available for the number of private hospital beds per 1,000 population. The number of beds per 1,000 population per region in Table 7 shows a range between 2 and 3.5 hospital beds per 1,000 population in the five great regions. The Central West has the greatest number of SUS beds with 3.5 per 1,000, and the North has the lowest with approximately two beds per 1,000 people. The number of SUS hospital beds fell between 1997 and 1999 in all regions except the North, where a slight increase is observed.

Table 7. Number of SUS hospital beds per 1,000 population

Region	Beds per 1,000 habitants 1997	Beds per 1,000 habitants 1999
North	2.06	2.08
North East	2.88	2.79
South East	3.33	3.15
South	3.26	3.15
Central West	3.65	3.51
Total	3.12	2.99

Source: Datasus.

Access:

The percentage of deaths without any type of medical care:

There was no readily available data per region on this indicator. On a national level, 9.47% of deaths are without medical attention (19).

The percentage of rural population more than one hour away from a health facility and the percentage of urban population more than 30 minutes away from a care facility:

There was no readily available data per region on this indicator.

Resource Utilization:

Outpatient consultations per 1,000 population:

Table 8 shows the number of SUS outpatient consultations per region for every 1,000 habitants in 1997 and 1999. These figures do not include consultations being made in the private sector. The South East has the greatest number of consultations, while the North has about half of this number.

Table 8. Outpatient Consultations per Region, 1997 and 1999

Region	Outpatient consultations per 1,000 habitants 1997	Outpatient consultations per 1,000 habitants 1999
North	1443.9	1484.6
North East	2095.0	1954.0
South East	2625.9	2601.8.
South	2019.5	2004.8
Central West	2120.0	2028.4
Total	2260.0	2187.7

Source: Datasus

SUS Hospital admissions per 1,000 Population:

The Central West has the greatest number of hospital admissions through SUS per 1,000 habitants, followed by the South East (Table 9).

Table 9. Hospital admissions per 1,000 population 1997 and 1999

Region	Admissions per 1000 habitants 1997	Admissions per 1000 habitants 1999
North	73.7	72.9
North East	71.7	76.1
South East	77.0	77.4
South	68.4	65.5
Central West	83.0	81.4
Total	75.8	78.9

Source: Datasus.

The number of admissions through SUS increased in North East and the South East between 1997 and 1999, but decreased in the other regions during the same time period.

Percentage of deliveries attended by trained staff and percentage of deliveries attended by trained personnel:

Data from the MOH shown in Table 10 covers two consecutive years, 1997 and 1998. As such this data can only be used to show differences between the regions. There is very little variation within the regions in this time period. The data shows that all regions except the North of the country have more than 93% of all deliveries attended by trained personnel.

Table 10. Percentage of Deliveries Attended by Trained Personnel per Region 1997 and 1998

Region	% Of deliveries attended by trained personnel 1997	% Of deliveries attended by trained personnel 1998
North	90.1	88.3
North East	95.2	93.6
South East	98.0	98.8
South	99.0	99.0
Central West	99.3	99.4
Total	96.8	96.3

Source: Datasus.

According to DHS 1996, 71.6 % of women in the lowest quintile had their deliveries performed by a medically trained person, compared to 98.6% in the top quintile. Within the poorest quintile of the population, 79.8% of the women living in urban areas had their deliveries performed by a medically trained person, compared to 65.8% living in rural areas (24). In the other quintiles, the same trend observed for prenatal care coverage occurs. In the second lowest quintile, 88.7% of mothers living in urban areas had their deliveries attended by trained personnel, compared to 88.6% living in rural areas. In the middle quintile, 93.3% of women residing in urban areas had medically trained people attending their deliveries compared to 94.3% of women in rural areas. In the fourth and richest quintile, 97% and 98.1% respectively of women in urban areas had medically trained personnel attending their deliveries. The sample sizes for women living in rural areas in these quintiles (fourth and richest) were too small for accurate assessment (24).

Based on this data, socioeconomic status plays a larger part in inequity than living in rural areas. Women in the second lowest quintile and upward have similar results in both urban and rural areas.

In summary, based on all of the results shown, disparities exist between regions and in terms of low economic status and ethnic groups. There is not enough data to show whether there has been an improvement within regions, only to compare the regions. Under coverage, the number

of vaccinations has increased, however the percentage of children covered is not displayed. The whole population has the right to use SUS services. However, a complementary private system has developed due to inadequacies of the public system, serving one quarter of the population. More than half of the Asian population utilizes these services compared to approximately one third of Caucasians and one fifth of the indigenous population. The Afro-Brazilians and the people of mixed race are the ones who least use the private system. One third of the people residing in the South East use complementary services compared to a little over ten percent in the North East. Finally, only five percent of people living in rural areas use the private sector. In terms of prenatal care, the North and North East lag behind the other regions. The lowest income group living in rural areas also has the least coverage.

In terms of resource distribution, the numbers of physicians increased in all regions, however the North and North East have a significantly smaller number than the other regions. Out of pocket expenditure is greater in the South East, however it has a greater economic impact on people living in the North and North East. The number of hospital beds is fairly uniform throughout the five regions.

In terms of access, no information was readily available per region or socioeconomic status.

The South East has the greatest resource utilization, almost twice as much as the North. The Central West has the highest number of hospital admissions, whereas the South has the lowest. The percentage of deliveries by medically trained personnel per region was high, over 93% in all regions except the North, which had a rate of 88.3%. Women occupying the lowest socioeconomic level living in rural areas had the least coverage.

The results show that inequities continue to exist between regions. The North and North East are typically behind the South and South East parts of the country. Low economic status also plays a role in equitable access, especially between women living in urban versus rural areas. Finally, the Afro-Brazilian and mixed ethnic groups do not have as much access to private services as the Asian and Caucasian groups.

BOLIVIA

Background and Overview of the Health System:

The democratic republic of Bolivia is one of the poorest countries in South America (25). It has an estimated 2000 population of 8,328,700 (26) occupying a surface land mass of 1,098,581 km². The terrain is varied with 45% of the population living in the highland plateaus which together with the Andean mountain slopes occupies 25% of the country's land mass. 30% live in the valley areas which occupy 15% of the land and the remaining 25% of the population live in the eastern plains of the country, which account for 60% of the total land surface (27). Access to goods and services, as well as morbidity and mortality indicators vary considerably across these three topographical regions (27). The Indian-dominated Andean mountain region has the poorest health status (27).

The country is officially divided into nine departments. These departments are subdivided into 111 Provinces and 312 municipalities, each with its own autonomous, elected municipal government (28).

Sixty-two percent of Bolivia's inhabitants live in urban areas. The country is culturally diverse, with an indigenous population consisting of 36 different ethnic groups (28). The major ethnic groups in Bolivia are the Quechua (30% of the population), Aymara (25%), mestizo (mixed white and Amerindian ancestry) 30%, white 15% and the Tupi-Guarani (25). The Bolivian population is young, with 41 percent of the total population under the age of 15 (25).

In 1992, an estimated 70% of households, chiefly rural indigenous people, were living in poverty (51% of urban homes and 94% of rural dwellings) (28). In the Andes and valleys the percentages of poverty among the rural population range from 49.6% among the Mojitos to 71.7% among the Guaranís, with an average of 54.8% for the indigenous population as a whole. The ratio between the highest and lowest income quintiles in the country was 9.5 for the period 1990-1994 (28).

The WHO 2000 average Healthy Life Expectancy for the Bolivia population is 53.3 years of age. Men have an average healthy life expectancy of 52.5 years and women an average age of 54.1 years. In 1999, the major causes of hospital mortality were infectious diseases and diseases of the circulatory system (29). However only 20% of deaths in the country were certified by health professionals (27). The Indian majority often prefers to seek help from traditional healers (yatari) rather than be assisted by modern medicine (30).

The major challenges that the health sector faces in Bolivia's highly segmented population include widespread poverty (two-thirds of the Bolivian population is poor), high rates of illiteracy, low investment and lack of adequate access to basic services which have a strong impact on health such as water and sanitation (27).

Health activities fall under the General Economic and Social Development Plan (PGDES), through the Strategic Health Plan (PES) of the Ministry of Health and Social Welfare (MSPS) (28).

Health Sector Reform

In 1990, the Government restructured the Bolivian Health System, combining the public sector, Social Security sector, and the non-profit and for-profit private sectors. The Bolivian Government has a National Action Plan for the alleviation of poverty based on four objectives (pillars): Opportunity, Equity, Institutionalality, and Dignity. Health care services form part of the Equity pillar (31).

Autonomous local governments were created through the 1994 Community Involvement Act (Ley de Participacion Popular- LPP). Each is responsible for social sector activities, including health, education and public infrastructure (schools, culture, health and sports facilities, local roads and micro irrigation projects) (28,32). The LPP assigned a percentage of national taxes to

the municipalities for investment, supplies and maintenance. The Administrative Decentralization Law (LDA) of 1995 transferred the administrative functions from the national level to the executive Branch at the departmental level (31,32,33). During this stage, the goal was to decentralize public health and strengthen primary health care and the network of services.

The Ministry of Health and Social Welfare (MSPS), is focused on developing a Bolivian health system that integrates the various sectors and is based on a decentralized system emphasizing basic health insurance, the epidemiological shield, family health, and institutional strengthening.

The LPP and the LDA have introduced a decentralization scheme in which the municipalities provide the infrastructure and financing, the MSPS and the departments provide the human resources and bill their cost to the National Treasury, and the organized community monitors the activities.

Legal Framework

In April 1994 the Government passed the LPP, which transferred the responsibility of the operation, maintenance and administration of all local service infrastructure to the municipalities. The federal government disburses funds for these operations on a per capita basis (28).

The LPP provides the legal recognition of over 20,000 Territorial Base Organizations (Organizaciones Territoriales de Base –OTBs), including indigenous, campesino and neighbourhood organizations and cooperatives, providing an avenue for effective grassroot and community participation in government (32). The OTBs now have an official role in the identification, prioritization and proposal of municipal projects, as well as the right to participate in and monitor their execution (32).

OTBs are also represented in the Vigilance committees, which are charged with:

1. Mediating community demands and participating in the annual municipal budget process
2. Enforcing the equitable distribution of resources between rural and urban areas
3. Enforcing a 15% limit on recurrent expenditure
4. Supervising and monitoring public works projects (32)

The LPP, together with Law 1606 (Ley de Modificaciones a la Ley de Reforma Tributaria) gave more fiscal authority to the local governments. The municipalities became responsible for the collection of certain national taxes and exercised control over property, real estate, and automobile tax (32).

The municipal investment policy essentially consists of three phases:

1. The establishment of a municipal development plan (PDM)
2. The formulation of annual operative plans (PAOs)

3. Senate approval of the annual municipal budget

The participants in this process include officials from the municipalities, departments, central government and OTBs. Although the level of popular participation during the initial planning phase is relatively high, participation in the budgeting process leading to the formulation of the PAOs is reduced.

The LDA was passed in 1995, creating nine official departments (prefectures). The departments are responsible primarily for the planning and administration of social service programs (such as health and education) and human resources on a regional level. They are also in charge of public investment in transportation, electrical, and irrigation infrastructure, as well as providing support for production, tourism, conservation, and the strengthening of the municipal government. The departmental prefecture is advised and monitored by Departmental Council, which consists of provincial representatives elected by the municipal councils.

The main components of the Strategic Health Plan (PES) are universal access to health services, basic health insurance, strengthening of the service network, family and community health, implementation of the epidemiological shield, strengthening of basic health programs, and development of the career path in public health.

PES has four sections: Healthy Municipalities; the Approach to Cultural Diversity and Gender; Health Education and Health Promotion; and Interaction with Development Funds and the Departmental Governments (28).

The PES priority programs target the vulnerable groups in the population, namely children under 5, women of childbearing age, and adolescents. Nursing auxiliaries and health promoters provide health promotion and disease prevention interventions at the first level of care, and through community and institutional education campaigns (28).

Organization of the Health Sector

The Bolivian Health System consists of three components: public, social security, and private. The public sector provides most of the health services in Bolivia (28). The Ministry of Health (MOH) provides services to 38% of the nation. The Social Security System (IBSS) covers approximately 26% of the population, specifically the sickness, maternity, work injury and curative care for the uninsured wage earners in industry, commerce, mining and government (32).

The legal framework instrument governing the health insurance system is the Social Security Code, which is a series of standards that protects the health of the country's human capital and takes appropriate measures to rehabilitate disabled people and to provide the necessary means for improving family living conditions. This is made possible through short-term health, maternity, and occupational hazard insurance through in-kind and cash benefits (28). Other institutions, such as the Social Investment fund provide complementary activities to the public health sector (28).

Functions

Since 1994 the public system has consisted of three managerial levels and four levels of care. The managerial levels are:

- a) The central level. The MSPS is responsible for the regulation and implementation of national policies designed to improve health indicators in Bolivia, including technical and infrastructural norms; evaluating and overseeing the national and departmental levels including budgeting and financing public sector health programs and determining criteria for health services fees; defining human resources policy; provision of medication and coordinating international relations and international cooperation (28,32).
- b) The departmental level. The Departmental Health Services (SEDES) are responsible for the application of national health policy in the prefecture; administering the basic health networks and the human resources required to help achieve the national goals and health sector planning and budgeting for the department (28,32).
- c) The municipal level. The Health Districts are in charge of administering local health facilities (infrastructure and equipment), as well as the construction of new infrastructure necessary for the maintenance and development of the local health networks (38,32).

The levels of care in the health system are:

- a) The first level, where care is provided by a nursing auxiliary or physician in health posts and health centers.
- b) The second level, where the four basic medical specialties (obstetrics and gynecology, pediatrics, general surgery and internal medicine) are provided in district referral hospitals.
- c) The third level, where general hospitals offer medical specialties and subspecialties
- d) The fourth level which consists of specialized institutes and technical support centers (28).

Private Sector

The private sector includes both profit and non-profit establishments. These include insurance companies, prepaid medical plans, and nongovernmental organizations. The private for profit sector covers less than five percent of the population. This includes:

- 1) Participants in *health insurance plans*. Health insurance premiums paid by households and businesses finance private health services, which the insurance companies subcontract with clinics and health professionals. It is estimated that there are approximately 40,000 people participating in these plans.
- 2) Enrollees in *prepaid medical plans*. Annual fixed premiums are paid by the members to these plans which also serve as medical service providers. In 1997 it was estimated that there were approximately 31,500 people enrolled in these plans (28,32).

The private not for profit sector, which includes internationally funded NGOs, covers five percent of the population (32). NGOs are a very important source of primary health preventive

services in Bolivia especially in the fields of reproductive and maternal and child health programs (28).

Twenty-five to thirty percent the Bolivian population either has no access to modern healthcare or relies on traditional medicine (32).

Financing

The Financial Administration Bureau of the MSPS is responsible for administering the economic resources of the system (32). The main sources of financing for the health sector include:

- i)* The National General Treasury represents the major source of funding. It's main sources of central government tax are from the General Internal Revenues Directorate and the General Customs Tariffs Directorate (33). The Treasury provides 20% of national tax revenues to the municipalities. These resources are distributed on a per capita basis.
- ii)* Municipal revenues, including co-participation funds and revenues generated from municipal taxes. Eighty-five percent of the resources received from national tax revenues must be used for investment, and the other 15% for current expenditure (32,33).
- iii)* Public Health Insurance Funds System, which includes seven health funds and ten integrated insurance programs which are suppletory funds used for certain institutions, such as public universities. The law requires all public enterprises to contribute to some public health fund, while private organizations have the option of contributing to a health fund or to a pre-paid medical plan on behalf of their employees (33).
- iv)* International cooperation with other countries, organizations and NGOs.
- v)* User charges (out of pocket expenditures) (33).

Basic Health Insurance

In an effort to reduce Bolivia's high infant and maternal mortality rates, a National Mother Child Health Insurance Program (Seguro Nacional de Maternidad y Niñez-SNMN) was introduced in 1996. This scheme provides free health services to pregnant women and their children under the age of five. The program focuses on selected priority health issues for mother and child survival. The insurance package covers four pre-natal visits, hospital delivery, treatment for complications that arise from pregnancy and delivery, and one postnatal consultation. The major causes of mortality under the age of five in Bolivia include acute respiratory diseases and diarrhea. These conditions are treated for free under this insurance plan (34).

The costs of this program are shared by the national and local governments. The National Treasury pays for the salaries of health staff, while municipalities pay for the medicines and medical supplies through the three percent of local health funds financed by tax revenues. These funds are managed by grassroots organizations and local health directorates. International agencies cover the costs of technical assistance, training, evaluation and equipment (34).

The SNMN was later expanded into a new program, Basic Health Insurance , SBS (Seguro Basico de Salud) through Supreme Decree No 2565 in December 1998. Under this decree, regulations were issued, providing 75 benefits in maternal, child, family and community health. Through the SBS, in addition to SNMN services, first trimester hemorrhages, sexual and reproductive health counseling, family planning, treatment of sexually transmitted diseases (except HIV), malaria, cholera, tuberculosis and vaccines are also covered (28,35). Every member of the population has the right to receive these services free of charge. (28).

The SBS receives funds from municipal governments, which allocate 6.4% of their tax revenues to pay for the costs of drugs and supplies for these services and for transport for emergency obstetrics cases and visits to rural areas where no health services are provided.

National Old Age Insurance was also established under decree No. 25265 for people over the age of 65. However, the exact benefits of this health insurance plan have not been defined (28).

Current Projects

In 1999, work began on draft legislation to create a unified health insurance system (28) with the overall objective of improving in a continuous and permanent manner the health status of the Bolivian population, through integral and specific actions in order to contribute to general human well-being and development in the country.

The purpose of the new legislation in Bolivia is to grant universal health insurance for all of the Bolivian population and legal permanent residents (36). The fundamental principles of this law include:

Equity: The allocation of resources at different levels of necessity to social groups and regions and to offer financing to the poorest, least protected segment of the population, as well as providing mechanisms that ensure real access to services and integral healthcare.

Universal: The law covers everyone mentioned above, irrespective of their cultural, ethnic, economic, political, social and status.

Obligatory: The participation is mandatory for workers, and their public and private employers are expected to enroll their employees. It is also mandatory for the people who do not have the capacity to pay and for the self employed s that do have the means to pay.

Integral health care consists of health promotion, prevention, curative and rehabilitative medicine, in quantity, opportunity, qualidade, efficiency and effectivity with emphasis on gender and cultural education.

Solidarity: All employers in all sectors of economic activity, the State at all its levels and the enrolled.

Quality: The Bolivian Health Care system guarantees its members quality of care in accordance with the standards of procedures, norms, protocols in evidence based medicine.

Ethics: Adequate professional discretion based on the principles of ethics and bioethics.

Efficiency: The system will ensure that the available economic resources will be utilized in the best way, maximizing the returns of the premiums (36).

Evaluation of Results

The results shown here are taken from readily available data. The time period being studied is from the start of the Health Sector Reform in 1994 to the most recent readily accessible data. Due to the small population in Beni and Pando, the indicators for these two departments were frequently combined in 1994.

Coverage

Immunization rate of children under 1 year:

The vaccinations being considered are DPT, Polio, Measles and BCG. Based on 1997 data available from the National Institute of Statistics (INE) shown in Table 11, the best vaccine coverage in children less than 1 year of age occurs in Tarija (with coverage of approximately 70% for DPT, Polio and Measles, and 96% for BCG). La Paz and Cochabamba have the lowest vaccine coverage. This data does not include vaccinations in the private sector.

Table 11. Percentage Vaccine Coverage by Antigen and Department, 1997

Department	DPT	Polio	Measles	BCG
Chuquisaca	51.9	53.3	65.8	88.4
La Paz	37.3	38.3	58.9	79.9
Cochabamba	35.6	38.5	60.2	77.4
Oruro	52.2	47.8	63.4	84.2
Potosí	52.0	52.7	68.9	84.2
Tarija	69.2	69.8	70.3	93.5
Santa Cruz	56.1	54.6	62.6	95.2
Beni	44.8	45.3	57.8	78.7
Pando	57.4	57.4	92.4	96.5

Source Instituto Nacional de Estadística – Encuesta Nacional de Empleo.

The percentage of the population regularly covered by a basic benefit package:

Under Supreme Decree No 25265, the whole of the Bolivian population has a right to the benefits described in the SBS, at no cost. People over the age of 65 are also entitled to certain benefits under this decree. Employees working in the formal sector, specifically those working in industry, mining, commerce and government are covered by social security.

Table 12 displays social security coverage for 1994 and 1997. Between 1994 and 1997, the total percentage of the population covered by social security went up from 21.6% to almost 26%. All departments show an increase in coverage between 1994 and 1997, with the greatest increase in coverage occurring in Pando, where coverage increased from 12.7% to 19.8%. However this is still well below the national average of 25.9%. The departments with the greatest coverage are Oruro and La Paz, covering an estimated 32.8% and 32.3% of the population respectively.

Table 12. Percentage of the Population covered by Social Security by Department, 1994 and 1997

Department	1994	1997
Chuquisaca	13.2	17.7
La Paz	28.5	32.3
Cochabamba	18.4	22.5
Oruro	30.9	32.8
Potosí	19.7	21.6
Tarija	17.2	23.2
Santa Cruz	19.6	25.3
Beni	14.4	19.9
Pando	12.7	19.8
Total	21.6	25.9

Source: Instituto Nacional de Estadística- Instituto Nacional de Seguros de Salud (INASES).

Coverage of prenatal checkups performed by trained personnel (percentage):

According to DHS 1998, 31.7% of women in the poorest socioeconomic quintile had two or more prenatal visits, compared to 92.8% of women in the richest quintile. Within the poorest quintile, 47.2% of women living in urban areas had two or more prenatal visits, compared to 30.7% living in rural areas (37). In the second quintile, 58% of women living in urban areas had two or more prenatal visits compared to 47.7% of women living in rural areas. The data for the middle quintile shows that 64.9% of urban women had two or visits compared to 68% of rural women. In the fourth and richest quintile, 85.8% and 92.7% of urban women respectively had two or more prenatal visits. The sample sizes of rural women in the fourth and richest quintiles were too small for accurate assessment (37). Based on this data, women in the first and second socioeconomic quintiles living in rural areas are more likely to have inequitable coverage compared to women with higher socioeconomic status.

Distribution of resources

Total out of pocket health expenditure:

No readily accessible data was available by department for this indicator.

Physicians per 10,000 Population:

The number of physicians shown here includes the physicians working in the social security and public sectors. Physicians working in the private sector are not included. Table 13 shows that the national average increased slightly from 4.9 physicians to 5.8 physicians per 10,000 population between 1994 and 1997. Tarija showed the greatest increase from 5.9 to 7.1 doctors. The department of Potosí has the least number of doctors (4.2 doctors per 10,000 population).

Table 13 Physicians per 10,000 Population by Department:

Department	1994	1997
Chuquisaca	5.9	6.0
La Paz	6.0	6.3
Cochabamba	3.9	4.4
Oruro	4.8	5.5
Potosí	3.8	4.2
Tarija	5.9	7.1
Santa Cruz	4.5	6.1
Beni		7.6
Pando	5.5*	7.3
Total	4.9	5.8

Source: Instituto Nacional de Estadística. *Beni and Pando values combined in 1994.

Nurses per 10,000 Population:

The number of nurses per 10,000 people working in the public and social security sectors has remained relatively stable between 1994 and 1997, as shown in Table 14. In 1994 the national average of nurses per 10,000 people was 2.6, while in 1997 the number was 2.9. The range of nurses is from 1.1 per 10,000 people in Pando to 5.3 per 10,000 people in Tarija. The other departments have a fairly equitable distribution of nurses. The departments of Beni, Pando, Cochabamba and Potosí all have a lower ratio of nurses per 10,000 people than the national average.

Table 14. Nurses per 10,000 population by Department, 1994 and 1997

Department	1994	1997
Chuquisaca	3.8	3.9
La Paz	2.6	2.9
Cochabamba	2.0	2.3
Oruro	2.5	3.0
Potosí	2.0	2.3
Tarija	5.4	5.3
Santa Cruz	2.6	2.9
Beni		2.0
Pando	1.6*	1.1
Total	2.6	2.9

Source: Instituto Nacional de Estadística. *Beni and Pando values combined in 1994.

Hospital beds (Social Security and Public) per 1,000 Population:

According to the INE, the average number of hospital beds in the public and private sectors has remained stable between 1994 and 1997 (Table 15). The distribution of hospital beds is fairly uniform across the departments, ranging from 1.2 beds per 1,000 in Pando and Cochabamba to 2.0 beds per 1,000 population in Tarija.

Table 15. Number of Social Security and Public Hospital Beds per 1,000 Population by Department, 1994 and 1997

Department	1994	1997
Chuquisaca	2.7	1.7
La Paz	1.6	1.5
Cochabamba	0.8	1.2
Oruro	1.8	1.7
Potosí	1.4	1.3
Tarija	1.7	2.0
Santa Cruz	1.8	1.6
Beni		1.9
Pando	1.6*	1.2
Total	1.4	1.5

Source: Instituto Nacional de Estadística- Instituto Nacional de Seguros de Salud (INASES).

*Beni and Pando values combined in 1994

Access

The percentage of deaths without any type of medical care:

There was no available information per department on this indicator. However, it is estimated that only 20% of deaths were certified by health professionals (27).

Percentage of rural population more than one hour away from a health facility and the percentage of urban population more than 30 minutes away from a care facility:

There is no readily available data by department for this indicator.

Resource utilization

Outpatient consultations per 1,000 population:

The data shown here are for the public and social security sectors. All departments show an increase in outpatient consultations per 1,000 population between 1994 and 1997 (Table 16). Santa Cruz is the department with greatest utilization.

Table 16 Outpatient Consultations per 1,000 Population by Department, 1994 and 1997

Department	1994	1997
Chuquisaca	1012	1176
La Paz	768	1046
Cochabamba	667	887
Oruro	889	1064
Potosí	1004	1031
Tarija	1118	1274
Santa Cruz	981	1358
Beni		1160
Pando	769*	861
Total	849	1107

Source: Instituto Nacional de Estadística- Instituto Nacional de Seguros de Salud (INASES)

*Beni and Pando values combined in 1994

Hospital admissions per 1,000 Population:

The number of hospital admissions in the Social Security and the Public Sector per 1,000 population went up in all departments between 1994 and 1998 (table 17). Tarija and Oruro showed the least increase, while Cochabamba and La Paz showed the greatest increase in hospital admissions.

Table 17. Hospital admissions per 1,000 Population in Social Security and the Public Sector by Department 1994, 1997

Department	1994	1997
Chuquisaca	40.3	46.0
La Paz	22.9	32.6
Cochabamba	20.7	33.8
Oruro	37.4	38.7
Potosí	27.6	32.7
Tarija	53.6	54.6
Santa Cruz	44.0	53.7
Beni		75.1
Pando	48.5*	48.1
Total	31.7	41.6

Source: Instituto Nacional de Estadística- Instituto Nacional de Seguros de Salud (INASES)

*Beni and Pando values combined in 1994

Percentage of deliveries attended by trained personnel:

The percentage of deliveries attended by trained personnel increased in all departments between 1997 and 2000, with the most dramatic increases occurring in Santa Cruz and Pando (Table 18). Santa Cruz has the greatest coverage, with over 72 % of deliveries attended by trained personnel. La Paz has the lowest coverage at 42.2%.

According to DHS results for 1998, only 19.8% of women in the poorest quintile had deliveries attended by medically trained personnel, compared to 97.9% of women in the richest quintile. In the poorest quintile, 39.8% of women living in urban areas had their deliveries attended by a medically trained person, compared to 18.5% living in rural areas (37). In the second poorest quintile, 53.6 % of urban women and 39% of rural women had their deliveries attended by medically trained personnel and in the middle quintile, 67.6% of urban and 68.2% of rural women had deliveries under medical supervision. The urban women in the fourth and richest quintiles had coverages of 87.7% and 97.9% respectively. Once again the sample sizes of rural women in these two quintiles were too small to evaluate.

Table 18. Percentage of Deliveries Attended by Trained Personnel in 1997 and 2000 in the Social Security and Public Sectors by Department

Department	1997	2000
Oruro	44.47	57.32
Tarija	55.24	60.42
Santa Cruz	43.40	72.67
Potosi	35.42	43.71
Chuquisaca	48.20	58.78
Pando	32.39	62.26
Beni	50.59	58.48
Cochabamba	28.00	45.95
La Paz	33.03	42.40
Total	38.80	53.49

Source: Sistema Nacional de Información en Salud Database.

In summary, in terms of coverage, the vaccination rate of children under the age of one can only be compared between departments. Tarija has the best overall coverage. La Paz and Cochabamba have the least coverage. The whole population is entitled to the services provided for in the SBS. Social security coverage covers 26% of the population. All departments showed an increase in coverage, especially in Pando. Chuquisaca, Beni and Pando have the lowest social security coverage while Oruro and La Paz have the highest. Thirty-two percent of women in the lowest socioeconomic quintile had two or more prenatal visits. Women in lower socioeconomic groups in rural areas had the lowest coverage.

In terms of resource distribution, all departments showed an increase in the number of physicians per 10,000 people. Tarija, Beni and Pando showed the greatest increase in numbers. Potosí has the least number of doctors and Beni has the most. The number of nurses per 10,000 people is the lowest in Pando, yet this department has the second highest ratio of physicians per 1,000. Tarija has the greatest number of nurses per 10,000 people. Tarija also has the greatest number of hospital beds per 1,000 people. Pando, Beni and Potosí have less than the average 1.5 hospital beds per 1,000 people.

In terms of access, there was no readily available information on these indicators.

In terms of resource utilization, outpatient consultations are fairly equitable across the departments, with only Cochabamba and Pando well below the national average. However, Cochabamba, together with La Paz show the greatest increase in number of consultations between 1994 and 1997. Beni has the greatest number of hospital admissions, followed by Tarija. Cochabamba and La Paz show the greatest increase in utilization. The percentage of deliveries attended by trained personnel between 1997 and 2000 show increases in all departments. Santa Cruz and Pando showed the greatest increase in utilization. Santa Cruz and Pando also have the greatest utilization.

Based on these results, Tarija has the best indicators overall. However, while these results demonstrate a change in indicators after decentralization, and a early into the

SNMN, they do not demonstrate the effects of the SBS, which started after the legislation was passed in 1998.

CONCLUSIONS

The data presented for Brazil shows that inequities exist based on geographical location, ethnicity and socioeconomic status. However, the majority of the data presented is from the universal health system. Since the definition of equity adopted for this paper includes receiving services according to need, and paying for these services within one's economic means, it is also necessary to have information from the private sector in order to have a more accurate picture of the health situation. The regulatory agency for the private health sector, ANS is in the process of establishing a methods for the collection of data from the private sector, which will help in providing a clearer and more comprehensiva picture of health status (15).

There is not enough readily available data before the implementation of the new programs to evaluate their success. Even where improvements within a geographical area appear to exist, it would be useful to know which segment of the population these improvements are benefiting. Population segments of particular interest include people living in rural areas, people at lower socioeconomic levels and different ethnic groups.

So based on the results presented in this paper, only equity between regions can be compared, not the improvements or lack of improvements that occurred since the beginning of the new programs. Geographical inequities clearly exist between the northern regions of the country and the southern regions. According to these results, the population groups suffering from the most inequities are members of lower socioeconomic groups living in rural areas, the resident population in the northern parts of the country, especially the North East, and the indigenous, mixed and Afro-Brazilian ethnic groups. However, due to the limitations of the data used, further study is required for a more complete assessment.

The provision of the National Health Card to both users of public and private health systems provides the potential for greater data collection. This means that all of the municipalities must have the necessary technology to be able to utilize the card.

The Family Health Program has the potential to increase health coverage in the rural areas, which usually have lower rates of coverage, in the lowest socioeconomic quintile as shown in the data on prenatal care. Upon enrollment in the PSF program, each team documents the social, demographic and epidemiological characteristics of each individual in the family. Thus this program also has the potential to provide for a greater amount of accurate data collection in rural areas. The incentives being offered to health care practitioners and the municipalities involved in the program also have the potential to encourage physicians to move to these locations. One of the requirements of the PSF program is that the physician lives in the municipality that he or she serves. So as well as providing more accessible health care coverage, it also provides for a more equitable distribution of resources.

The results presented for Bolivia are based on data from the public and social security sectors. The urban and the larger departments are more likely to have a greater number

of people using the private for profit health sector than the other departments. As in the Brazil case study, there is no data in this paper from the population served by the non profit and for profit private sector.

The transition to a decentralized health care system appears to have had an effect within the departments. Based on the results presented here, improvements have been occurring within all of the departments since 1994. However, there are marked differences between departments in most of the indicators. The department of Tarija has the best indicators. While Pando has some of the least equitable indicators, it is also one of the departments that has demonstrated the greatest improvement since 1994.

There is still a great need to improve equitable access to health care services especially in the rural areas. The availability and accessability of services need to be increased, and cultural factors need to be taken into account. The results of the DHS 1998 survey for deliveries attended by trained personnel in lower socioeconomic groups in rural areas clearly show the need for a more aggressive campaign to reach this population.

The period of time examined in this paper was mainly between 1994 and 1997 based on the amount of readily accessible information available for this time period. The introduction of the SBS and the National Old Age Insurance occurred after this time, so the effect of these programs were not included. These constitute areas for future study.

The introduction of universal health insurance for all which is currently under review has the potential to increase coverage for the conditions not covered by the SBS, especially for the population employed in the informal sector. The challenge will be to introduce it in such a way that is culturally sensitive, so as to increase coverage among all ethnic groups.

One of the principal objectives of the project to strengthen the national epidemiologic surveillance system contained in the strategic health plan is to improve the National Health Information System and the flow of information needed for decision-making in the health sector. The activities involved include training of government, non government and community health workers, integration of the local health sector with other public and private agencies to broaden coverage, the development of information networks and effective health status.

In general, the statistics that have been presented here show an improvement in health communication methods and the implementation of epidemiological surveillance at the community level. In this way, there is great potential to increase public awareness and develop an information system that will establish a database for both the private and public health sectors. This will lead to having a more accurate picture of health status, and also providing the data with which to act accordingly.

The focus of this paper has been on health care. However, access to health services cannot take the sole responsibility for a nation's indicators, and the programs that the government has put into place are showing a certain amount of success. Nevertheless, health sector reform is not the only dynamic process taking place in these countries. Improvements in other areas such as the economy, educational level, environment and lifestyles may also lead to improvements in health

indicators. As such it is difficult to ascertain to what extent the improvements shown here can be attributed to health sector reform.

An important challenge in developing these programs is being able to reach the targeted population. Members of higher socioeconomic levels and residents of urban areas are more likely to gain knowledge of these programs first before the those at lower socioeconomic levels living in rural areas. The utilization of effective means of communication is necessary in order to divulge the availability of these programs.

Popular participation in health care can also provide a means to educate the population to take responsibility for their own health, in terms of adopting preventive measures against disease. Brazil was one of the first countries to include popular participation in the framing of their health legislation. Bolivia, through the LPP, also created an avenue to include and promote community participation in a sustainable manner, through the incorporation of OTBs.

Health sector reform is above all a continuing process, and these programs need to be continuously evaluated and adapted to conform with the necessity of the times. Based on the results presented here, there is a need for an efficient and uniform method of data collection encompassing both the public and private sectors in order to accurately evaluate the new programs. Both of these countries are in the process of developing information systems that will contain information from the private and public health systems.

Both countries have shown that socioeconomic factors and location are elements that effect equity. As such, alleviation of poverty and equitable distribution of resources is important to improve access. So the health sector should work in cooperation with education, sanitation and environment, as both of these factors also have a strong influence on health.

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