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COST RECOVERY IN PUBLIC SECTOR HOSPITALS IN ECUADOR

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ABSTRACT

This document assesses the present cost recovery practices in the public health facilities of Ecuador, poses price simulations as an aid in determining potential revenue, and recommends the administrative changes needed to reach the government's target for cost recovery.

The study includes brief background notes explaining the current financial difficulties the public health sector faces: for example, legal restrictions on fee collection, fees that do not reflect market realities, and flawed means testing and billing systems. The simulations offer a solution by updating the prices, while proposing policy and administrative changes to improve financial management.

Specifically, the authors recommend revenue sharing and increased autonomy for the facilities. Individual performance would be subject to review and determine future government subsidies for each facility. Such incentives would provide the impetus for quality improvements. Finally, the authors recommend more localized means testing programs to protect the poor and eliminate prevalent leakage.

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LIST OF ACRONYMS

ALOS	Average length of stay
EAP	Economically active population
FONIN	Special MSP fund for programs targetting the poor
HFS	Health Financing and Sustainability
HLV	Hospital Luis Vernaza
IESS	Ecuadorian Social Security Institute
INEC	Census Bureau
INHMT	National Institute of Hygiene and Tropical Medicine
JBG	Welfare Society
MF	Ministry of Finance
MSP	Ministry of Public Health and Social Welfare
PHC	Primary health care

EXECUTIVE SUMMARY

..The report assesses current cost recovery experiences in a sample of the Ministry of Public Health (MSP) and Welfare Society (JBG) facilities. It seeks to facilitate policy change and explore options to extend or strengthen user fee systems in MSP facilities. Given conditions of declining budgetary support resulting from the poor performance of the Ecuadorian economy, additional budgetary financing will not be forthcoming. In a recent policy statement, the MSP has identified chronic underfinancing as the main problem facing the institution. The charging of fees to MSP users is one option under consideration.

Objectives of this study are three-fold:

(1) assess current cost recovery practices;

(2) estimate potential revenues from user fees and percent cost recovery through a series of price simulations; and,

(3) recommend administrative changes and options needed to implement a successful cost recovery system.

Currently, MSP facilities are recovering between one and five percent while the JBG recoups from 10 to 20 percent of costs. The low performance results from several factors. First, no clear policy exists on user fees. Laws are contradictory. For example, some public institutions are permitted to charge fees through special legislations while the MSP is prohibited from doing so. Increasingly, however, MSP facility managers ignore the law and charge fees for a broad range of services.

Second, prices are low. They are negligible in relation to unit costs and have little correspondence to fees charged in the private sector. Moreover, some relatively costly services, e.g., hospital hotel services and emergency care, are provided free. Third, means testing is dysfunctional, particularly in the JBG. Leakage rates are high in the sense that means testing does not effectively distinguish the poor from the non-poor. For example, reduced prices are granted for the asking. Finally, billing and collection systems are inefficient. This is particularly evident in MSP facilities where few patients are billed and even fewer pay. For example, approximately one-third of surgery patients pay fees. The remainder escape without making any payment to the hospital.

Do low revenues relate to a patient's inability to pay? A bed survey of in-patients in one MSP hospital found that all patients pay large sums to private providers for services rendered while they are interned in the facility. Average outlays to private providers dwarf payments made to the hospital (by a factor of 150). Payments are made for drugs, supplies, diagnostics, and treatments that are unavailable in the hospital due to stock-outs and broken equipment.

Two simulations are presented to assist policymakers and facility managers select a level of cost recovery. The first simply takes current fee structures and assumes that they are enforced. The second adapts these structures with the aim of achieving the MSP goal of 25 percent cost recovery.

Twenty-five percent cost recovery is achievable but will require policy and administrative changes that will provide incentives to facility staff to collect fees. This will require developing a strong policy that sets clear guidelines for price setting, means testing, collection, revenue sharing, billing and collection practices, and management of fee revenues. Because of the lack of experience in cost recovery, the report recommends that the MSP proceed with plans to establish demonstration projects in a subset of hospitals.

The report recommends that a revenue sharing plan be established whereby facilities retain a substantial share of earnings. This will require some changes in financial codes requiring that revenues be deposited in the Treasury's Consolidated Fund. Facility managers should be granted more decision-making autonomy regarding financing and administration. Each facility should be required to develop a quality improvement plan outlining how fee revenues will be spent. Means testing also will require strengthening. In some cases, it will be best to delegate responsibility for means testing to other government agencies and local authorities. In others, self-targeting mechanisms can be established.

1.0 INTRODUCTION AND BACKGROUND

During the 1980s, the Ministry of Public Health (MSP) faced declining budgetary support for operational expenditures. Despite considerable expansion in infrastructure and personnel over this period, reductions in real MSP recurrent spending have resulted in sharp cutbacks in other budget categories. The quality of MSP services has suffered considerably. Many MSP facilities lack drugs and medical supplies, and dysfunctional equipment is common. Increasingly, MSP clients have little recourse but to purchase drugs, supplies, and diagnostic tests from private providers *while interned in MSP hospitals*. The MSP is searching for alternative financial mechanisms to enable hospitals to fill the gap between budgetary allocations and real resource needs.

This report examines current user fee experiences in secondary- and tertiary-level hospitals operated by the Ministry of Public Health (MSP) and the Junta de Beneficiencia de Guayaquil (JBG). To a lesser extent, the study explores the user fee system of the National Laboratory (INHMT).

Cost recovery through user fees is a highly politicized issue in Ecuador. A 1981 presidential decree, together with MSP regulations, outlawed the charging of fees for health services in MSP and other public sector institutions. Despite these legal instruments prohibiting user fees, many hospitals have developed ad hoc user fee systems to survive in the current financial environment.

The main purposes of this report are to assess current cost recovery experiences in public hospitals to facilitate policy change, and to explore options to extend or strengthen user fee systems in MSP facilities. Given the poor performance of the Ecuadorian economy, the MSP recognizes that additional budgetary financing will not be forthcoming. In a recent policy statement, the MSP has identified chronic underfinancing as the main problem facing the institution (MSP, 1993). The charging of fees to MSP users is one option under consideration.

Another purpose of this report is to provide USAID/Quito with background information on cost recovery activities in public sector health institutions and to delineate possible activities that can be included in an imminent health financing project. The mission seeks to foster sustainable health service delivery in Ecuador by tapping alternative financing sources and exploring innovative financing mechanisms.

The objectives of this study are three-fold. Based on a sample of MSP and semi-autonomous public facilities (hospitals and laboratories), this report seeks to:

- Assess current cost recovery practices including fee schedules, means testing, billing and collection, administrative costs, revenues, and expenditures;

- Estimate potential revenues from user fees and percentages of cost recovery through a series of price simulations, and

Discuss legislative, policy, and administrative changes and options needed to implement a successful cost recovery system in both the short and long term.

1.1 ORGANIZATION OF THE REPORT

The remainder of this section provides background information on the three institutions from which the sample of facilities were drawn: MSP, JBG, and INHMT. The legal framework affecting user fees also is reviewed. Section 2.0 compares costs and fee revenues across facilities and for selected services within each facility. The financial status of the sampled facilities as well as the methodology used to determine costs are discussed. Section 3.0 traces the reasons for low revenues observed in most facilities. Causes include: low prices, ineffective means testing, and deficient billing and collection procedures. The ability of MSP clients to pay user fees is the subject of Section 4.0. The findings from a bed survey that quantifies payments to private providers by MSP in-patients are presented. The administrative costs of user fee systems are taken up in Section 5.0. Section 6.0 discusses approaches to cost recovery and presents simulations of revenues under different rate structures. Other elements or tasks needed to design and implement successful user fee systems are discussed. The final section recommends a series of activities oriented toward policy reform and the extension of user fee systems.

1.2 MINISTRY OF PUBLIC HEALTH (MSP)

With 24,400 employees, a network of 1,521 facilities, and 8,900 hospital beds, the MSP dominates the public sector and is the largest health provider in Ecuador. In 1991, the MSP operated 54 percent of all government and parastatal health facilities, possessed two-thirds of public hospital beds (54 percent of total beds),[1] and employed 56 percent of total health personnel in the public sector. The MSP operates 16 specialty, 22 secondary-level, and 83 primary-level hospitals. According to the 1991 Instituto Nacional de Estadística y Censos (INEC) national survey, the MSP provided 51 percent of public sector and 64 percent of total acute care hospital discharges (INEC, 1992).

The MSP has expanded its personnel corps and physical infrastructure considerably in recent years. Between 1981 and 1991, the number of physicians contracted by the MSP doubled while nursing personnel increased four-fold. Total MSP employees grew by two-thirds, from 14,652 to 24,418. Over this same period, the MSP added 1,400 acute beds and 400 ambulatory facilities, representing increases of 23 percent and 50 percent, respectively (INEC, 1982, 1992).

The MSP has the capability to cover 80 percent of the population. Demand studies show, however, that it reaches only between 30 and 40 percent of Ecuadorians (Fundación Eugenio Espejo, 1986; Instituto Nacional de Empleo, 1992;

[1]In 1991, 112 MSP hospitals contained 59 percent of public sector acute care beds (46 percent of total acute beds), while an additional 10 facilities contained 47 percent of all chronic care beds.

Vanormelingen and Goblet, 1990). Using supply-side estimates based on first-time morbidity consultations, MSP covered about one-fourth of the population in 1991. Although still far short of the MSP coverage goal, this represents nearly twice the coverage registered 10 years earlier.

The MSP has faced a severe financial crisis since the mid-1980s. After nearly a decade of real increases in government health spending, budgetary support began to fall during the mid-1980s.[2] *Exhibit 1-1* shows that, during the period 1981-1991, real total and per capita MSP expenditures declined by 23 and 41 percent respectively. Over this same period, total and per real capita government spending dropped by considerably less: five and 26 percent, respectively. GDP registered a 24 percent gain but dropped three percent on a per capita basis. Since 1986, MSP spending has decreased by approximately 19 percent in real terms.[3]

A number of donors support special programs such as mother-child care, communicable disease control, and sanitation. In 1991, approximately S/39,174.1 million were spent on these special programs and on primary-level health centers and sub-centers.[4] Of this sum, donors contributed about 29 percent. An extra-budgetary transfer from a special fund administered by the Ministry of Social Welfare, known as FONIN, contributed another 15 percent (S/6,005.6 million).[5] In short, MSP budgetary support for primary health care (PHC) represents about 55 percent of total expenditures on these activities. Whether support for PHC by external donors and extra budgetary mechanisms for PHC extension will continue in the future is an open question. If funding originating from these sources declines, however, it is unlikely that the MSP can pick up the financial slack.

In 1991, spending on hospitals represented approximately 52 percent of MSP expenditures. It is difficult to estimate trends in hospital spending because the MSP maintains two budgets. The first includes central administration, vertical programs, and special programs (e.g., cholera, mother-infant care, etc.). The

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[2]The quadrupling of oil prices during the mid-1970s propelled the Ecuadorian economy to an unprecedented economic boom. Unfortunately, the prosperity was short-lived. During the 1980s, the decrease in oil prices, lowering of oil production, and increase in interest rates and debt burden produced a series of severe economic shocks and fiscal crises. Over this period, GDP per capita declined from US $1,415 to $1,355. Real per capita income in 1990 was below 1978 levels. While debt payments increased from 12 to 30 percent of the fiscal budget, per capita government social spending decreased from US $161 to 115 (PREALC, 1992). Incidence of poverty in urban areas increased from 45 to 52 percent of the population, while the informal sector expanded from 15 to 24 percent of the economically active population (EAP). The minimum wage declined by 64 percent in real terms.

[3]It is worth noting that between 1981 and 1991, government debt payments increased from 18 to 26 percent of total spending.

[4]Unless otherwise noted, all financial figures are in Sucres. Average exchange rate in 1991: 1 US$ = S/1094.

[5]FONIN transferred another S/26 million to the MSB for a supplementary feeding program. This transfer is not included in the calculations of PHC expenditures.

other budget relates to all spending in facilities and regional administrative offices. In 1991, the MSP spent 45 percent of the provincial budget on secondary and tertiary facilities, compared to 39 percent five years earlier. While special programs (e.g., child nutrition, mother-child care, water, and sanitation) are increasingly supported by donors and extrabudgetary financing, the MSP appears to direct an increasingly large share of budgetary resources to hospitals.

EXHIBIT 1-1
A COMPARISON OF GDP AND MSP AND GOVERNMENT EXPENDITURES, 1981, 1986, 1991
(in 000,000 of 1975 Sucres)

YEAR	MSP		TOTAL GOVERNMENT SPENDING		GDP	
	TOTAL (000,000)	PER CAPITA	TOTAL (000,000)	PER CAPITA	TOTAL (000,000)	PER CAPITA
1981	2,141.0	262	30,021	367	153,443	18,751
1986	2,019.8	217	33,120	355	169,136	18,129
1991	1,640.4	156	28,509	272	190,384	18,128
percent change 1981-91	-23%	-41%	-5%	-26%	24%	-3%
1986-91	-19%	-28%	-14%	-24%	13%	unchanged

Source: Ministry of Finance.

1.3 JUNTA DE BENEFICIENCIA DE QUAYAQUIL (JBG)

Founded in 1888, the JBG is a welfare society that was created by a municipal ordinance to administer social services in the City of Guayaquil. It is governed by a board whose members represent some of the wealthiest and most powerful families in Ecuador. The JBG is perhaps the only Latin American charitable organization created in the 19th century that continues to provide public services while maintaining full autonomy from government. The founding fathers were convinced that government was incapable of providing public services in a "consistent, effective, and efficient" manner (JBG, 1988). Taking advantage of a 1887 law directing municipalities to establish autonomous social services, they secured legislation (municipal and national) stipulating full autonomy from government oversight. Municipal codes delegate to the JBG the ownership and management of hospitals, orphanages, graveyards, and mental health institutions. JBG properties and responsibilities have been upheld by national legislation.

Currently, the JBG operates a general hospital, maternity hospital, children's hospital, mental health institution, convalescent home, two orphanages, two schools (for orphans), a technical school, cemetery, and funeral home.

The JBG derives its income from special gambling concessions, municipal taxes, private contributions, user fees, and central government subsidies. First

and foremost, it has maintained monopolistic control over the national lottery since the latter's inception in 1894.[6] *Exhibit 1-2* shows that the lottery represented over half of the income of the JBG in 1991. Income drawn from the rent or sale of properties—donated to the JBG by wealthy Guayaquileños—also represents a significant share of income. According to JBG directors, however, this latter source has diminished in recent years. The JBG derives about two percent of income from direct central government subsidies. In the past, the JBG has secured some government funding for hospital construction. Revenues from municipal taxes on automobile licenses, property transfers, and checking accounts represent less than one percent of income. User fees and charges to private patients in JBG hospitals account for approximately seven percent of income.

Unlike the MSP, financial sustainability is not a major issue for the JBG. For example, the JBG reported spending only 54 percent (S/20,285.6 million) of its total income (S/37,264.5 million) in 1991. In fact, revenues from the lottery alone covered all JBG expenditures in that year (JBG, 1992).

EXHIBIT 1-2
JBG: INCOME BY SOURCE, 1991

SOURCE OF INCOME	PERCENT DISTRIBUTION
TOTAL (millions)	S/37,264.5
LOTTERY	53.5%
TAXES	0.7
GOVT. TRANSFERS	2.2
RENT/SALE PROPERTY	29.9
DONATIONS	0.7
MEDICAL CARE[1]	6.6
OTHER	6.4

[1] Revenues from user fees and private wards.

Source: Finance Department, JBG.

1.4 NATIONAL INSTITUTE OF HYGIENE AND TROPICAL MEDICINE (INHMT)

Founded in 1941, INHMT provides a number of services: laboratory tests for people and animals, drug product testing and certification, vaccine and drug production, and food product testing and certification. It operates provincial laboratories that perform routine tests. More sophisticated tests are performed in large facilities located in Quito and Guayaquil. The INHMT is financed by a special congressional transfer, and to a lesser extent, by the MSP. Similar to the JBG, special legislation regulates INHMT operations.

[6] Since the onset of the JBG, the organization has withstood several attempts by the central government to remove the lottery, establish competing lotteries, and transfer its hospital facilities to the MSP. The JBG's success in maintaining its sources of income and its autonomy results from the powerful interests represented on the JBG board.

1.5 SAMPLE

The body of this study centers on cost recovery practices in six of the largest public sector hospitals in Ecuador. The MSP facilities were selected by MSP officials in part because they seek to implement cost recovery in the larger hospitals, especially at the tertiary level. The two acute-care hospital facilities of the JBG also were included at the request of USAID/Quito. In contrast to the MSP, the JBG has considerable experience in cost recovery activities. It operates private wards that compete with private clinics in Guayaquil and collects fees from "general" or non-private patients for most services. USAID/Quito is interested in comparing JBG with MSP cost recovery experiences.

Taken together, the four MSP hospitals of the sample consumed 11.5 percent (S/10.6 million) of the MSP's S/92.5 million executed budget in 1991. Three of the four hospitals are national referral tertiary care facilities located in Quito: Eugenio Espejo (surgery and internal medicine); Baca Ortiz (pediatrics); and Isidro Ayora (gynecology and obstetrics). Suburbio Hospital, the only MSP general hospital located in Guayaquil, provides secondary-level care. It also possesses a small maternity ward. The Health Financing and Sustainability (HFS) team conducted a random bed survey in Eugenio Espejo Hospital in 1992.[7] The results showed that two-thirds of in-patients reside in Quito or Pichincha Province. Most of the remainder reside in secondary cities in the Sierra region with good access roads to Quito.

The INHMT operates human and animal laboratories in all provinces. It charges fees for all exams. This study focuses on costs, revenues, and production of the INHMT's largest laboratory, which is located in Guayaquil.

The two JBG hospitals, Luis Vernaza and Enrique Sotomayor, are tertiary-level general and GNYOB hospitals, respectively. Taken together, these facilities absorbed 52 percent of total JBG spending (S/20,285 million) in 1991. As stated earlier, the JBG does not operate health centers or other stand-alone out-patient facilities. Referral linkages to MSP and other providers are weak or non-existent. HLV registers show that two-thirds of in-patients come from the Province of Guayas, which contains Guayaquil. The remainder are drawn mainly from other coastal provinces with relatively good access to Guayaquil. Demand studies show that the JBG covers from three to five percent of the national population (Fundación Eugenio Espejo, 1986; Instituto Nacional de Empleo, 1992).

Exhibit 1-3 displays summary statistics for the hospitals included in the sample. As measured by nearly all indicators, Luis Vernaza is the largest facility. It is the largest general hospital in the country, while the other JBG facility, Enrique Sotomayor, is the largest maternity hospital. Both JBG hospitals display high expenditures when compared to their MSP counterparts. For example, the budget for the JBG's 289-bed Enrique Sotomayor Maternity Hospital is nearly three times that of the MSP's 249-bed Isidro Ayora Maternity Hospital. The former, however, has nearly twice the number of discharges than the latter. Luis Vernaza spends twice as much as Eugenio Espejo, but contains more than twice the number of beds.

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[7]The survey represented a 24 percent sample (76) of occupied beds (321) in all wards.

EXHIBIT 1-3
SUMMARY STATISTICS OF SAMPLED HOSPITALS

SERVICE	HEALTH MINISTRY				WELFARE SOCIETY	
	EUGENIO ESPEJO	BACA ORTIZ	EL SUBURBIO	ISIDRO AYORA	LUIS VERNAZA	ENRIQUE SOTOMAYOR
TYPE/LEVEL	general/ tertiary	pediatric/ tertiary	general/ secondary	maternity/ tertiary	general/ tertiary	general/ tertiary
YEAR	1925[1]	1957	1973	1948	1929	1948
STAFF	922	681	672	409	1,260	940
BEDS	404	156	254	249	867	289
HOSPITAL DISCHARGES	7,036	2,823	5,611	19,110	16,443	36,650
ALOS	13	14	6	5	17[3]	2[4]
PERCENT OCCUPANCY	72%	82%[2]	47%	100%	77%[3]	100%[4]
OUTPATIENT VISITS	49,850	55,641	24,764	28,916	56,197	63,279
EMERGENCY VISITS	17,738	13,636	66,954	26,358	24,197	

[1]In late 1992, a new facility was inaugurated.
[2]Several wards are closed.
[3]Excludes private wards: ALOS 5.5; % Occupancy: 58% (1990).
[4]Excludes private wards: ALOS 2; % Occupancy: 51%.
[5]Included in outpatient visits.

Average length of stay (ALOS) is strikingly high for several hospitals, suggesting inefficient medical care organization: Eugenio Espejo (13 days), Luis Vernanza (17 days), and Baca Ortiz (14 days). Both maternity hospitals appear to operate at full capacity, but the MSP's Isidro Ayora facility displays an ALOS of 5.4 compared to two for the JBG's Enrique Sotomayor. Both hospitals provide similar services to populations with similar socio-economic characteristics. Lowering ALOS in Isidro Ayora can increase maternity bed availability.

Anecdotal evidence suggests that the high ALOS may relate to several factors. In the general and pediatric facilities, surgical patients often wait several days or even a week before gaining access to the operating theater. In MSP hospitals, lack of supplies together with delays in the production of diagnostic tests contribute to this situation. In Eugenio Espejo, chronic stock-outs of medicines and medical supplies oblige patients and their families to purchase medicines and medical supplies (in the private sector) needed for treatment. It

is not uncommon for patients to remain in the hospital a week or more while their families search for funds to pay for these items.

The JBG's Luis Vernaza Hospital registers the highest ALOS of any hospital in Ecuador (17 days). In contrast to MSP hospitals, supplies of drugs and other materials are adequate in this facility. But medical care organization appears chaotic. A 1985 internal study found that in-patient stays for inguinal hernia surgery averaged eight days (Otero and Rodriguez, 1985). Amazingly, half of the stay was preoperative. Informants suggest that the high ALOS may result from physicians who intentionally extend ALOS to reduce workloads or drive patients to seek care in their private clinics (or in the hospital's private wards). Further research is needed to assess the causes of the high ALOS.

1.6 LEGAL FRAMEWORK

Legal and regulatory instruments relating to the charging of user fees for government health services are contradictory. This has given rise to considerable confusion and conflict among MSP officials, facility managers, and directors of state-supported institutions (e.g., JBG). Three instruments directly pertain to user fees: the Health Code (1971), Decree 915 (1981), and Ministerial Accord 4698 (1981).

The Health Code stipulates the charging of fees for health services. Article 248 permits each facility to identify the services for which charges will be applied, establish the corresponding rates, and retain revenues and invest them according to facility needs. The law states that rates require MSP approval while spending of fee revenues is subject to fiscal control.[8] The Tax Code requires that a fee system can only be established through law (as in the case of the Health Code), but laws and administrative rules regulate and set fees.[9]

According to MSP officials, charging user fees in MSP facilities is illegal. Presidential Decree 915 (1981) prohibits any charge for "basic" health services. Article 1 loosely defines basic services to include diagnostic exams, X-rays, emergencies, births, and preventive services. The decree applies to MSP as well as other charitable organizations receiving public subsidies (e.g., JBG). The decree directs the Ministry of Finance (MF) to increase government subsidies to health facilities to compensate for the loss of income. Ministerial Accord No. 4698, also issued in 1981, tenders an all-inclusive definition of "basic ser-

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[8]According to the Tax Code and Classification of State Income, user fees collected by government agencies are considered taxes in part because benefits accrue to individuals. Only laws can establish the charging of fees as well as the rates to be charged. The tax code stipulates that rates should be set according to cost and social criteria.

[9]For example, the Health Code is used as the basis for establishing fees for laboratory exams provided by the INHMT (referenced later in this section). But a law, No. 1074 [1989], and an Accord, No. 11190 [1991], established the rates and rate-setting methodology. Interestingly, government accounting ledgers (Classification of State Revenues) include accounting codes to classify revenues from specific medical services.

vices," encompassing surgeries, hospital admissions, anesthesia, medical consultations, and diagnostic tests.[10]

In sum, one set of instruments is used to establish fee systems and set fees while another set is used to ban charging for government services. In 1991, the MSP officially supported but did not enforce the free provision of services. Yet, it is common knowledge that most secondary and tertiary-level hospitals charge (usually token fees) for a wide range of services.

Are hospital managers breaking the law? According to Wray et al. (1992), the juridical hierarchy in Ecuador determines that since the Health Code is a law, it prevails over the presidential decree or the ministerial accord. In effect, Decree 915 is illegal since it contradicts the Health Code. But it can be considered in force until declared null by the country's Administrative Court due to its technical illegality. Be that as it may, in practice, hospital managers circumvent the decree by stating that payments by patients are donations that are imposed to recover the cost of medicines and supplies, hotel services, and other items.

Finally, despite the fact that Decree 915 specifically mandates the provision of free services by all public sector institutions, significantly higher fees are charged in JBG hospitals than in MSP facilities.[11] According to JBG officials, fees were eliminated for approximately one year after the issuance of the decree, but were reintroduced shortly thereafter. Evidently, an informal deal was arranged whereby the government agreed to provide a substantial subsidy to make up for the shortfall in fee revenues. But the MSP was unable to fulfill its end of the bargain, and government sharply reduced the subsidy after 1983.

Financial and administrative codes mandate that all financial resources must be deposited in the Treasury's Consolidated Fund (Cuenta Unica).[12] Any government dependency (excepting autonomous parastatals with special laws) must budget (estimated) income from fees or other sources. Without an approved expenditure budget for these funds (by line item), agencies are not permitted access to them. In the case of user fee revenues deposited by health facilities, withdrawing fee revenues is a burdensome and prolonged process. Facilities can make a withdrawal only once a year, and only after acquiring the approval of four institutions: Treasury, MF, Office of the Comptroller General, and the Ministry of Health.

Significantly, exceptions exist for most of the above mentioned legal instruments and administrative rules. The INHMT is governed by separate laws (No.

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[10]The MSP Accord lists the following services as free: admissions, anesthesia, caesarian sections, vaccinations, curative procedures, surgical procedures, deliveries, injections, and minor surgery. Free ambulatory services include: medical consultations, injections, routine lab exams, oral surgery, root canals, dental prophylaxis, vaccinations, minor surgery, and X-rays.

[11]Fee schedules are described in Section 3.1 of this report.

[12]Article 170, Ley Orgánica de Administración Financiera y Control.

1074 of October 20, 1989 and No. 11185 of June 5, 1991) that permit fee collections as well as direct access to and use of fee revenues. These instruments set fees for each laboratory exam as a percentage of daily minimum wage. For most exams, rates range from two to 10 percent of the minimum wage for patients with prescriptions from MSP facilities, and from four to 12 percent for private patients.

The INHMT regulations also stipulate that revenues should be used for operational expenses, especially for the purchase of reagents. Significantly, Article 3 of Law 1074 instructs the Treasury to establish a "special account" within the Consolidated Fund managed directly by the INHMT. Although the account is audited by the MF, INHMT managers can deposit and withdraw funds at will.

2.0 EXPENDITURES, COSTS, AND REVENUES

This section presents the results of the cost analysis, compares costs with budgetary expenditures, examines the financial status of the sampled facilities, and matches costs with user fee revenues for a subset of services. The methodology used to analyze costs is reviewed in Section 2.1. Annex 2 discusses data collection methods and cost allocation techniques used to estimate unit costs. Complementary data used to construct several exhibits displayed in this section are also presented in the Annex tables.

2.1 METHODOLOGY

The study performed a unit cost analysis to facilitate estimating current and future levels of cost recovery for each facility as well as for selected services within each facility. Drawing on available accounting, production, and price data, the cost analysis employed here estimates accounting or financial costs. It measures total and average costs[13] for selected services based on real financial outlays or expenditures related to the production of those services. Because of the general lack of information on spending for infrastructure and equipment in each facility, the study focuses on recurrent or operational costs only. The cost data also exclude estimates of central MSP administrative costs related to hospital operations. All cost data pertain to 1991.

The cost analysis incorporates a "cost finding" technique. Consonant with one of the major objectives of this study, cost finding is considered an appropriate methodology for establishing rates (or fees) or for assessing the adequacy of current fee schedules (Newman, Suver, and Zelman, 1984; Berman, Weeks, and Kukla, 1986). In effect, for a given level of service production, it provides sufficient precision to permit facility managers to estimate the charges needed to recover all or part of the cost of production. The methodology is not meant to measure the *economic costs* of resource inputs.[14]

Based on cost accounting ledgers, payroll logs, registers of within-facility distribution of drugs and supplies, and purchasing ledgers containing prices paid for supplies and services, the methodology distributes (or redistributes) all operating expenditures to cost centers. These centers, which generally correspond to established administrative and medical departments within each facility, consist of two types: indirect (non-revenue producing) and direct (revenue producing). Total costs are measured at the level of each cost center by accounting for spending on different categories of inputs to that center. These include: (1) salaries (and benefits) of staff who actually work there; (2)

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[13]Often referred to as unit costs, an average cost represents the cost per unit of output (total cost/quantity).

[14]Economic costs consist of the total value of all resource inputs used to produce a given output (including the use of volunteer personnel, donated supplies and equipment, etc.). Economic costs relate to opportunity costs—the cost of foregone opportunity of resources that could have been used elsewhere. Economic costs are appropriate for the study of efficiency.

drugs, and medical and non-medical supplies dispatched to each center; and (3) contracted services.[15]

The final step of the cost finding technique involves the allocation of costs from non-revenue cost centers (e.g., administration, plant maintenance, etc.) to revenue-producing cost centers (e.g., laboratory, operating room, etc.) in order to estimate the total cost of services provided to patients. This requires nonfinancial data to prorate indirect costs for each direct cost center. For example, number of pounds of laundry washed is used to allocate the costs of laundry services to the operating theater, emergency room, and in-patient wards. This study uses a double apportionment method to allocate indirect costs to direct cost centers. This method is considered superior to the step-down method because it accounts for the distribution of services, and therefore costs, among indirect cost centers before their allocation to the direct cost centers (Berman, Weeks, and Kukla, 1986). Annex Table 1 displays the break-down of direct and indirect costs for each facility.

EXHIBIT 2-1
A COMPARISON OF RECURRENT EXPENDITURES AND COSTS
(in millions of Sucres and percent)

FACILITY	TOTAL EXPENDITURES[1]	TOTAL COSTS[2]	PERCENT DIFFERENCE
BACA ORTIZ	2,999.4	2,697.2	-9.0
EUGENIO ESPEJO	3,327.6	3,531.2	+6.1
ISIDRO AYORA	1,602.9	1,445.2	-9.8
EL SUBURBIO	2,451.5	2,252.0	-8.1
LUIS VERNAZA[3]	5,708.8	5,118.4	-10.3
ENRIQUE SOTOMAYOR[3]	3,742.6	3,350.1	-10.5

[1]From facility financial statements. Refer to "committed" expenditures.
[2]From cost analysis.
[3]Includes spending for private and non-private patients.
Source: Annex Table 2.

How do costs derived from the study compare to facility budgetary expenditures? *Exhibit 2-1* compares total costs estimated from the cost analysis with total "executed" expenditures drawn from facility financial statements. As shown

[15]Annex 1 describes the data collection methodologies used in this study.

in the last column of *Exhibit 2-1*, variation between the two figures falls within an acceptable range (approximately 10 percent or less).

.. With the exception of Eugenio Espejo Hospital, the cost estimates are less than "executed" or "committed" expenditures. This is due to several related factors. First, personnel vacancies often are considered "committed" expenses by the facility until adjustments are made and approved by the MSP and MF. These expenditures were not registered as costs by our methodology. Second, it is difficult to determine from financial ledgers the spending that actually took place during a given period. Within a generalized context of chronic underfunding and delays in MF allocations, hospital managers draw on funds received in one year to pay bills committed during the previous year. For example, in mid-1992, some facilities were still receiving allocations earmarked for 1991. Another reason for the discrepancy may relate to the estimate for costs of drugs and medical supplies. Obtaining the prices paid for all items was an impossible task. Moreover, the volume of drugs and supplies dispatched to the costs centers was based on four to six-month samples of storeroom records. The sample may underestimate the true volume of supplies used. In some cases, the volume and final destination of some medical and non-medical supplies were not recorded in storeroom ledgers for the entire sample period.[16]

2.2 FINANCIAL STATUS OF MSP FACILITIES

Before examining facility costs, it is important to assess their financial status. The focus here is on the five MSP facilities within the sample.[17] As suggested earlier, declining budgetary support has resulted in chronic underfunding of MSP facilities. Many shoulder considerable debt with suppliers.

Exhibit 2-2 portrays the financial standing in 1991 for the MSP facilities under study. That year they received from 57 to 87 percent of their final "modified" budget. Consequently, each incurred significant deficits. Invariably, costs were cut through reductions in outlays on maintenance, drugs, supplies, and investment. For example, due to chronic stock-outs at Hospital Eugenio Espejo, most in-patients must purchase drugs, supplies, and diagnostic tests (and even treatments) from private providers located near the hospital. Managers report that it is increasingly difficult for them to purchase drugs and medical supplies because of their large debt to local suppliers. Some suppliers were refusing to make new deliveries, while others charged excessive surcharges to protect themselves

[16]In the case of Eugenio Espejo, the apparent overestimate probably relates to difficulties in obtaining information on the volume and prices paid for drugs and supplies, and to the accounting for S/190 million in "extrabudgetary" expenditures registered on the hospital/s ledgers (see *Annex Table 2*).

[17]On paper, income from budgetary allocations and user fees exceeds expenditures for the JBG hospitals in the sample. Most tasks related to financing, accounting, and purchasing in JBG facilities are centrally managed.

against inflation. In most cases, the depleted stocks are reserved for emergency cases.[18]

EXHIBIT 2-2
FINANCIAL STANDING OF MSP FACILITIES, 1991
(in 000,000 1991 Sucres and percentages)

CONCEPT	BACA ORTIZ	EUGENIO ESPEJO	ISIDRO AYORA	EL SUBURBIO	INHMT
Final "Modified" Budget	4,369	3,768	1,607	2,688	3,385
Percent Allocated in 1991	57%	76%	87%	64%	92%
Total Income,[1] 1991	2,508	3,197	1,554	1,775	3,410
"Committed" Expenditures,[2] 1991	3,145	3,371	1,619	2,504	3,293
Deficit/Surplus,[2] 1991	(637)	(174)	(65)	(729)	117
As % of income	-25%	-5%	-4%	-41%	3%

[1]Includes income from all sources: budgetary allocations, user fee revenues, and donations.
[2]As of December 31, 1991.
Source: Facility Financial Ledgers.

In short, *Exhibit 2-2* shows that no MSP facility received its full allocation in 1991. Baca Ortiz and Suburbio Hospitals were the hardest hit, receiving less than two-thirds of their respective budgets and closing the year with significant deficits. The other facilities received between 76 and 92 percent of their budgets.

Despite decreasing budgetary support, however, the MSP is expanding its personnel rolls. According to high-level MSP officials, physicians and nurses are being hired for special programs. But once a program terminates, collective agreements require that these hires be incorporated into the regular payroll. Between 1987 and 1991, the number of physicians increased by 25 percent, yet the number of acute beds and ambulatory facilities grew by 3 and 18 percent, respectively. In 1991, salaries and benefits represented 83 percent of budgetary expenditures of MSP's provincial budget (e.g, all facilities and regional directorships) and 60 percent of spending on the central ministry and special

[18]Some MSP hospitals not included in the current sample (e.g., Latacunga and Hospital del Sur) present each prospective in-patient with a list of items that must be purchased from private providers before admission.

programs. Spending on salaries and benefits ranged from 67 to 78 percent of total expenditures for the MSP facilities in the sample (see *Annex Table 2*).

Hospitals make do with what is available. Survival strategies consist of letting (non-professional) vacancies remain unfilled and reducing outlays on equipment, maintenance, and supplies. Significantly, by year's end, all the hospitals had incurred considerable debt with suppliers, ranging from S/ 147.1 million for Eugenio Espejo Hospital to S/579.3 million for Suburbio. The latter hospital registered an accumulated 1989-1991 deficit of S/729.4 million (in 1991 Sucres).

In mid-1992, the MF disbursed extrabudgetary funds to the hospitals in part to eliminate the 1991 deficit and to cancel other outstanding debts. The criteria used by the MF to specify the amount remain puzzling. Isidro Ayora Hospital received nearly the same disbursement as Suburbio Hospital (approximately S/263 million), but the 1991 deficit of the latter is over 11 times the former. As 1993 approached, Suburbio remained strapped with an accumulated debt of S/466 million.

2.3 COSTS AND COST RECOVERY[19]

MSP facilities cover only a fraction of their costs through user fees while JBG hospitals demonstrate markedly higher levels of cost recovery. *Exhibits 2-3, 2-4, and 2-5* compare costs and percent recovery for each hospital in the sample. The data are arranged by service category (in-patient, diagnostic, and out-patient) and by selected services within each category. The exhibits allow the reader to match costs and percent recovery for major outputs within and across facilities, and to gauge the effect of earnings from a particular service or category of services on total cost recovery.[20]

Exhibit 2-3 summarizes the results for general and pediatric hospitals. Revenues from user fees represent less than three percent of costs for MSP facilities but nearly 10 percent for the JBG's Luis Vernaza Hospital.[21] Significantly, all hospitals recover only a fraction of costs of in-patient care and surgery. Yet these services absorb approximately two-thirds of total costs for each facility. The Suburbio is the only MSP hospital to charge for out-patient services, recouping a low 1.4 percent of costs. Luis Vernaza recovers about one-fourth of out-patient costs through the sale of medicines to ambulatory patients.

In both absolute terms and as a percentage of costs, all facilities generate significantly more revenues from diagnostic services than from in-patient and out-patient care. Over half of revenues for the MSP facilities are derived from diagnostic services, while these services are the source of 42

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[19]The reader is reminded that all cost data presented in this report refer to operational or recurrent costs only.

[20]Revenue data are presented in *Annex Tables 3A-H*.

[21]Exhibits 2-3 and 2-4 exclude the costs and revenues of the private wards in the two JBG facilities, Luis Vernaza and Enrique Sotomayor. Costs and revenues of the private wards are included in Exhibit 8.

percent of earnings in Luis Vernaza. Upon examining specific diagnostic services, considerable variation in levels of cost recovery is evident across facilities. Luis Vernaza earns a profit on fees charged for cardiograms and encephalograms, while Suburbio does the same for radiology. Baca Ortiz recovers 16 percent of the costs of cardiology-related tests and Luis Vernaza recovers 15 and 26 percent from laboratory and radiology tests, respectively. But recovery is insignificant for most other diagnostic services across facilities.

Exhibit 2-4 demonstrates the sharp contrast in the level of cost recovery between the two maternity hospitals. Although Isidro Ayora Hospital registers the highest level of total recovery among sampled MSP facilities (five percent), it falls far short of the 20 percent mark collected by JBG's Enrique Sotomayor Hospital. This latter facility recovered 13, 26, and 72 percent of in-patient, out-patient, and diagnostic costs, respectively, exhibiting the highest levels of recovery for each service category among the sampled hospitals. It recovers 42 percent of birthing room expenses, compared to two percent in Isidro Ayora. Enrique Sotomayor earns a profit from fees charged to patients in the blood bank and in the sonography department.

Ecuador compares poorly with other countries in terms of cost recovery through user fees in government health facilities. In Bolivia, nearly half of all income to government health facilities in Santo Cruz Province is derived from user fees (Richardson et al., 1992). Tertiary-level hospitals located in Huila and Caldas Provinces in Colombia recover from 15 to 27 percent of costs through fees, while most health centers earn one-fourth of total income from patient charges (La Forgia and Homedes, 1992). Hospitals in poorer countries such as China and Zaire cover over two-thirds of their costs through user charges (Bitrán et al., 1986; Ainsworth, 1984).

Exhibit 2-5 displays costs and revenues for in-patient services for private patients in the two JBG hospitals. Luis Vernaza recovers the full costs of these services, while Enrique Sotomayor turns a profit, which in turn may subsidize services for non-private patients.[22] Combining costs and revenues for both public and private patients, the hospital derives 32 percent of income from fees. Interestingly, Luis Vernaza only covers one-fourth of surgical costs but reaps a 100 percent profit on hotel services (through bed-day fees). Enrique Sotomayor covers 91 percent of operating and birthing room costs, but turns a profit on other in-patient and hotel services provided to private patients.

In sum, fee revenues represent an insignificant source of revenues for MSP facilities and do little to alleviate the severe financial crisis they currently face. Income derived from charges for general patients is comparatively higher in JBG hospitals, particularly in the case of Enrique Sotomayor Maternity Hospital. Income from private patients also represents a significant and additional source of revenue for this latter facility.

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[22]All user fee and private ward earnings are returned to JBG's central office. It is difficult to gauge how these revenues are used.

EXHIBIT 2-3
GENERAL AND PEDIATRIC HOSPITALS: TOTAL COSTS AND PERCENT COST RECOVERY FOR SELECTED SERVICES, 1991
(S/000,000 and percent)

SERVICE	EUGENIO ESPEJO		BACA ORTIZ		EL SUBURBIO		LUIS VERNAZA[3]	
	Total Cost	Percent Recovery	Total Cost	Percent Recovery	Total Cost	Percent Recovery	Total Cost	Percent Recovery
IN-PATIENT[1]	2,518.2	0.3	1,782.7	0.6	1,398.1	1.2	3,299.4	2.5
Bed-Day[2]	1,456.5	0.6	1,081.1	0.0	925.3	1.1	2,253.4	3.6
Surgery	707.4	NA	355.5	3.3	410.1	1.5	764.9	0.4
DIAGNOSTIC[1]	346.2	4.1	359.2	7.1	345.2	7.4	858.0	27.1
Laboratory	143.4	5.0	210.8	5.2	193.7	3.9	425.8	14.7
Pathology	30.2	3.3	18.5	2.7	[5]	--	45.2	4.9
Radiology	118.8	3.5	113.6	9.6	89.8	104.9	349.4	26.1
Sonography	16.9	4.6	NP	--	NA	--	NA	--
Cardiology[4]	34.0	2.7	16.4	16.3	NA	--	11.3	182.3
OUT-PATIENT[1]	666.8	0.0	555.8	0.0	507.7	1.4	552.3	24.1
Out-patient	258.0	0.1	124.3	0.0	215.5	2.8	239.8	40.6
Emergency	270.5	0.0	291.1	0.0	188.7	0.0	270.7	13.1
Physical Therapy	95.9	0.0	119.6	0.0	76.5	1.1	35.2	0.0
TOTAL HOSPITAL	3531.2	0.7	2,697.2	1.4	2,2512.0	2.3	4,709.7	9.7

[1]Subtotals include costs and revenues related to services not displayed in table.
[2]Data exclude spending in operating room, intensive care, and burn units.
[3]Refers to services provided to "general" or non-private patients.
[4]Cardiograms and encephalograms.
[5]Included in laboratory costs.

Source: Annex Tables 3A-D.

EXHIBIT 2-4
MATERNITY HOSPITALS: TOTAL COSTS AND PERCENT COST RECOVERY FOR SELECTED SERVICES, 1991
(S/000,000 and Percent)

SERVICE	ISIDRO AYORA		ENRIQUE SOTOMAYOR[3]	
	Total Cost	Percent Recovery	Total Cost	Percent Recovery
IN-PATIENT[1]	1,169.0	3.9	2,555.4	12.8
Bed-Day/GYNOB[2]	369.1	0.0	958.5	0.0
Bed Day/Neonatal[2]	312.9	6.1	488.3	2.7
Surgery	243.2	8.6	285.9	7.3
Birthing Room	243.9[4]	2.1	683.8[5]	42.7
DIAGNOSTIC[1]	113.7	23.8	314.2	72.0
Laboratory	73.0	10.4	137.1	33.3
Blood Bank	1.4	NA	73.5	180.7
Pathology	13.6	8.8	32.2	29.6
Radiology	14.3	7.1	44.0	9.6
Sonography	11.3	151.2	26.5	117.6
OUT-PATIENT[1]	162.4	0.2	131.8	25.7
Outpatient	96.0	0.0	95.8	35.4
Emergency	51.7	0.0	[6]	[6]
TOTAL HOSPITAL	1,445.0	5.0	3,001.4	20.2

[1]Subtotals include costs and revenues related to services not displayed in table.
[2]Data exclude spending and revenues related to operating room, birthing room, intensive care, and burn units.
[3]Refers to services provided to "general" or non-private patients.
[4]Caesarians performed in general surgery operating room.
[5]Normal births, abortions, and caesarian sections performed in department.
[6]Included in out-patient.

Source: Annex Tables 3E-F.

EXHIBIT 2-5
PRIVATE WARDS IN TWO JBG HOSPITALS: TOTAL COSTS AND PERCENT COST RECOVERY FOR SELECTED SERVICES, 1991
($/000,000 and Percent)

SERVICE[1]	LUIS VERNAZA		ENRIQUE SOTOMAYOR	
	Total Cost	Percent Recovery	Total Cost	Percent Recovery
IN-PATIENT[2]	408.7	100.6	331.1	103.0
Bed-Day[3]	169.9	205.1	132.6	120.7
Surgery/Birthing Rm.	238.9	26.3	198.5	91.1
DIAGNOSTIC	[4]	[4]	17.4	65.1
TOTAL	408.7	100.6	348.5	128.0

[1]Includes emergency services requiring hospitalization. Hospitals do not provide private out-patient services.
[2]Subtotals include costs and revenues related to services not displayed in table.
[3]Data exclude spending and revenues related to operating room, birthing room, intensive care, and burn units.
[4]Included in in-patient totals.
Source: Annex Tables 3G-H.

3.0 EXPLAINING LOW REVENUES

Central MSP officials claim that the low earnings relate to uncertainty concerning the legality of charging fees in government facilities. This is only partly the case. All facilities charge fees for a range of services, and thus are breaking the law. But few facility directors appear to fear legal or political repercussions. In 1991 and 1992, all have enacted or increased charges without informing central authorities. In late 1992, the MSP's Provincial Directorate of Guayaquil issued an official fee schedule for hospital services.

Some government authorities suggest that low earnings result from the inability of most MSP patients to pay for services. But the JBG maintains a relatively dynamic cost recovery program even though household demand studies suggest that urban residents who are users of JBG services are indistinguishable from their MSP counterparts in terms of some characteristics (e.g., educational level) (Fundación Eugenio Espejo, 1986; Instituto Nacional de Empleo, 1992). Moreover, as will be discussed in Section 4.0, in-patients under treatment at Eugenio Espejo Hospital already are spending relatively large sums to purchase drugs, medical supplies, and diagnostic tests in the private sector. What, then, are the reasons for poor performance? This section outlines three factors resulting in low revenues: low prices, deficient means testing, and lax billing and collection practices.

3.1 PRICES

Since government does not provide guidelines on fee schedules, each MSP facility sets its own fees. The JBG has charged fees since its founding with little government interference. Thus, it is not surprising that prices vary across the sampled facilities. Nevertheless, fees generally are insignificant when compared to costs and to private sector prices.

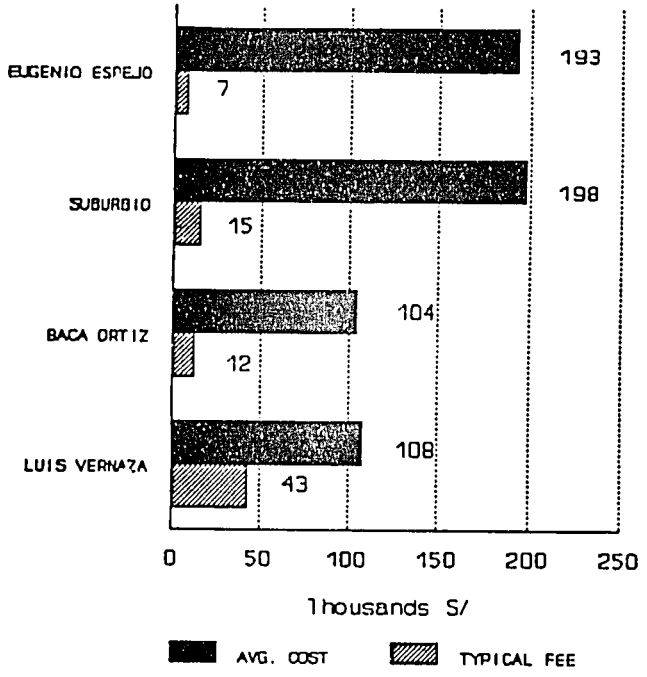
In MSP facilities, most prices are determined by facility directors and social workers through an ad hoc process involving estimates of people's ability to pay. In the case of diagnostic services, however, some prices are set to cover a significant proportion of costs. In JBG facilities, most fees are set by facility managers but central office officials provide pricing guidelines, especially for diagnostic tests, medicines, and medical supplies. According to JBG officials, fees (for general patients) are meant to recoup the cost of drugs and supplies. In practice, prices are adjusted annually according to general inflation estimates. In the case of some diagnostic services, however, facilities seek to cover total costs, and if possible, earn a profit.[23]

No MSP hospital charges a per diem to in-patients, and Suburbio is the only facility that imposes a fee for out-patient visits. JBG does not levy fees on general patients for bed-days or out-patient visits. MSP facilities charge for out-patient medicines on an irregular basis, while drug sales to ambulatory

[23]The second column in Exhibits 6-2—6-6 displays current fee schedules for selected services.

patients are a major source of income for JBG facilities. All hospitals exact fees for surgery, and the maternity hospitals charge for normal deliveries. With the exception of Baca Ortiz, all hospitals apply a preadmission charge to non-surgical in-patients. The surgery and preadmission fees cover all in-patient expenses including physician services, drugs, supplies, and hotel services, but exclude diagnostic tests and special treatments, which are charged separately. In practice, however, fees for diagnostic tests apply mainly to out-patients in MSP hospitals.

EXHIBIT 3-1
SURGERY: AVERAGE COST AND TYPICAL FEE, SELECTED HOSPITALS, 1991



Source: Annex Table 3A-F and Facility Fee Schedules.

Prices for many services in MSP hospitals are lower than common consumer items. For example, the price for a non-surgical admission in Eugenio Espejo (S/1,500) is less than the price for a one-liter bottle of beer. A normal birth at Isidro Ayora (S/3,000) costs the patient less than the round-trip taxi fare between the hospital and nearby neighborhoods. A sandwich and soft drink (S/1,500) at a cafeteria costs more than some radiology exams requiring a contrast medium.

Fees also have little correspondence to costs. *Exhibit 3-1* compares average operating room costs to typical surgical fees for four hospitals in the sample. The prices represent between six and eight percent of costs for the MSP facilities, and 40 percent of costs for the JBG's Luis Vernaza Hospital. Even under optimal conditions, in which the MSP hospitals collect all fees, the facilities could not expect to reach more than five percent cost recovery for surgery. The sharp contrast between fees and average costs holds for most services. For example, the birthing room in MSP's Isidro Ayora Maternity Hospital costs S/20,500 per normal delivery, yet the facility charges S/3,000 or 15 percent of the cost. As will be shown in a later section, in several hospitals few patients are billed the full fee and even fewer pay their bills.

Based on current fee schedules related to surgery, anesthesia, diagnostics, hotel services, drugs, physician honoraria, and so on for four selected surgical procedures, *Exhibit 3-2* compares the total estimated bill for public and private patients in three institutional settings—MSP, JBG, and private facilities.[24] In most cases, JBG fees (for non-private patients) are twice or three times the charges in MSP facilities. In turn, private patients in JBG hospitals are charged three to four times more than their non-private counterparts.

Exhibit 3-2 also compares fees for selected diagnostic tests in MSP, JBG, and private facilities. For several tests, prices charged to private patients in JBG are higher than the lowest private clinic price. Within the JBG, fees for private patients are generally double non-private charges. As expected, the JBG charges approximately four times more than the MSP for selected tests.

3.2 MEANS TESTING

All facilities have instituted some form of means testing to target the poor and determine their eligibility for a discounted fee or for free care. Means testing, as practiced in most facilities, is ineffective in terms of sorting the poor from the non-poor. But it does not discriminate against the poor because relatively few patients pay full price. In MSP facilities, the process is generally chaotic. No formal rules or guidelines exist for determining eligibility for exonerations and discounts. Each facility has developed an ad hoc system. Reduced fees are often provided based on a social worker's whim or a patient's ability to haggle over prices. Of equal relevance, billing and collection procedures are so lax that many patients pay nothing regardless of means testing. In sum, most patients are able to elude the targeting, billing, and collections processes.

[24]The fees for private clinics listed in Exhibit 10 are based on negotiated rates between the Ecuadorian Social Security Institute (IESS) and 10 private hospitals located in Ecuador's principal urban areas. IESS pays these clinics on a per case basis. It is the responsibility of the clinic to pay physician honoraria. In all likelihood, these discounted rates are lower than customary fee-for-service charges.

EXHIBIT 3-2
TYPICAL CHARGE FOR SELECTED PROCEDURES AND SERVICES
ACCORDING TO CURRENT FEES, 1991

SERVICE	PUBLIC PATIENTS		PRIVATE PATIENTS		
				PRIVATE CLINICS	
	MSP	JBG	JBG[1]	LOWEST[2]	HIGHEST[2]
IN-PATIENT					
NORMAL BIRTH[3]	8,000	36,000	173,000	220,000	285,000
CAESARIAN[4]	19,000	48,000	282,000	410,000	690,000
HYSTERECTOMY[5]	31,000	45,000	214,000	400,000	810,000
HERNIA[6]	20,000[7]	40,000	223,000[8]	290,000	483,000
OUT-PATIENT[9]					
PHYSICIAN VISIT	0[10]	0	[11]	3,000	7,000
LABORATORY[12]					
URINALYSIS	425	1,700	2,500	1,000	4,300
CHOLESTEROL	443	1,700	2,750	2,000	11,000
V.D.R.L	425	3,000	6,000	1,500	11,000
RADIOLOGY[12]					
CRANIUM (2 POS)	2,067	9,075	18,848	15,000	30,000
SPINAL COLUMN	1,900	10,890	14,136	30,000	43,000
THORAX	3,320	12,210	18,720	22,000	35,000

[1]Unless noted, fees for in-patient services include physician honoraria.
[2]Fees for normal births and surgery are based on negotiated per case fees between IESS and private clinics. Fees cover all services rendered to patient while hospitalized. Prices probably are lower than regular fee-for-service rates charged to uninsured private patients.
[3]JBG prices based on 2 bed-days, 4 lab exams, 1 sonogram, 1 PAP smear, and payment for one unit of blood. MSP prices includes fees for 4 lab exams. MSP prices include fees for 4 lab exams.
[4]JBG prices based on 3 bed-days, 4 lab exams, 1 sonogram, 1 PAP smear, 1 special treatment, and payment and blood bank contribution. MSP prices includes price of 4 lab exams and special gynecological "treatment."
[5]JBG prices based on 4 bed-days, 4 lab exams, and blood bank contribution. MSP prices include fees for 4 lab exams.
[6]JBG prices based on 5.5 bed-days, 4 lab exams, and blood bank contribution. MSP prices include fees for 4 lab exams.
[7]Suburbio Hospital
[8]Excludes physician honoraria.
[9]Private clinic prices are based on sample of five facilities in low- and middle-income neighborhoods in Quito.
[10]Suburbio Hospital charges S/500
[11]Does not provide private ambulatory services.
[12]Average price for MSP and JBG. Private clinic prices based on sample of three facilities in low and middle income neighborhoods in Quito non-private counterparts. But prices for private services in the JBG are significantly lower than prices observed in private clinics. As mentioned, these services are free in MSP hospitals and for non-private patients in JBG facilities.

EXHIBIT 3-3
RELATION BETWEEN AVERAGE COSTS, BILLS, AND PAYMENTS: SURGICAL/MATERNITY SERVICES, 1991

INDICATOR	EUGENIO ESPEJO	BACA ORTIZ	LUIS VERNAZA	ISIDRO AYORA[1]	ENRIQUE SOTOMAYOR
AVERAGE COST	192,535	104,195	108,118	20,695	57,933
AVERAGE BILL[2]	8,750	8,792	33,723	5,082	34,652
AVERAGE PAYMENT	2,225	3,394	9,501	440	4,251
BILL AS % OF COST	5%	8%	31%	25%	60%
PAYMENT AS % OF COST	1%	3%	9%	2%	7%

[1]Figures refer to normal births.
[2]Bill may include charges for diagnostic and other services.
Source: Sample of billings and payments.

JBG facilities have a more formalized means testing system and most patients pay something. In general, these facilities do a fair job in protecting the poor in part because discounts are given upon request. But the process is deficient in terms of identifying those who are able to pay.

Most patients receive a fee reduction upon request. Leakage rates may be very high (that is, the number of non-poor recipients of discounts divided by total number of recipients).

Section 3.2.1 assesses the current situation regarding payers and non-payers. The discussion then turns to describing the means testing process in MSP and JBG facilities.

3.2.1 The Current Situation

We have already seen that low fees contribute to low revenues. Another reason for the insignificant earnings relates to a wide gap between billings and payments. *Exhibit 3-3* shows the relation between average cost, average amount billed, and average payment for surgery. In most cases, billings are only a fraction of the costs, and payments represent only a fraction of billings. Patients at Enrique Sotomayor Hospital are billed at 60 percent of cost but payment represents only seven percent of cost. Although not shown in *Exhibit 3-3*, only in one service (electrocardiography) at Luis Vernaza do collections approximate billings: on average, 80 percent of the billed amount is paid.

EXHIBIT 3-4
DISTRIBUTION OF PATIENTS BY PAYMENT CATEGORY, 1991:
SELECTED SERVICES AND HOSPITALS
(rows add to 100%)

SERVICE/ HOSPITAL	PERCENT DISTRIBUTION			
	PAYERS		NON-PAYERS	
	FULL PRICE	REDUCED PRICE	EXONE-RATED	FLIGHT
SURGERY/MATERNITY				
Isidro Ayora[1]	34	1	2	62
Baca Ortiz[2]	37	4	2	56
Luis Vernaza[2]	1	88	3	8
Enrique Sotomayor[3]	18	57	0	25
DIAGNOSTICS				
Isidro Ayora[4]	27	0	1	72
Baca Ortiz[5]	69	3	3	25
Eugenio Espejo[5]	49	<1	3	48
Luis Vernaza[6]	0	87	13	0
Enrique Sotomayor[4]	0	76	0	24

[1]Normal births, caesareans, and abortions.
[2]Surgery.
[3]Normal births and all surgeries.
[4]Sonograms.
[5]Cardiograms and encephalograms.
[6]Radiology (1990 and 1991), laboratory (1990).

Source: Annex Tables 4A-B: sample of billings, payments, social workers' ledgers.

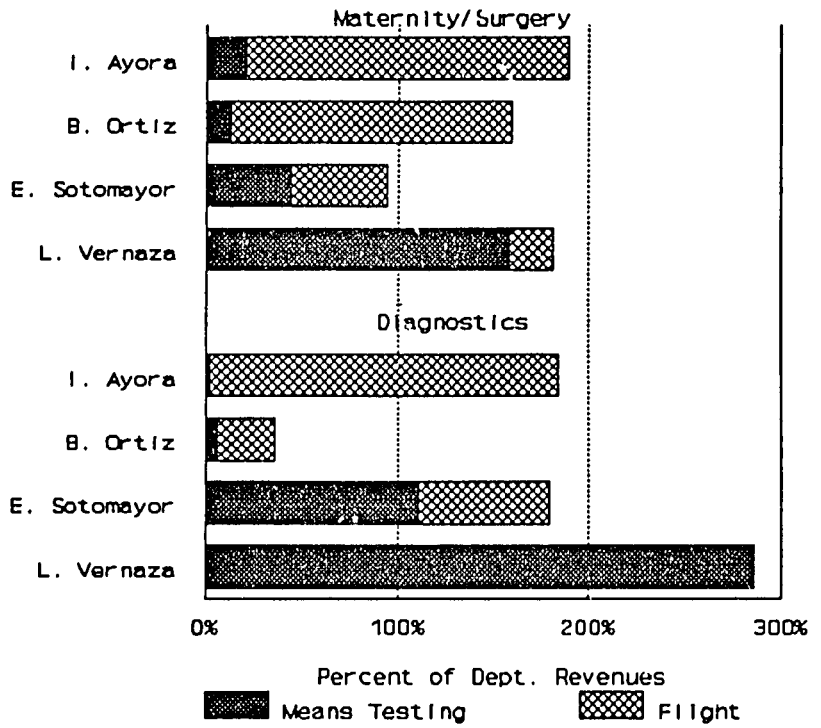
Why is there such a divergence between payments and bills? Who pays and who doesn't? How much potential revenue is lost due to less than full-price payers? What determines whether a payment of any kind is made?

Based on samples of social work records and payment ledgers, we classified patients according to four groups: full fee payers, reduced fee payers, exonerated, and non-payers (due to flight). The results are presented in *Exhibit 3-4* for selected services in MSP and JBG facilities. The exhibit illustrates that MSP hospitals appear to grant few waivers and discounts but are ineffective in securing payments from a majority of maternity and surgery in-patients. In contrast, JBG facilities do a better job at obtaining payments from their in-

patients, but relatively few patients pay full price. Evidently, the means testing process results in granting reduced fees to a high number of patients.

The low average payment results from revenue loss due to means testing and flight. *Exhibit 3-5* presents estimates of revenue loss for surgery and diagnostics for the facilities presented in *Exhibit 3-4*. As expected, by eliminating non-payment due to flight, Isidro Ayora and Baca Ortiz can more than double revenues derived from these services. Means testing appears to represent only a small share of the total revenue loss in MSP facilities. In contrast, JBG should focus its efforts on tightening the means testing process by reducing the high number of discounted fees. Such measures can significantly increase earnings. As evident in the exhibit, however, Enrique Sotomayor also suffers significant losses due to non-payers.

EXHIBIT 3-5
LOSS EARNINGS DUE TO MEANS TESTING AND FLIGHT

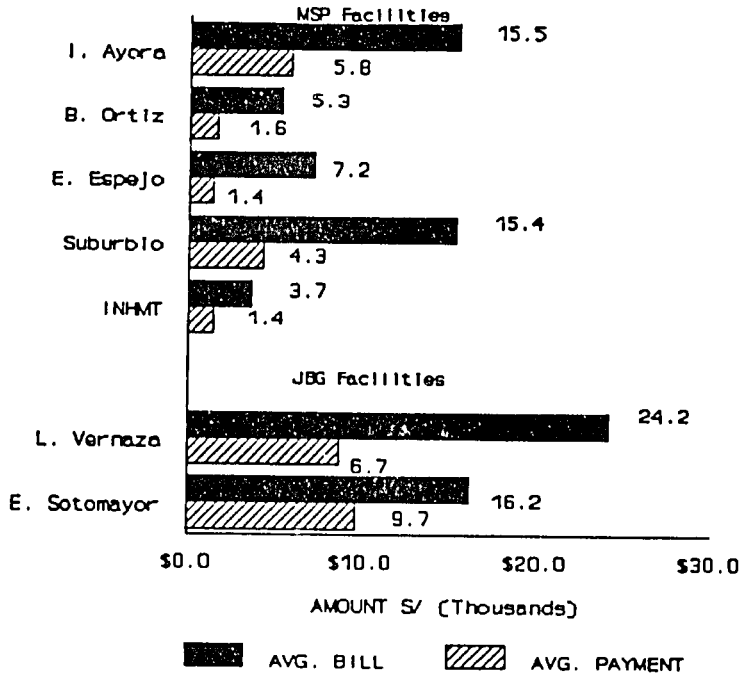


Source: Annex Tables 4A-B.

Finally, it is instructive to assess reduced fee payments across the sampled facilities. *Exhibit 3-6* compares billings and payments (as a percentage of revenues) for patients who were granted reduced fees through means testing.

In general, these patients received steep discounts. Reduced fee patients pay approximately one-third of the bill in Isidro Ayora, Baca Ortiz, and Luis Vernaza Hospitals, and one-fourth in Eugenio Espejo and Suburbio Hospitals. JBG's Enrique Sotomayor Hospital limits fee reductions to no more than one-half the original bill. Most patients pay about 60 percent of the billed amount. The remainder of this section attempts to explain the reasons for low payments resulting from means testing.

EXHIBIT 3-6
AVERAGE BILL AND PAYMENT
FOR REDUCED FEE PATIENTS



L. Vernaza: Surgery and radiology only.
Source: Social worker ledgers.

3.2.2 Means Testing in MSP Facilities

Means testing in all facilities consists of a social worker evaluation. It is the responsibility of social workers to determine the eligibility of patients who seek a discount or exoneration. The social workers evaluate patients' ability to pay through a very simple and often informal means test. It mainly consists of an interview in which patients respond to a series of questions related to income, place of residence, employment, number of household items, and so on. In

some cases, social workers follow a standard questionnaire and record the responses on a short form. In most cases, no records are maintained. The assessment is subjective at best, because no formula exists to determine eligibility, categories of fee reduction, or the relation between the two. Rarely do social workers visit homes (or are provided resources to do so) or require documentation to verify information provided during the interview.

Categories related to the percentage of fee reduction are arbitrary but follow a similar pattern. Patients are exonerated or provided discounts of 25 to 50 percent. The INHMT, however, requires the authorization of facility directors for any price reduction. This often means a long wait and thus discourages patients from soliciting a discount.

3.2.3 Means Testing in JBG Facilities

Each facility sets its own rules for determining eligibility for a fee reduction or waiver. Both Luis Vernaza and Enrique Sotomayor have established formal discount categories. In the former facility, patients can receive discounts of 25, 50, and 75 percent, and sometimes the fee is waived. Standard forms are completed when performing the evaluation. Questions relate to housing, income, employment, number of family members, and so on. In theory, social workers are required to visit the homes of all patients who may qualify for a waiver. These patients are issued a photo identification card which is valid for two years. But the files are in such disarray that we could not locate records of patients who have completed the three-part process: evaluation, home visit, and issuance of photo I.D. One home visit is conducted daily. As evident in *Exhibit 3-6*, the average payment is one-third the average bill. These steeply discounted fees are granted upon request. The only deterrent to receiving a reduced fee is the queue outside the Social Work Department.

Enrique Sotomayor Hospital requires that all patients pay no less than 50 percent of standard fees. Rarely is a waiver granted. The social worker evaluation consists of two parts. Information is drawn first from in-patient medical records and, if necessary, an interview is conducted. Because of the high demand, forms are not completed. Patients are classified according to one of five income categories. Each corresponds to a category within a sliding fee scale. Discounts of 10, 20, 30, 40, and 50 percent are granted. Most patients receive a discount upon request.

3.3 BILLING AND COLLECTION

3.3.1 MSP Facilities

It is relatively easy to avoid payment for services in MSP hospitals. This is particularly the case for in-patient services for which, as was shown earlier, revenues as a percentage of bills (and costs) are insignificant. Unlike JBG hospitals, MSP facilities do not require a deposit upon admission (in non-emergency cases). Patients who are discharged after working hours or on weekends rarely make a payment. Friends and families of hospital workers (and of MSP

personnel in general) usually are not presented bills. An undetermined proportion of non-payers never receive a bill.

Apparently, no one is responsible for ensuring that bills are presented to patients or that payment is made. A higher percentage of patients make payments for diagnostic services in part because service is refused to out-patients unless a receipt is presented. As suggested above, collecting from in-patients and emergency patients has proven more difficult. Finally, social workers and other health personnel appear to place little importance in the user fee program. They often assume that all patients cannot afford the token fees and consider that government should provide services free of charge.

3.3.2 JBG Facilities

Billing and collection is more organized in JBG facilities, and comparatively fewer patients escape without payment. This is particularly the case at Luis Vernaza. Clear procedures exist for charging out-patients for drugs and diagnostic tests. For example, ambulatory patients must have their prescription or indications priced at a special window and then proceed to pay at a cashier. Products and services are not provided without a cashier's receipt. In-patients are required to make a deposit upon admission, and a social worker is assigned to each ward to inform patients and families of fees due the hospital. Most non-payers are friends and family members of hospital and JBG employees. Since the JBG is the largest employer in Guayaquil, this can present a problem.

As shown in *Exhibit 3-4*, about one-fourth of the maternal and surgery patients in Enrique Sotomayor are non-payers. According to hospital officials, this is due to two factors: patients who are family members of hospital and JBG staff, and after-hour and weekend discharges. Recently, the hospital constructed a fence blocking exit from the wards. Guards are assigned around the clock, and no patient can exit without presenting a receipt. The hospital requires a deposit for all in-patient admissions.

4.0 ABILITY TO PAY: EVIDENCE FROM EUGENIO ESPEJO HOSPITAL

Previous sections demonstrated that fee revenues in MSP facilities do not cover costs adequately, and that prices have little relation to costs and private sector rates. Moreover, most patients do not pay even the current token fees. The discussion points to several reasons for the current poor performance: ambiguous user fee policy, deficient targeting mechanisms, poorly managed administrative systems, and lack of incentives to raise rates and enforce collection. An alternative hypothesis is to attribute the system's multiple weaknesses to patients' inability to pay. This explanation suggests that staff are unable or unwilling to exact fees from patients because of patients' (perceived) poverty.

Can patients who demand care in MSP facilities afford to pay higher prices? As evidenced by the higher payments extracted by the JBG, the obvious answer is yes. Some MSP officials suggest, however, that patients seeking care in their facilities may be less able to pay than their counterparts demanding services in the JBG. This argument is difficult to sustain, especially in Metropolitan Guayaquil, where the JBG is the principal institutional provider, operating three large acute hospitals with a total of 1,435 beds. In contrast, the MSP manages one secondary-level hospital and a children's hospital, which together contain 600 beds. As discussed earlier, fees are much higher in JBG facilities, few patients receive waivers, and enforcement of payment is more strict than in the MSP. For example, the higher fees at JBG's Enrique Sotomayor Maternity Hospital apparently do not dissuade women from delivering there. In 1991 the hospital registered 23,291 births, compared to 1,504 in the maternity ward at El Suburbio, the only other public facility providing maternity services in Guayaquil. The fixed fee for a normal birth (excluding charges for tests and the blood bank) was S/19,500 in the former and S/5,000 in the latter. Whether poorer women self-select to the lower price services in El Suburbio is unknown.

For this study, ability to pay by MSP users was assessed through a short survey of in-patients in Eugenio Espejo.[25] Since 1991, the hospital has endured chronic shortfalls of drugs and medical supplies due to budgetary reductions. Facility staff reported that an undetermined number of in-patients was purchasing goods and services in private pharmacies, laboratories, and diagnostic units near the hospital. Moreover, the hospital established informal arrangements with nearby private facilities to provide specific treatments and diagnostics to Eugenio Espejo in-patients. These services are becoming increasingly scarce at the hospital in part because of inadequate supplies and deficient equipment maintenance. Patients pay a discounted (approximately 10 percent) out-of-pocket fee for services provided in private facilities that have an arrangement with the hospital. We hypothesized that if patients interned in Eugenio Espejo already pay

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[25]Household surveys demonstrate that Ecuadorians are high consumers of private medical services, which they pay on a fee-for-service basis. Results show that between 45 and 75 percent of respondents demanded care in private clinics during their latest illness episode. Demand for MSP providers ranged from 17 to 40 percent (Fundación Eugenio Espejo, 1988; Vanormelingen and Goblet, 1990; Instituto Nacional de Empleo, 1992). The studies did not measure amount paid.

private providers for goods and services related to their treatment, this would provide evidence of capacity to pay.

A random survey of 76 in-patients representing 24 percent of occupied beds (321) was conducted in September 1992. Patients and their family members were interviewed in all wards except intensive care. Interviews were held during evening visiting hours over a two-week period. Data were collected on out-of-pocket payments made to private providers and to the hospital. Patients also were asked to estimate payments for prescribed but yet-to-be-performed services.

An attempt was made to obtain information on household income. But we consider the results unreliable in part because estimates were obtained from only 20 respondents (26 percent). Half of the sample reported self-employment in informal sector activities. Approximately one-fourth were dependents or retirees. Since respondents were randomly selected, we can assume that the household welfare of the sample was representative of the in-patient population at the time of the survey.

EXHIBIT 4-1
PAYMENTS FOR PRIVATE SECTOR SERVICES
BY EUGENIO ESPEJO IN-PATIENTS, 1992

SERVICE PURCHASED	NO. OF PATIENTS	AVG. TOTAL PAYMENT	AVG. PAYMENT PER BED-DAY
TOTAL	76	391,828[1]	19,906
DRUGS	69	201,569	9,297
MEDICAL SUPPLIES	24	78,258	1,255
LABORATORY	37	110,035	2,721
RADIOLOGY	28	90,850	1,700
OTHER DIAGNOSTICS	24	82,100	1,317
TREATMENT	10	489,000	3,269

Note: ALOS of sample: 20 days. Average age: 35.

[1]Eliminating one outlier, reduces to S/336,119.

Source: Bed Survey.

Exhibit 4-1 displays the results for payments for goods and services purchased from private providers. The survey found that *all sampled patients* had paid for private services since their admission to the hospital, spending a total of S/29.8 million. On average, each patient spent S/391,828 or S/19,906 per bed-

day.[26] Inferring to the total number of in-patients (321) at the time of the survey, we estimate that private providers received S/125.8 million from Eugenio Espejo in-patients. This figure, expenses for only 32 patients, represents five times the total user fee revenues earned by the hospital in 1991.

Exhibit 4-2 shows the distribution of out-of-pocket spending for the sample across seven payment categories. Approximately one-third of patients paid less than S/100,000 to private providers but 40 percent spent between S/100,000 and S/1,000,000. Eight patients (11 percent) had outlays greater than S/1,000,000.

Twenty patients reported receiving goods and services from private providers that were paid with donations arranged by social workers (through private foundations). The estimated value of these services was S/3.6 million. Six patients reported possessing prescriptions and indications for yet-to-be-purchased goods and services with an estimated value of S/2.7 million.

Payments for drugs accounted for 46 percent of total spending; diagnostics and treatments represented 29 and 17 percent, respectively. All treatments and diagnostics were performed at private clinics. Family members provided transport in most cases. At the time of the survey, the sampled patients registered an average 20 bed-days in the hospital. The high ALOS was related to delays in obtaining diagnostic tests, drugs, and medical supplies in the hospital or purchasing them from private providers.

The survey also inquired about payments made to the hospital. Only 16 patients (21 percent) reported making a payment to the hospital. The average amount paid was S/74,087. (Eliminating two outliers, this amount reduces to S/31,375, representing less than one-tenth the average amount paid to private providers.) Approximately 80 percent of these payments went for high-cost medical supplies purchased by the hospital for individual patients. These purchases were arranged by social workers. The fees are not included in the formal fee schedule and were collected separately.

In sum, the survey suggests that Eugenio Espejo in-patients are able to pay for services, as demonstrated by the value of outlays to private providers. Payments made to private providers dwarf fees demanded by the hospital and payments actually made. As displayed in *Exhibit 3-3*, the average payment for surgery in 1991 was S/2,225. Even accounting for inflation between 1991 and 1992 (about 70 percent), spending for private services in 1992 was exponentially higher than for hospital-based services. If all in-patients had contributed to the hospital one-half of the reported average bed-day payment (S/9,953) made to private providers, the facility would have recovered 35 percent of the current cost of in-patient services (compared to 0.3 percent). Of course, were the hospital to collect higher fees, patients would expect more of the services which they currently obtain from private sector sources. Thus, it should be expected that increasing hospital revenues from fees would need to be accompanied by increased expenditures and services.

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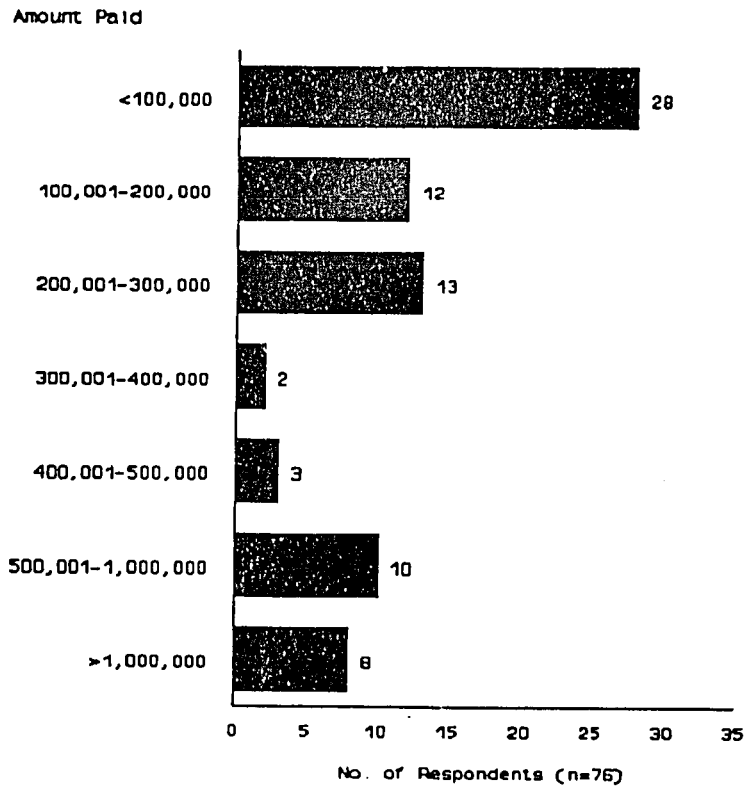
[26]By eliminating one outlier—a patient who had paid S/4,570,000—the average total outlays drop to S/336,119 and the per bed-day payment falls to S/17,137.

EXHIBIT 4-2
DISTRIBUTION OF RESPONDENTS
BY AMOUNTS PAID
(Eugenio Espejo Bed Survey, 1992)



5.0 ADMINISTRATIVE COSTS OF MEANS TESTING, BILLING, AND COLLECTION

All facilities incur costs related to means testing, billing, and fee collection. The cost of means testing centers on social work departments. Based on observations and interviews, we estimate that social workers spend from 70 to 100 percent of their time performing means testing or related administrative activities. In most facilities, means testing is performed in the social work office for out-patients and in the wards for in-patients. Social workers often are assigned to cover two or more wards in Luis Vernaza, Enrique Sotomayor, and Eugenio Espejo hospitals.

The responsibility for billing and collection is shared between social workers and administrative staff in MSP hospitals. Social workers often compile the final bill for in-patients based on a review of medical charts. Departmental clerks may bill out-patients for some diagnostic services. In most cases, however, patients bring the prescription (or indication) to the cashier, who prepares the bill and collects the payment. (In theory, the service is not provided until the patient displays the paid receipt.) In each facility, all bills are paid at one or more cashier windows. Any patients requesting a waiver or reduced fee must be evaluated by a social worker. Social workers must approve and certify any bill in which the payment is less than the original fee.

The process is similar for in-patients in JBG hospitals. Out-patients, however, are billed by clerks who staff special "pricing stations" located in out-patient and emergency areas. There, prescriptions and indications prepared by staff of diagnostic services, pharmacy, and other departments are priced. Bills are paid at cashier windows.

Exhibit 5-1 shows the administrative costs of the user fee system in each facility, sorted by means testing, billing/collection, and per-beneficiary costs. Total administrative costs for MSP hospitals range from S/22.7 million (Isidro Ayora) to S/54.9 million (Eugenio Espejo). In comparison, total costs for the JBG's Luis Vernaza and Enrique Sotomayor hospitals are significantly higher: S/106.4 and S/72.7 million, respectively. Nevertheless, per-beneficiary (average) costs in JBG hospitals range from one-fourth or one-third of per-beneficiary costs in MSP facilities. For example, cost per beneficiary (per person receiving a waiver or reduced fee) in the five MSP facilities averaged nearly S/14,000 in 1991 compared to S/2,100 in the JBG. More disturbing, costs relative to revenues are high in the MSP when compared to the JBG and to health ministries elsewhere (La Forgia and Griffin, 1992; Grosh, 1992; Griffin, 1988; Bekele and Lewis, 1986). This is particularly the case for Eugenio Espejo Hospital, where administrative costs are more than twice total revenues.

Why are administrative costs (as measured on a per-beneficiary basis and as a percentage of revenues) so high in MSP facilities? The apparently excessive costs relate to the low number of patients who are means tested and to low total revenues netted through the fee system. A comparison of JBG and MSP hospitals is instructive.

EXHIBIT 5-1
ADMINISTRATIVE COSTS OF USER FEE SYSTEM, 1991
(Total Costs, Per-Beneficiary Costs, and as a Percent of Revenues)

FACILITY	ADMINISTRATIVE COST[1] (in millions of Sucres)		PER BENEFICIARY COST[2]	TOTAL COST AS PERCENT OF TOTAL REVENUES
	MEANS TESTING	BILLING/ COLLECTION		
BACA ORTIZ[3]	S/22.9	S/5.2	S/13,954	75%
EUGENIO ESPEJO[4]	48.5	6.4	14,419	217
ISIDRO AYORA[5]	14.7	7.9	18,271	31
EL SUBURBIO[3]	23.5	10.5	11,846	64
INHMT[6]	0.9[8]	4.3[8]	11,492	9
ENRIQUE SOTOMAYOR[3,7]	45.8	27.0	2,886	12
LUIS VERNAZA[3,7]	88.0	18.3	2,537[9]	23

[1]Direct and indirect costs.
[2]Beneficiaries: number of patients receiving a waiver or reduced fee.
[3]90 percent of social worker time charged to means testing activities.
[4]70 percent of social worker time charged to means testing activities.
[5]80 percent of social worker time charged to means testing activities.
[6]100 percent of social worker time charged to means testing activities.
[7]Refers to non-private patients only.
[8]Excludes spending on supplies and indirect costs which were unavailable.
[9]Denominator includes in-patients and laboratory and radiology patients.
Source: Annex Table 5

In 1991, an estimated 25,206 persons were means tested in JBG's Enrique Sotomayor Maternity Hospital, compared to 1,241 in MSP's Isidro Ayora Maternity Hospital. That same year, each of the former's 12 social workers applied a means test to an average 2,101 patients (approximately 12 per day), while the latter's three social workers averaged 414 patients (approximately two per day). Although Enrique Sotomayor's total costs are three times those of Isidro Ayora, revenues are over eight times greater. We already have seen that higher prices at Enrique Sotomayor combined with stricter means testing (no waivers are granted) and improved control over non-payers result in significantly higher revenues.

The gap is even more striking for the two largest general hospitals. Each of the 17 social workers in JBG's Luis Vernaza Hospital evaluate an average of 2,500 patients annually, while the average for the 13 social workers in Eugenio

Espejo is only 290.[27] As shown in *Exhibit 5-1*, total fee earnings in Eugenio Espejo cover less than half of the costs of administrating the user fee system. In contrast, revenues represent four times the costs in Luis Vernaza.

Social workers in Suburbio Hospital are the most productive among MSP facilities, testing an average 717 patients annually. INHMT's strict means testing policy, which requires authorization by the facility director, contributes to low administrative costs. Rather than wait for the director's approval, better-off patients may self-select out by paying the full fee. Only one social worker is needed to apply means tests in the busy Guayaquil facility.[28] Due to the low volume of patients seeking a reduced fee, however, *Exhibit 5-1* shows that average costs are higher than in the JBG—although lower than in other MSP facilities.

Do the costs of a user fee system outweigh the benefits? Will strengthening the system require higher costs? As evidenced in the JBG hospitals, the potential income enhancement through more vigorous means testing and a decrease in non-payers is high. Higher prices also will contribute to higher income. In Eugenio Espejo Hospital, where costs dwarf revenues, one may argue for elimination of the user fee system *en toto*. But we would caution against such a decision. A case can be made that this facility has sufficient staff (social workers and clerks) to launch effective means testing, billing, and collection practices. Moreover, under current labor laws and collective agreements, managers would find it difficult to dismiss these staff even if user fees were discontinued. In a sense, administrative costs represent sunk costs. The marginal costs of strengthening the system are probably low.

Nevertheless, improving means testing, billing, and collection practices in other hospitals may involve higher costs. Additional social workers and clerks may be needed. Enforcement of payment may mean more clerks to staff cashier windows after hours and on weekends. Placing security guards at exits to check receipts also can go a long way to reducing the number of non-payers. JBG facilities probably can reduce the number of social workers if the process of certification (and recertification) of eligibility were more functional. Up-to-date recordkeeping would eliminate the need to interview all patients who request a fee reduction. All facilities in the sample need to establish a more rigorous means testing methodology in which patients are categorized according to more objective and specified criteria. Such a means test may require more social worker time, and thus increase costs (and probably revenues). Also, all facilities need to reduce the number of non-payers due to family and friendship ties to facility and institutional personnel.

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[27]We estimated that social workers in Luis Vernaza spend approximately 90 percent of their time performing means testing activities, compared to 70 percent in Eugenio Espejo. Most of the remaining time, however, involves searching for donations to pay for services provided in-patients by private providers.

[28]In 1991, the Guayaquil laboratory performed 226,000 laboratory exams, compared to 180,772 in Eugenio Espejo and 406,057 in Luis Vernaza. Information on the number of patients was unavailable.

Once sufficient personnel and effective procedures are in place that aim to correct current weaknesses, it is likely that the cost of collecting fees will remain stable while revenues rise. Unit costs may be high initially, but will fall as means testing is applied and fees are collected from a higher volume of patients.

6.0 ESTABLISHING USER FEE SYSTEMS IN MSP HOSPITALS

Government budgetary support is insufficient to sustain MSP hospitals. Maintenance, drugs, medical supplies, and equipment have borne the brunt of cutbacks in MSP spending. Moreover, under current conditions, revenues derived from user fees are insignificant and do not compensate for the budgetary shortfalls and general underfinancing of public hospitals. The new government, installed in 1992, recognizes the financial plight of the MSP and the need to tap alternative sources of finance. A recent document prepared by a group of MSP technicians outlines a strategy and preliminary plan for establishing vigorous user fee programs in MSP facilities (Vallejo, Ruales, and Vargas, 1993). According to the plan, user fee systems will focus on hospitals, seek to recover between 20 and 30 percent of costs, and provide waivers or discounts to no more than 25 percent of users limited to low-income groups, children under five years of age, and persons suffering from certain chronic and infectious diseases. The MSP seeks to establish a pilot project in which user fee systems are tested in facilities located in five or six cities. According to MSP officials, if the strategy is approved by the government, the four MSP hospitals included in the current sample will participate in the pilot project.[29]

Accounting for the broad guidelines sketched in the aforementioned MSP document, this section seeks to present policy and implementation options for launching a robust user fee system that will produce greater revenues in MSP hospitals. The first subsection describes possible fee structures and pricing options based on simple revenue simulations applied to the four MSP and two JBG hospitals under study here. A brief strategy to guide pricing across different levels of facilities (primary, secondary, and tertiary) is also presented. The discussion then turns to a review of options for protecting the poor. The third subsection deals with policy issues related to fee retention, revenue sharing, quality, and decentralization. Changes in the legal and regulatory environment are described. The final subsection focuses on implementation issues related to improving administrative practices and controls.

6.1 SETTING PRICES: WHAT SERVICES TO CHARGE?

Fees can be structured in a variety of ways. Each can significantly affect revenues, administrative costs, and equity. The best recommendation is to keep things as simple as possible to facilitate administrative efficiency, especially in billing and collection procedures. Managers must first decide what services should be charged and then set a fee. Based on fee schedules already in existence, we recommend that separate fees be applied to cover the following hospital services:

- Bed-day (hotel)
- Surgery (operating room)

[29]Interview with MSP officials, Quito, May 6, 1993.

- Maternity
- Medicines
- Diagnostics
- Out-patient visits (including emergency)

In effect, one or more facilities in the sample already have established fees for these services. For example, all charge separate fees for diagnostics, normal births, and surgery. JBG facilities charge for out-patient medicines, while the MSP's Suburbio Hospital charges for out-patient visits (and medicines). Private in-patients in JBG facilities pay per-bed-day fees to cover hotel services. In fact, private patients are charged separately for all goods and services consumed during an in-patient stay. Nevertheless, with the exception of private patients in JBG facilities, all hospitals use some form of all-inclusive fee for in-patients. In the MSP, surgery charges usually entitle the patient to medicines, supplies, and diagnostics. In the JBG, diagnostics are charged separately for all in-patients. Baca Ortiz and El Suburbio charge admission fees for non-surgery patients that entitle patients to hotel services, medicines, and diagnostics. Pre-admission fees in the JBG's Luis Vernaza exclude diagnostics.

Setting fees for bed-day hotel services and for in-patient medicines will be new territory for MSP managers. Charging for these services probably will increase the administrative workload, but will be necessary if the MSP seeks to reach its goal of 20 to 30 percent recovery. Bed-day rates may provide an incentive to patients to pressure hospital staff to reduce in-patient stays (which are currently very high by any standard). On the other hand, bed-day fees may provide an incentive to hospitals to extend in-patient stays. Charging for medicines is warranted due to the high levels of spending on drugs.

Currently, all facilities use detailed fee schedules for all diagnostic tests for out-patients. To ease administrative requirements in the in-patient setting, managers may want to consider a single fee for all simple diagnostic tests (or a package thereof) and another for more sophisticated exams. A single per-drug fee or per-bed-day drug fee also can facilitate in-patient billing for medicines. Detailed prices for drugs and diagnostics, however, can be continued in out-patient settings because most facilities already possess considerable experience related to administrating differentiated fees. Moreover, detailed fees can reduce frivolous use of services. Another option in the out-patient setting is to limit the number of items available for sale to only high-volume drugs and supplies.[30]

[30]For ambulatory patients, managers may want to experiment with all-inclusive fees that include diagnostic tests and medicines. This type of pricing policy may work best in self-contained ambulatory settings.

6.2 SETTING PRICES: HOW MUCH TO CHARGE?

Fees can be set according to costs, private sector prices, or prices paid by consumers for other goods and services (Griffin, 1988).[31] Given the current nominal charges in MSP facilities, the method used to raise fees is unimportant. To be sure, raising fees by any amount will significantly impact revenues. Since the government is interested in recovering a specified percent of total costs, about 25 percent, the discussion here focuses on inter- and intra-facility costs. It is worth emphasizing, however, that cost information is not a requirement for fee setting.

Cost information together with estimates of resource needs permit managers flexibility to decide the category and proportion of costs they seek to recover. For example, managers can specify goals related to recovering the costs of drugs, medical supplies, capital inputs, and so on. In some cases, recovering all non-personnel costs will be the revenue objective.[32] Cost information also allows for cross-subsidization among hospital services. For example, if the overall facility goal is to achieve 25 percent recovery, setting fees to 100 percent of costs for diagnostic and out-patient services can allow for smaller fees in the in-patient setting.

This section presents examples of pricing options for each hospital in the sample. *Exhibits 6-2 through 6-7* present the results of two price simulations that contain prices, estimated revenues, and percent cost recovery for selected in-patient, out-patient, and diagnostic services. The simulations presented in the exhibits follow a similar format. Each consists of three columns. The first displays the services for which fees are charged and corresponding 1991 utilization statistics. The second and third display the prices, revenues, and percent cost recovery for the respective simulations. The first simulation, called the Current Rate Structure, is based on 1991 prices in each institution. The second simulation, entitled the Modified Rate Structure, increases prices and adds fees to heretofore free services. The aim here is to achieve 25 percent cost recovery in MSP services and at least 40 percent in JBG facilities.

The simulations should be considered as reference points. They are structured to allow policymakers and planners to test different pricing options and estimate corresponding revenues. The simulations present only two sets of pricing scenarios. Others are possible. Before entering into a discussion of the results of the simulations, a few caveats are in order.

Simulating any price structure requires assumptions concerning the effect of new and higher prices on utilization, the relation between budgetary support and level of resource needs, the range of services to be charged, and the type

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[31]Price levels can result in more efficient utilization behavior. For example, higher fees for emergency services can reduce non-emergency use of this service. Pricing policies can also incorporate waivers and reduced fees for the poor or for certain categories of users and illnesses.

[32]How fee revenues are spent may be a policy issue relating to MSP quality improvement goals. Quality concerns are discussed below in Section 6.5.

of fee to be levied. *Exhibit 6-1* summarizes the assumptions used to run the simulations.

EXHIBIT 6-1
CHARACTERISTICS AND ASSUMPTIONS OF SIMULATIONS

SIMULATION	PURPOSE	ASSUMPTIONS
CURRENT RATE STRUCTURE	Partial cost recovery: enforcement of current prices.	• Use current price structure. • Provide free care to 10 percent of patients. • Double spending on drugs and medical supplies (MSP facilities only).
MODIFIED RATE STRUCTURE	Partial cost recovery: higher fees aimed at achieving 25 percent cost recovery.	• Increase current prices. • Add fees for medicines, bed-day hotel services, and out-patient services. • Lose 10 percent utilization. • Provide free care to 20 percent of patients. • Double spending on drugs and medical supplies (MSP facilities only).

First, given that MSP prices have not changed for over 10 years and that household surveys examining the relationships between price and people's health care seeking behavior are absent, rough approximations were used to compensate for this lack of demand information. In the case of the first simulation, prices are so low that we assume no loss of utilization. If the MSP enforced the collection of current prices, mainly by eliminating non-payment through flight, it is likely that any change in utilization would be minimal. In the case of the JBG, However,we assume a 10 percent loss in utilization in part because prices are significantly higher than in the MSP. Enforcement of payment in JBG facilities would necessitate elimination of the widespread practice of granting steep discounts through the means testing process. In both MSP and JBG facilities, we assume waivers would be granted to 10 percent of patients.

Second, the modified rate structure simulation involves at least a tripling of current prices combined with applying fees to additional services (e.g., medicines, bed-days, and out-patient visits) in MSP facilities. The rise in prices is less pronounced in the JBG but charges also are added for in-patient medicines, bed-days, and out-patient services. Under this price structure, we assume a 10 percent reduction in utilization and the granting of waivers to 20 percent of patients for all facilities.

Admittedly, these assumptions concerning the influence of price on demand are arbitrary. Charging for previously free services probably will reduce use, especially in the case of medicines, and to a lesser extent for out-patient visits. In contrast, the higher prices may have no effect on certain services such as emergency care, non-elective surgery, and sophisticated diagnostic tests where prices in the private sector are significantly higher and demand is more inelastic. In the long run, however, higher prices in public hospitals may stimulate private sector activity, reducing the demand for public services.

Policymakers are encouraged to calibrate utilization and prices according to alternative sets of assumptions.

Third, an assumption was made about the relationship between current budgetary expenditures and resource needs in MSP facilities only. Given the chronic shortfalls in drugs and medical supplies evident in MSP hospitals, both simulations assume additional financial requirements to provide adequate supplies of these items. The calculations related to percent cost recovery incorporate a 100 percent increase (over 1991 levels) in spending for drugs and medical supplies. No adjustment, however, was made for personnel shortages, in part because all MSP hospitals redirect budgetary funds, that were originally earmarked to personnel to offset shortfalls in supplies.

Finally, for the purposes of structuring simple simulations while maintaining precision in the revenue estimates, a combination of fee types are used: flat fees (e.g., out-patient visits, in-patient medicines, bed-days, and some diagnostic tests), median prices (for laboratory and radiology tests), and typical charges (surgery and maternity). For laboratory and radiology tests, the fees represent the median price of tests grouped into two broad categories: simple and complex. Drawing on the detailed price lists of each facility, these categories mainly reflect price differences across the tests performed. For example, in all hospitals, a radiology exam requiring a contrast medium is generally three to five times the price of simple extremity takes. In the first simulation, typical charges are applied to surgical and maternity services. Again, policymakers can experiment with types of fees and combinations thereof.

6.3 SIMULATIONS: THE RESULTS

Exhibits 6-2 through 6-7 present the results of the simulations for MSP facilities. *Exhibit 6-8* graphically compares current revenues with estimated earnings under the two simulations.

The results of the first simulation show that if existing prices are enforced, MSP general and pediatric hospitals would recover between 3.5 and 5.5 percent of costs, about a five-fold increase over 1991 levels. Isidro Ayora Maternity Hospital would recoup over 15 percent of costs, tripling 1991 earnings. As suggested in previous sections, the current fee structure is weakest in out-patient and in-patient services. For the former, fees generally are not charged. For the latter, fees are so low that they are insignificant in terms of costs. Earnings from current charges for diagnostic services would represent the lion's share of total revenues. The simulation shows that by enforcing current fees, three MSP hospitals would recover about one-fourth of the costs of diagnostic services. Again, the exception is Isidro Ayora, where near full cost recovery (90 percent) is possible for diagnostic services under current pricing structures. This is due to high returns derived from laboratory and sonography services.

The second simulation aims to achieve 25 percent cost recovery. The simulation shows that tripling and in some cases quadrupling current fees, together with adding flat fees for out-patient, bed-day, and medicines, would raise revenues from five to seven times over levels derived from the first simulation for general and pediatric hospitals. Doubling current fees for some diagnostic services and adding charges for bed-days, out-patient services, and

medicines would raise earnings by another 100 percent for Isidro Ayora Hospital. For services in which fees already are charged, the modified rate structure represents raising prices in MSP facilities to levels currently charged by the JBG.

As shown in *Exhibits 6-5 and 6-7*, enforcing existing prices in the JBG facilities would double 1991 revenues. Luis Vernaza and Enrique Sotomayor would have recovered 27 and 44 percent of costs, respectively, compared to the registered 10 and 20 percent. Interestingly, enforcing the fee structure would result in returns of nearly 300 percent over costs for diagnostic services in Enrique Sotomayor. Revenues for in-patient services in Luis Vernaza would increase fourfold, achieving 10 percent recovery compared to 2.5 percent in 1991, while outpatient services would increase about 25 percent over 1991 levels.

The modified rate structure simulation for the JBG hospitals adds charges for bed-days, out-patient services, and in-patient medicines. But prices for most other services are raised by less than 50 percent for Luis Vernaza and *remain unchanged* for Enrique Sotomayor. The results of this simulation show that the former facility raises revenues 62 percent over the first simulation, achieving 44 percent recovery. For Enrique Sotomayor, earnings increase by 28 percent, achieving 56 percent cost recovery.

Comparing the prices listed in the Modified Rate Structure with private sector prices (see *Exhibit 3-2*) shows that the former remain well below the latter for most services. For example, the estimated cost of hernia surgery (assuming four bed-days, four lab exams, and four drugs per day) will range from S/60,000 to S/80,000) under the modified rate structure in MSP hospitals. This compares to no less than S/220,000 in a private hospital. Charging fees of S/1,000 for out-patient visits will remain a fraction of the typical private sector charge, which ranged from S/3,000 to S/7,000 in 1992.

EXHIBIT 6-2 (2 pages)
PRICES AND REVENUES UNDER TWO COST RECOVERY SIMULATIONS
EUGENIO ESPEJO HOSPITAL, 1991

SERVICE	UTILIZATION	CURRENT RATE STRUCTURE (current prices, 10% free, double spending on drugs/medical supplies)			MODIFIED RATE STRUCTURE (higher prices, 20% free, lose 10%, double spending on drugs/medical supplies)		
		CURRENT PRICES	ESTIMATED REVENUES	PERCENT RECOVERY	NEW PRICES	ESTIMATED REVENUES	PERCENT RECOVERY
IN-PATIENT			27,709,650	0.8%		785,052,000	23.9%
Patient Days	96,467	0	0		2,000	138,912,480	
Non-surgical Discharges	5,391	1,500[5]	7,277,850			–	
Surgery				1.9%			6.3%
Major	2,920	7,000	18,396,000		30,000	63,072,000	
Minor	754	3,000	2,035,800		6,000	3,257,280	
Medicines[1]	805,292	0	0		1,000	579,810,240	
DIAGNOSTIC			98,824,716	24.6%		199,213,480	49.6%
Laboratory				47.0%			93.8%
Simple	180,772	385[6]	62,637,498		1,000	130,155,840	
Complex[2]	15,969	980[6]	14,084,658		2,000	22,995,360	
Pathology	1,982	1,100[9]	1,962,180	5.9%	3,000	4,281,120	12.8%
Radiology			0	10.5%			20.9%
Simple	14,439[7]	1,200[6]	15,593,580		3,000	31,187,160	
Complex[3]	NA	7,900[6]	0				
Sonography	1,116	2,000	2,008,800	11.6%	5,000	4,017,600	23.1%
Electro-cardiography	2,990[4]	400/2000[8]	1,594,800	4.4%	2000/4000	4,690,000	13.0%
Other	524	2,000	943,200		5,000	1,886,400	

EXHIBIT 6-2 (2 pages)
PRICES AND REVENUES UNDER TWO COST RECOVERY SIMULATIONS
EUGENIO ESPEJO HOSPITAL, 1991

SERVICE	UTILIZATION	CURRENT RATE STRUCTURE (current prices, 10% free, double spending on drugs/medical supplies)			MODIFIED RATE STRUCTURE (higher prices, 20% free, lose 10%, double spending on drugs/medical supplies)		
		CURRENT PRICES	ESTIMATED REVENUES	PERCENT RECOVERY	NEW PRICES	ESTIMATED REVENUES	PERCENT RECOVERY
OUT-PATIENT			31,156,200	4.0%		154,092,960	19.7%
Physician Visit	49,850	0	0		1,000	35,892,000	
Emergency Visit	17,738	0	0		1,500	19,157,040	
Physical Therapy	102,032	0	0		500	36,731,520	
Prescriptions	34,618	1,000[10]	31,156,200		2,500	62,312,400	
ESTIMATED TOTAL REVENUES			157,690,566	3.5%		1,138,358,440	25.5%

[1] Charged separately. Four drugs per in-patient prescription. Based on sample of prescriptions during seven-day period.
[2] VDRL, liver function, and bacteriology.
[3] Use of contrast medium.
[4] Cardiograms (2630) and electrocephograms (360).
[5] For non-surgical admissions only.
[6] Median price.
[7] Two films per test.
[8] Cardiogram: S/400; encephalogram: S/2000.
[9] Average of PAP (S/700) and biopsies (S/1500).
[10] Estimated "typical" price charged.

EXHIBIT 6-3 (2 pages)
PRICES AND REVENUES UNDER TWO COST RECOVERY SIMULATIONS
BACA ORTIZ HOSPITAL, 1991

SERVICE	UTILIZATION	CURRENT RATE STRUCTURE (current prices, 10% free, double spending on drugs/medical supplies)			MODIFIED RATE STRUCTURE (higher prices, 20% free, lose 10%, double spending on drugs/medical supplies)		
		CURRENT PRICES	ESTIMATED REVENUES	PERCENT RECOVERY	NEW PRICES	ESTIMATED REVENUES	PERCENT RECOVERY
IN-PATIENT			36,849,600	1.9%		294,917,760	15.2%
Patient Days	38,282	0	0		3,000	82,689,120	
Discharges	2,823	0	0			--	
Surgery	3,412			7.5%			22.6%
Major	3,412	12,000	36,849,600		45,000	110,548,800	
Minor	0	8,000	0		0	0	
Medicines	47,074	0	0		3,000	101,679,840	
DIAGNOSTIC			106,827,030	24.3%		371,026,320	84.3%
Laboratory				31.4%			112.2%
Simple	366,253	200[4]	65,925,540		1,000	263,702,160	
Complex[1]	20,296	1,100[4]	20,093,040		3,000	43,839,360	
Pathology	745	1,000[6]	670,500	3.3%	4,000	2,145,600	10.7%
Radiology				7.5%			30.0%
Simple	10,587[5]	1,000[4]	9,527,850		5,000	38,111,400	
Complex[2]	1,950	4,000[4]	7,020,000		10,000	14,040,000	
Electro-cardiography	1,973[3]	1500/2000[7]	3,258,000	17.3%	3000/4000	6,531,000	34.6%
Other	738	500	332,100		5,000	2,656,800	

EXHIBIT 6-3 (2 pages)
PRICES AND REVENUES UNDER TWO COST RECOVERY SIMULATIONS
BACA ORTIZ HOSPITAL, 1991

SERVICE	UTILIZATION	CURRENT RATE STRUCTURE (current prices, 10% free, double spending on drugs/medical supplies)			MODIFIED RATE STRUCTURE (higher prices, 20% free, lose 10%, double spending on drugs/medical supplies)		
		CURRENT PRICES	ESTIMATED REVENUES	PERCENT RECOVERY	NEW PRICES	ESTIMATED REVENUES	PERCENT RECOVER
OUT-PATIENT			0	0.0%		84,705,480	13.4%
Physician Visit	55,641	0	0		1,000	40,061,520	
Emergency Visit	13,636	0	0		3,000	29,453,760	
Physical Therapy	20,280	0	0		1,000	14,601,600	
Prescriptions	327	0	0		2,500	588,600	
ESTIMATED TOTAL REVENUES			143,676,630	4.8%		750,649,560	24.9%

[1] Include VDRL, liver function, and bacteriology.
[2] Use of contrast medium.
[3] Cardiograms (652) and electrocephograms (1321).
[4] Median price.
[5] Two films per test.
[6] Flat fee.
[7] Cardiogram: S/1500; encephalogram: S/2000.

EXHIBIT 6-4 (2 pages)
PRICES AND REVENUES UNDER TWO COST RECOVERY SIMULATIONS
EL SUBURBIO HOSPITAL, 1991

SERVICE	UTILIZATION	CURRENT RATE STRUCTURE (current prices, 10% free, double spending on drugs/medical supplies)			MODIFIED RATE STRUCTURE (higher prices, 20% free, lose 10%, double spending on drugs/medical supplies)		
		CURRENT PRICES	ESTIMATED REVENUES	PERCENT RECOVERY	NEW PRICES	ESTIMATED REVENUES	PERCENT RECOVERY
IN-PATIENT			54,409,500	3.5%		188,514,000	12.2%
Patient Days	38,679	0	0		3,000	83,546,640	
Non-surgical Discharges	3,530	10,000	31,770,000		0	–	
Surgery				5.1%			10.5%
Major	1,475	15,000	19,912,500		40,000	42,480,000	
Minor	606	5,000[6]	2,727,000		10,000	4,363,200	
Medicines	40,364	0	0		2,000	58,124,160	
DIAGNOSTIC			71,201,403	18.0%		279,781,386	70.8%
Laboratory				21.3%[11]			107.6%
Simple	153,065	300[7]	41,327,550		2,000	220,413,600	
Complex[2]	4,499	1,000[7]	4,049,100		4,000	12,957,120	
Pathology	701	2,000[9]	1,261,800		4,000	2,018,880	
Radiology			0			0	
Simple	7,190[4]	2,000[8]	12,941,703	12.1%	5,000	25,883,406	24.2%
Complex[3]	NA	7,000[8]	0			0	
Sonography	2,693	4,000	9,694,800		8,000	15,511,680	
Electrocardi-ography	1,346[5]	1500/3000[1]	1,926,450		3000/600 0	2,996,700	
Other			0		4,000	0	

EXHIBIT 6-4 (2 pages)
PRICES AND REVENUES UNDER TWO COST RECOVERY SIMULATIONS
EL SUBURBIO HOSPITAL, 1991

SERVICE	UTILIZATION	CURRENT RATE STRUCTURE (current prices, 10% free, double spending on drugs/medical supplies)			MODIFIED RATE STRUCTURE (higher prices, 20% free, lose 10%, double spending on drugs/medical supplies)		
		CURRENT PRICES	ESTIMATED REVENUES	PERCENT RECOVERY	NEW PRICES	ESTIMATED REVENUES	PERCENT RECOVERY
OUT-PATIENT			9,970,740	1.8%		153,234,720	28.1%
Physician Visit	24,764	400	8,915,040		1,000	17,830,080	
Emergency Visit	66,954	0	0		2,000	96,413,760	
Physical Therapy	2,346	500	1,055,700		1,000	1,689,120	
Prescriptions	25,904	0	0		2,000	37,301,760	
ESTIMATED TOTAL REVENUES			135,551,643	5.5%		621,530,106	25.0%

[1] Four drugs per in-patient prescription. Based on sample of prescriptions during seven days.
[2] Include VDRL, liver function, and bacteriology.
[3] Use of contrast medium.
[4] Estimated based on per patient x-rays in Hospital Luis Verneza. Two films per test.
[5] Cardiograms (1265) and electrocephograms (8).
[6] Price charged for GYNOB admission. Usually entails simple surgery.
[7] Median price.
[8] Median price for sampled MSP hospitals.
[9] Average of PAP (S/3000) and biopsies (S/2000).
[10] Cardiogram: S/1500; encephalogram: S/3000.
[11] Includes costs and revenues from pathology.

EXHIBIT 6-5 (2 pages)
PRICES AND REVENUES UNDER TWO COST RECOVERY SIMULATIONS
LUIS VERNAZA HOSPITAL, 1991
(Public Patients)

SERVICE	UTILIZATION	CURRENT RATE STRUCTURE (current prices, 10% free, lose 10%)			MODIFIED RATE STRUCTURE (higher prices, 20% free, lose 10%)		
		CURRENT PRICES	ESTIMATED REVENUES	PERCENT RECOVERY	NEW PRICES	ESTIMATED REVENUES	PERCENT RECOVERY
IN-PATIENT			335,737,200	10.2%		740,253,960	22.4%
Patient Days	222,829		0		1,000	160,436,880	
Non-surgical Discharges	7,761[5]	21,500	135,160,950			--	
Surgery				26.2%			26.6%
Major	7,075	35,000[7]	200,575,250		40,000	203,760,000	
Minor	NA	6,000	0		6,000	0	
Medicines[1]	522,302	0	0		1,000	376,057,080	
DIAGNOSTIC			737,023,986	85.9%		1,050,906,877	122.5%
Laboratory				95.8%			157.9%
Simple	381,694	1,000[9]	309,172,140		2,000	549,639,360	
Complex[2]	24,363[3]	5,000[9]	98,671,851		7,000	122,791,637	
Pathology	4,271	4,000[1]	13,838,040	30.6%	5,000	15,375,600	34.0%
Radiology			0	52.4%		0	70.1%
Simple	15,203[8]	9,750[9]	120,061,744		15,000	164,187,000	
Complex[4]	2,497	31,200[9]	63,104,184		45,000	80,902,800	
Sonography	5,109	9,750	40,348,328		9,750	35,865,180	
Electrocardiography	10,367[6]	5000/ 21500[11]	42,863,200	380.6%	5000/ 21500	37,505,300	333.1%
Other	3,875	15,600	48,964,500		16,000	44,640,000	

EXHIBIT 6-5 (2 pages)
PRICES AND REVENUES UNDER TWO COST RECOVERY SIMULATIONS
LUIS VERNAZA HOSPITAL, 1991
(Public Patients)

SERVICE	UTILIZATION	CURRENT RATE STRUCTURE (current prices, 10% free, lose 10%)			MODIFIED RATE STRUCTURE (higher prices, 20% free, lose 10%)		
		CURRENT PRICES	ESTIMATED REVENUES	PERCENT RECOVERY	NEW PRICES	ESTIMATED REVENUES	PERCENT RECOVERY
OUT-PATIENT			198,362,034	35.9%		276,870,240	50.1%
Physician Visit	59,197	0	0		500	21,310,920	
Emergency Visit	24,205	0	0		1,500	26,141,400	
Physical Therapy	50,087	200	8,114,094		500	18,031,320	
Prescriptions	117,437	2,000[12]	190,247,940		2,500	211,386,600	
ESTIMATED TOTAL REVENUES			1,271,123,220	27.0%		2,068,031,077	43.9%

[1] 3.5 drugs per in-patient prescription. Based on sample of prescriptions during seven days.
[2] Include VDRL, liver function, and bacteriology.
[3] Estimated based on breakdown in Hospital Eugenio Espejo.
[4] Use of contrast medium.
[5] Estimate based on 1990 distribution of discharges.
[6] Cardiograms (10258) and electrocephograms (109).
[7] Typical charge. Based on month sample of surgical wards.
[8] Two films per test.
[9] Median price.
[10] Average of PAP (S/700) and biopsies (S/1500).
[11] Cardiogram: S/5000; encephalogram: S/21000.
[12] Estimated "typical" price charged.

EXHIBIT 6-6 (2 pages)
PRICES AND REVENUES UNDER TWO COST RECOVERY SIMULATIONS
ISIDRO AYORA MATERNITY HOSPITAL, 1991

SERVICE	UTILIZATION	CURRENT RATE STRUCTURE (current prices, 10% free, double spending on drugs/medical supplies)			MODIFIED RATE STRUCTURE (higher prices, 20% free, lose 10%, double spending on drugs/medical supplies)		
		CURRENT PRICES	ESTIMATED REVENUES	PERCENT RECOVERY	NEW PRICES	ESTIMATED REVENUES	PERCENT RECOVERY
IN-PATIENT			128,002,500	9.6%		324,763,632	24.3%
Patient Days: GYNOB	79,892	0	0		1,000	57,522,240	14.8%
Patient Days: Neonatal	13,291	0	0		1,000	9,569,520	2.7%
Births	10,551	3,000	28,487,700	12.0%[6]	5,000	37,983,600	15.9%
Abortions	2,464	3,000	6,652,800		5,000	8,870,400	
Surgery				30.3%			25.7%
Caesarians	3,108	10,000	27,972,000		12,000	26,853,120	
Major	174	25,000	3,915,000		25,000	3,132,000	
Minor	6,775	10,000	60,975,000		10,000	48,780,000	
Medicines	183,407[1]	0	0		1,000	132,052,752	

EXHIBIT 6-6 (2 pages)
PRICES AND REVENUES UNDER TWO COST RECOVERY SIMULATIONS
ISIDRO AYORA MATERNITY HOSPITAL, 1991

SERVICE	UTILIZATION	CURRENT RATE STRUCTURE (current prices, 10% free, double spending on drugs/medical supplies)			MODIFIED RATE STRUCTURE (higher prices, 20% free, lose 10%, double spending on drugs/medical supplies)		
		CURRENT PRICES	ESTIMATED REVENUES	PERCENT RECOVERY	NEW PRICES	ESTIMATED REVENUES	PERCENT RECOVERY
DIAGNOSTIC			131,455,800	100.1%		149,667,120	114.0%
Laboratory				106.3%			129.4%
Simple	119,740	700[4]	75,436,200		1,000	86,212,800	
Complex[2]	10,902	1,500[4]	14,717,700		3,000	23,548,320	
Pathology	2,433	1,000	2,189,700	13.3%	3,000	5,255,280	31.8%
Radiology			0	22.3%		0	35.7%
Simple	1,386[5]	3,000[4]	3,742,200		6,000	5,987,520	
Complex[3]	NA	10,000[4]	0		10,000	0	
Sonography	13,100	3,000	35,370,000	299.3%	3,000	28,296,000	239.5%
Electro-cardiography	255	0	0		2,000	367,200	
OUT-PATIENT			0	0.0%		38,876,400	23.4%
Physician Visit	28,916	0	0		500	10,409,760	
Emergency Visit	26,358	0	0		1,500	28,466,640	
Prescriptions	NA	0	0		2,000	0	
ESTIMATED TOTAL REVENUES			259,458,300	15.9%		513,307,152	31.4%

[1] 2.5 drugs per in-patient prescription. Based on sample of prescriptions during seven days.
[2] Include VDRL, liver function, and bacteriology.
[3] Use of contrast medium.
[4] Median price.
[5] Two films per test.
[6] Includes revenues and cost related to births and abortions.

EXHIBIT 6-7 (2 pages)
PRICES AND REVENUES UNDER TWO COST RECOVERY SIMULATIONS
ENRIQUE SOTOMAYOR MATERNITY HOSPITAL, 1991
(Public Patients)

SERVICE	UTILIZATION	CURRENT RATE STRUCTURE (current prices, 10% free, lose 10%)			MODIFIED RATE STRUCTURE (higher prices, 20% free, lose 10%)		
		CURRENT PRICES	ESTIMATED REVENUES	PERCENT RECOVERY	NEW PRICES	ESTIMATED REVENUES	PERCENT RECOVERY
IN-PATIENT			402,398,361	15.7%		848,121,192	33.2%
Patient Days: GYNOB	82,581	0	0		1,000	59,458,320	
Patient Days: Neonatal	11,797	0	0		1,000	8,493,840	
Obstetric Center				47.4%[8]			42.1%
Births	16,376	12,300	163,154,088		12,300	145,025,856	
Abortions	2,508	12,300	24,987,204		12,300	22,210,848	
Caesarians	6,915	24,300	136,107,945		24,300	120,984,840	
Surgery				27.3%			24.3%
Major	3,046	22,000	54,279,720		22,000	48,248,640	
Minor	1,889	15,600	23,869,404		15,600	21,217,248	
Medicines	586,780	0	0		1,000	422,481,600	
DIAGNOSTIC			867,882,665	276.2%		771,451,258	245.5%
Laboratory				432.7%			384.6%
Simple	336,838	1,920[4]	523,850,458		1,920	465,644,851	
Complex[1]	11,139	7,680[4]	69,293,491		7,680	61,594,214	
Blood Bank	23,051[3]	7,200	134,430,516	182.9%	7,200	119,493,792	162.6%
Pathology	13,593	1,200[6]	13,212,396	41.1%	1,200	11,744,352	36.5%
Radiology				125.8%			111.9%
Simple	5,651[5]	8,400[4]	38,449,404		8,400	34,177,248	
Complex[2]	656	27,000[4]	14,346,720		27,000	12,752,640	
Sonography	9,555	9,600	74,299,680	280.4%	9,600	66,044,160	249.2%

EXHIBIT 6-7 (2 pages)
PRICES AND REVENUES UNDER TWO COST RECOVERY SIMULATIONS
ENRIQUE SOTOMAYOR MATERNITY HOSPITAL, 1991
(Public Patients)

SERVICE	UTILIZATION	CURRENT RATE STRUCTURE (current prices, 10% free, lose 10%)			MODIFIED RATE STRUCTURE (higher prices, 20% free, lose 10%)		
		CURRENT PRICES	ESTIMATED REVENUES	PERCENT RECOVERY	NEW PRICES	ESTIMATED REVENUES	PERCENT RECOVERY
OUT-PATIENT			36,963,945	28.0%		55,637,280	42.2%
Out-patient/ Emerg. Visit	63,279	0	0		500	22,780,440	
Prescriptions	20,282	2,250[7]	36,963,945		2,250	32,856,840	
ESTIMATED TOTAL REVENUES			1,307,244,971	43.6%		1,675,209,730	55.8%

[1] Include VDRL, liver function, and bacteriology.
[2] Use of contrast medium.
[3] Assumes 75% of all GYNOB patients do not donate blood.
[4] Median price.
[5] Two films per test.
[6] Charge for PAP smears.
[7] Estimated typical charge.
[8] Includes revenues and cost related to births, caeserians, and abortions.

6.4 TARGETING THE POOR

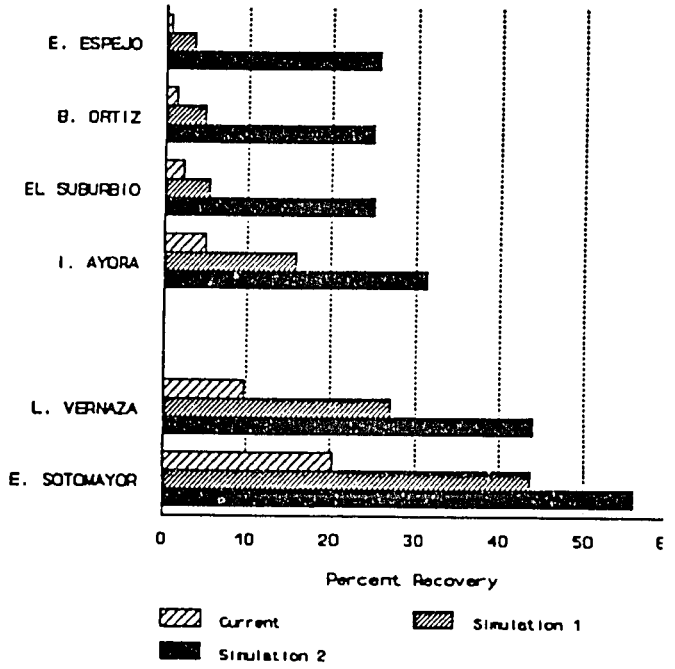
Raising revenues through user fees will require effective methods to protect the poor. Currently, means testing in all facilities is informal at best. Since guidelines for determining eligibility are non-existent or ignored, leakage is high. Often, significant discounts are granted for the asking. Part of the problem rests in the lack of incentives to implement an effective means test. MSP policies toward user fees are contradictory, the legal and regulatory context is ambiguous, and revenues are deposited in the consolidated fund to which the facilities are granted access only once a year. Moreover, social workers in some facilities resent the task of "bill writer."

The MSP can explore several options to improve means testing. Each carries advantages and disadvantages:

Strengthen Facility-Based Means Testing. This would be the most inexpensive option because staff already exist and are unlikely to be transferred to new positions or other facilities. But point-of-service targeting is not very effective in preventing leakage (e.g., discriminating the poor from the non-poor). To be sure, identifying the poor at the point of service is a difficult assignment, even with highly motivated workers. Facilities will need to establish a strict price structure combined with clear criteria for eligibility. Applying a standar-

dized questionnaire to all persons requesting a discount probably is unavoidable.[33] Records should be maintained and IDs issued to eligible patients (or households) for a specified period. It is best, however, to avoid determining eligibility through patients' self-declaration of income. Indirect indicators such as place of residence, certified participation in welfare programs, employment, demographic characteristics of the household (including dependency ratio), property ownership, education, and housing characteristics can provide proxies for income.

EXHIBIT 6-8
A COMPARISON OF PERCENT COST RECOVERY
UNDER DIFFERENT PRICING SCENARIOS, 1991



Source: Tables 6.7.19-24

Remove Means Testing From the Facility. Another approach is to have local authorities or other government agencies determine which households are indigent. Although Ecuador does not operate a national social assistance program, the MSP's FONIN does manage a number of programs in which food and other commodities are

[33]This may not be practical in outpatient or emergency settings. Since fees for these services are relatively low (even under the modified rate structure), facilities can require all patients to pay.

delivered to the poor. Participants are identified through place of residence (e.g., rural villages and urban barrios). The FONIN has offices in all provincial capitals and in cities where MSP hospitals are located. This can facilitate the securing of certification for patients seeking hospital care. A disadvantage of this approach may involve the lack of incentives by the means testing (or certifying) agency to filter out the non-poor. If means testing mechanisms do not already exist, it will be costly to establish such a program.

Engage in Self-Targeting. This approach has the advantage of low administrative costs and induces the non-poor to self-select out of "free" or discounted services. Its main disadvantage relates to the requirement of information on poor and non-poor behavioral differences. It may also discourage participation of the poor due to time costs or perceived lower quality of care. From an operational standpoint, this approach can entail charging lower fees for out-patient services after hours or on weekends. Certain preventive services can be provided free of charge to encourage utilization. In contrast, higher fees can be charged for "fast tract" services or "higher quality" services. From a system-wide perspective, charging higher fees at hospitals and lower fees at ambulatory settings in rural and peri-urban areas may benefit the poor who reside closer to the latter areas.

6.5 FEE RETENTION, AUTONOMY, AND QUALITY

These issues are closely linked. If facilities are unable to retain fee revenues or decide how revenues will be spent, they will have little incentive to collect them. Under current conditions of declining MSP budgetary support, it is unlikely that quality will be improved without tapping alternative sources of revenue.

According to financial codes, revenues from fees must be deposited in the Treasury's Consolidated Fund. The facilities have access to these funds once a year after an arduous and protracted process requiring considerable paperwork. Under these conditions, managers have little incentive to bill patients, collect payments, or implement rigorous means testing. Successful cost recovery will require a change in current law or the creation of alternative mechanisms to manage fee collection. Regarding this latter point, the MSP can establish community boards, foundations, and *patronatos* to collect and distribute fees, and thereby circumvent the law. Legal and operational precedents exist. For example, INHMT is governed by a special law that permits it to set up a separate treasury account for user fee revenues. Managers have full and rapid access to available funds. Special agreements between the MSP and community groups permit the latter to collect fees and manage revenues for all facility-based services.[34]

It is also unlikely that cost recovery will increase unless facility managers are given some autonomy over the spending of fee revenues. This can be part and parcel of a subsidy reduction plan in which the MSP turns over specific line items to the facility, or better yet, provides a single cash subsidy. The latter can be managed by the facility together with affiliated community boards or foun-

[34]These arrangements exist in at least three primary-level hospitals: Zambahua, Borbón, and Baeza.

dations. This would entail facility control of hiring practices and drug and material purchases. Full control over all spending would inculcate a bottom-line mentality providing incentives to raise revenues as well as increase efficiency. The facility would be responsible for covering all costs beyond the subsidy, allocating user fee revenues as it sees fit—for drug purchases, equipment repair, etc.

The MSP can establish norms to guide facilities in managing the subsidy and revenues (e.g., fee revenues cannot be used to hire additional personnel without MSP permission). The MSP also can require all facilities to submit a quality improvement plan. It is recommended, however, that any auditing be performed on an ex-post basis. Currently, ex-ante controls result in enormous delays of disbursement of subsidies and fee revenues.

6.6 REVENUE SHARING AND SUBSIDY REDUCTION

The collection of significant fee revenues by facilities probably will generate political pressure to reduce the subsidy. The important issue is to structure or phase the reduction rather than have it occur on an ad hoc basis. For example, it makes little sense to decrease the subsidy by the same amount of fee revenues during the first years of a cost recovery program. The facilities will have little incentive to collect fees, and if they do, will have little left over to make quality improvements. Clearly, the trick is to structure the revenue-sharing or subsidy reduction plan so that facilities have a strong incentive to collect fees. The plan can take various forms:

- Delegating specific line items to the facility (e.g., government may decide that it will underwrite the current payroll only);
- Assessing a proportional tax on revenues (e.g., 50 percent to the facility, 25 percent to the MSP, and 25 percent to the MF); the MSP may decide to use its share to reinforce allocations to provide services to low-income groups, and
- Allowing the facility to keep an increasing proportion of revenues (this approach can be implemented in combination with the first approach).

6.7 ADMINISTRATION AND COSTS OF FEE COLLECTION

Most of the hospitals under study here do a poor job of administrating user fees. Billing, collection, and accounting practices are deficient or non-existent. Records of how funds are spent are unavailable. Most facilities, however, have sufficient staff to manage a comprehensive user fee program. Personnel will require some training, and supervision systems will need to be established. In most cases, the costs of strengthening management systems will be minimal.

The costs of means testing are high (as a percentage of revenues) in some facilities because earnings are low and few people are tested. Establishing a

high-performance facility-based targeting mechanism will entail training and supervision costs, but probably not involve the hiring of additional personnel.

Finally, special attention should be given to the timing of collection. The JBG has had some success in requiring deposits for (elective) hospital admissions. Diagnostic services are refused (for out-patients) unless a payment receipt is presented. Collecting from emergency patients and in-patients who are admitted through the emergency room is more problematic. Procedures will need to be established to facilitate payment by emergency patients and their families.

7.0 NEXT STEPS

The MSP is eager to develop a partial cost recovery policy that aims to recoup 25 percent of costs in hospitals. It plans to establish demonstration projects in five to 10 secondary and tertiary-level hospitals in 1994. As evidenced by the simulations, 25 percent cost recovery is an achievable goal. The price structure needed to reach this goal is affordable to most MSP users. With adequate protection of the poor, the prices will be neutral in terms of equity effects. In fact, a strong cost recovery program that aims to improve quality through repairing broken equipment and ensuring adequate stocks of drugs and supplies may reduce out-of-pocket spending (for private goods and services) by low-income MSP clients. Since there is little knowledge of how health workers and MSP clients will react to higher prices, stricter means testing, and enforced payments, however, demonstration projects are highly recommended. The authors also agree with MSP plans to launch these experiments in hospitals since these facilities have the greatest potential for revenue generation. The pilot projects will also provide valuable information for later policy reform. The following are recommended activities that MSP can consider for the preparation and implementation of cost recovery. These actions are not placed in chronological order.

1. *Develop a cost recovery policy*

The policy should address the following elements: price setting, protection of the poor, billing and collection, revenue retention, revenue sharing, management of fee revenues, and quality improvement. At the same time, the MSP should eliminate any ambiguity regarding the legality of user fees by seeking to void Decree 915 and Ministerial Accord 4698, which prohibit user fees. (New legislation should not be necessary because the 1971 Health Code clearly permits charging in government facilities.)

A fee retention scheme will need to be worked out with the MF in order to provide an incentive to facility personnel to collect fees. This may require changes in financial and administrative codes related to the Consolidated Fund. If changing these codes proves impossible, the MSP should explore establishing an arrangement similar to the INHMT. The latter institution is permitted full and rapid access to fee revenues through a special treasury account. Nevertheless, financial codes stipulating deposits of revenues in the Consolidated Fund and legal instruments prohibiting user fees can be circumvented altogether by permitting semi-private community groups (e.g., foundations and *patronatos*) to administer facility-based cost recovery programs.

2. *Develop guidelines to facilitate price setting by facility managers*

Implementation of the pilot projects can proceed even before policies are set. Setting the price structure is a first step. For the facilities in the sample, the modified rate structure, adjusted for inflation, provides a good reference point. For other facilities, however, it is not necessary to conduct an in-depth cost study. In some cases, current prices can be tripled or quadrupled. In others, an exit survey of patients concerning willingness to pay

(for improved services) can provide guidance for rate setting. But cost-based pricing is recommended for the medium and long term. Cost analysis will provide information to facilitate cross-subsidization among hospital services. Most hospitals can estimate direct costs of service departments through financial statements, payrolls, and stockroom registers. Allocating indirect costs will be more troublesome. But simple methodologies can be developed to distribute these costs to direct cost centers (e.g., by using number of personnel as the redistributive statistic; see Annex 2).

3. *Protect the poor*

The MSP should experiment with different options for targeting the poor. Facility-based means testing by social workers, the current *modus operandi*, should be strengthened in hospitals that already possess a cadre of social workers. In hospitals where cost recovery will be implemented for the first time, however, means testing can be removed from the facility and transferred to local authorities or to other government agencies. In other cases, the poor can be protected by providing lower-priced alternatives, such as offering services during off-peak hours or at nearby ambulatory settings.

4. *Develop a decentralization strategy and quality improvement plans for participating facilities*

Resource management at the facility level implies decentralized decision making. At a very minimum, facility managers must have control over how revenues are spent. But the MSP should work toward transferring more responsibilities to facility managers. Ultimately, the facility managers should be granted authority to hire and fire personnel. The MSP can provide expenditure guidelines aimed at improving quality. Each facility should be required to submit a quality improvement plan outlining the areas where funds will be directed. It is important that quality improvements occur before or concurrent with implementation of cost recovery.

5. *Establish efficient fee management procedures*

Training will be required in all facilities to establish or improve billing and collection procedures as well as management of fee revenues. At the same time, facilities should launch a publicity and consumer education campaign informing patients of the new fee levels, the rationale for the increase, how revenues will be used (e.g., quality improvement plans), billing and payment procedures, and the process for requesting exoneration or fee reduction.

ANNEX 1

ANNEX TABLE 1
DIRECT, INDIRECT, AND TOTAL COSTS, 1991
(Sampled Facilities, S/000,000)

FACILITY	DIRECT	INDIRECT	TOTAL
BACA ORTIZ	1,543.4	1,153.8	2,697.2
EUGENIO ESPEJO	2,584.8	946.5	3,531.3
EL SUBURBIO	1,386.4	865.5	2,251.9
ISIDRO AYORA	902.2	542.8	1,445.0
INHMT	1,375.9	187.0	1,562.9
LUIS VERNAZA	3,197.1	1,921.3	5,118.4
ENRIQUE SOTOMAYOR	1,969.2	1,380.9	3,350.1

ANNEX TABLE 2
EXPENDITURES AND COSTS, 1991
(S/000,000)

UNIDAD		SALARIES	BENEFITS	SERVICES	DRUGS AND SUPPLIES	OTHER	TOTAL RECURRENT	CAPITAL	GRAND TOTAL
BACA ORTIZ	EXPENDITURES	886.6	1,236.5	155.4	720.9	0.0	2,999.4	145.1	3,144.5
	COSTS	755.7	1,050.4	154.6	736.5	0.0	2,697.2		
EUGENIO ESPEJO	EXPENDITURES	835.5	1,388.4	81.4	831.8	190.5	3,327.6	42.9	3,370.5
	COSTS	860.5	1,429.4	79.8	1,162.6	0.0	3,532.3		
MAT. I. AYORA	EXPENDITURES	409.8	691.9	47.3	453.9	0.0	1,602.9	16.1	1,619.0
	COSTS	398.0	672.6	47.2	327.4	0.0	1,445.2		
EL SUBURBIO	EXPENDITURES	695.9	1,213.7	120.0	401.6	20.3	2,451.5	52.5	2,504.0
	COSTS	626.6	1,090.4	120.0	415.0	0.0	2,252.0		
LUIS VERNAZA	EXPENDITURES	1,022.3	933.8	579.6	3,170.8	2.3	5,708.8	750.1	6,458.9
	COSTS	889.1	826.8	579.5	2,823.0	0.0	5,118.4		
MAT. E. SOTOMAYOR	EXPENDITURES	707.5	657.8	374.3	2,001.3	1.7	3,742.6	511.2	4,253.8
	COSTS	667.1	620.4	375.6	1,687.1	0.0	3,350.2		
INSTITUTO (PROG II)[1]		338.9	690.8	31.3	315.0	187.0	1,562.9	44.9	1,607.8

NOTE: Expenditures from facility financial ledgers; Costs from costing methodology.
[1]Guayaquil laboratory; costing methodology not applied to this facility. "Other" refer to indirect administrative costs.

ANNEX TABLE 3A
EUGENIO ESPEJO HOSPITAL: COSTS, REVENUES, AND PERCENT COST RECOVERY, 1991
(Sucres and Percent)

SERVICE	UTILIZATION	TOTAL COST	AVERAGE COST	TOTAL REVENUES	PERCENT RECOVERY
TOTAL IN-PATIENT		2,518,165,482		8,467,900	0.3%
BED-DAY[1]	96,467	1,456,520,500	15,099	8,467,900	0.6%
SURGERY	3,674	707,372,994	192,535	NA	0.0%
TOTAL DIAGNOSTIC		346,207,500		14,190,000	4.1%
LABORATORY (EXAM)	196,741	113,405,000	729	7,226,100	5.0%
PATHOLOGY (EXAM)	1,982	30,244,200	15,259	993,700	3.3%
RADIOLOGY (EXAM)	28,877	118,780,600	4,113	4,186,900	3.5%
SONOGRAM (EXAM)	1,116	16,868,200	15,115	780,400	4.6%
CARDIOLOGY (EXAM)[2]	2,990	34,034,500	11,383	930,900	2.7%
TOTAL OUT-PATIENT		666,842,700		251,256	0.0%
OUT-PATIENT (VISIT)	49,850	257,969,100	5,175	251,256	0.1%
EMERGENCY (VISIT)	17,738	270,508,600	15,250	0	0.0%
PHYSICAL THERAPY (VISIT)	102,032	95,915,400	940	0	0.0%
TOTAL HOSPITAL		3,531,215,682		25,533,119	0.7%

Note: Subtotals and total include costs and revenues related to services not displayed in table.
[1] Data exclude operating theater, intensive care, and burn unit.
[2] Cardiogram and encephalogram.
[3] Excludes income of S/10.9 million from fundraising activities.
[4] Income from sale of medicines.

ANNEX TABLE 3B
BACA ORTIZ HOSPITAL: COSTS, REVENUES, AND PERCENT COST RECOVERY, 1991
(Sucres and Percent)

SERVICE	UTILIZATION	TOTAL COST	AVERAGE COST	TOTAL REVENUES	PERCENT RECOVERY
TOTAL IN-PATIENT		1,782,664,900		11,581,700	0.6%
BED-DAY[1]	38,282	1,081,051,428	28,239.2	0.0	0.0%
SURGERY	3,412	355,514,300	104,195.3	11,581,700	3.3%
TOTAL DIAGNOSTIC		359,213,700		25,661,050	7.1%
LABORATORY (EXAM)	386,549	210,790,400	545.3	11,064,000	5.2%
PATHOLOGY (EXAM)	745	18,469,700	24,791.5	504,700	2.7%
RADIOLOGY (EXAM)	23,123	113,554,700	4,910.9	10,925,500	9.6%
SONOGRAM (EXAM)	0	0.0	–	–	–
CARDIOLOGY (EXAM)[2]	1,973	16,398,951	8,311.7	2,668,700	16.3%
TOTAL OUT-PATIENT		555,293,600		0	0.0%
OUT-PATIENT (VISIT)	55,641	124,272,000	2,233.5	0	0.0%
EMERGENCY (VISIT)	13,636	291,084,900	21,346.8	0	0.0%
PHYSICAL THERAPY (VISIT)	20,280	119,614,300	5,898.1	0	0.0%
TOTAL HOSPITAL		2,697,172,200		37,242,750	1.4%

Note: Subtotals and total include costs and revenues related to services not displayed in table.
[1]Data exclude operating theater, intensive care, and burn unit.
[2]Cardiogram and encephalogram.

ANNEX TABLE 3C
EL SUBURBIO HOSPITAL: COSTS, REVENUES, AND PERCENT COST RECOVERY, 1991
(Sucres and Percent)

SERVICE	UTILIZATION	TOTAL COST	AVERAGE COST	TOTAL REVENUES	PERCENT RECOVERY
TOTAL IN-PATIENT		1,398,047,600		16,453,100	1.2%
BED-DAY[1]	38,679	925,343,166	23,923.7	10,495,900	1.1%
SURGERY	2,071	410,101,350	198,020.9	5,957,200	1.5%
TOTAL DIAGNOSTIC		346,230,000		25,598,200	7.4%
LABORATORY (EXAM)	158,265	193,714,600	1,224.0	7,591,400	3.9%
PATHOLOGY (EXAM)	[2]	[2]	--	[2]	--
RADIOLOGY (EXAM)	NA	89,773,900	--	94,193,300	104.9%
SONOGRAM (EXAM)	2,693	NA	--	5,984,300	--
CARDIOLOGY (EXAM)[3]	1,346	NA	--	2,603,200	--
TOTAL OUT-PATIENT		507,667,300		6,962,978	1.4%
OUT-PATIENT(VISIT)	24,764	215,521,000	8,703.0	6,044,033	2.8%
EMERGENCY (VISIT)	66,954	188,666,800	2,817.9	0	0.0%
PHYS. THERAPY (VISIT)	2,346	76,474,500	32,597.8	811,400	1.1%
TOTAL HOSPITAL		2,251,944,900		52,869,207	2.3%

Note:Subtotals and total include costs and revenues related to services not displayed in table.
[1]Data exclude operating theater and intensive care unit.
[2]Included in laboratory.
[3]Cardiogram and encephalogram.

ANNEX TABLE 3D
LUIS VERNAZA HOSPITAL: COSTS, REVENUES, AND PERCENT COST RECOVERY, 1991
(Sucres and Percent)[1]

SERVICE	UTILIZATION	TOTAL COST	AVERAGE COST	TOTAL REVENUES	PERCENT RECOVERY
TOTAL IN-PATIENT		3,299,379,551		83,595,900	2.5%
BED-DAY[2]	222,829	2,253,346,203	10,112.4	80,255,550	3.6%
SURGERY	7,075	764,932,050	108,117.6	NA	0.0%
TOTAL DIAGNOSTIC		858,001,926		232,784,236	27.1%
LABORATORY (EXAM)	406,057	425,779,099	1,049	62,552,700	14.7%
PATHOLOGY (EXAM)	4,271	45,229,245	10,590	2,230,800	4.9%
RADIOLOGY (EXAM)	40,858	349,436,796	8,552	91,357,200	26.1%
SONOGRAM (EXAM)	5,109	NA	–	12,011,300	–
CARDIOLOGY (EXAM)[3]	10,367	11,260,895	1,086	20,530,200	182.3%
TOTAL OUT-PATIENT		552,329,700		132,857,903	24.1%
OUT-PATIENT (VISIT)	56,197	239,783,500	4,266.8	97,266,708[4]	40.6%
EMERGENCY (VISIT)	24,205	270,739,400	11,185.3	35,571,840[5]	13.1%
PHYSICAL THERAPY (VISIT)	50,087	35,164,100	702.1	0.0	0.0%
TOTAL HOSPITAL		4,709,711,177		455,893,494	9.7%

Note: Subtotals and total include costs and revenues related to services not displayed in table.
[1] Data refer to services provided to "general" or non-private patients only.
[2] Data exclude operating theater and intensive care unit.
[3] Cardiogram and encephalogram.
[4] Sale of medicines.
[5] Sale of orthopedic supplies.

ANNEX TABLE 3E
ISIDRO AYORA MATERNITY HOSPITAL: COSTS, REVENUES, AND PERCENT COST RECOVERY, 1991
(Sucres and Percent)

SERVICE	UTILIZATION	TOTAL COST	AVERAGE COST	TOTAL REVENUES	PERCENT RECOVERY
TOTAL IN-PATIENT		1,169,027,378		45,177,409	3.9%
BED-DAY: GINOB[1]	79,892	369,137,255	4,620.5	0.0	0.0%
BED DAY: NEONATAL UNIT[1]	13,291	312,878,806	23,540.7	19,132,145.0	6.1%
SURGERY	6949	243,157,148	34,991.7	20,865,116	8.6%
BIRTHING ROOM[2]	11,783	243,854,169	20,695.4	5,180,148.0	2.1%
TOTAL DIAGNOSTIC		113,653,791		27,003,200	23.8%
LABORATORY (EXAM)	130,642	73,029,200	559.0	7,577,600.0	10.4%
BLOOD BANK (UNITS)	NA	1,388,900	–	NA	0.0%
PATHOLOGY (EXAM)	2,433	13,621,000	5,598.4	1,194,700.0	8.8%
RADIOLOGY (EXAM)	2,772	14,333,700	5,170.9	1,023,900.0	7.1%
SONOGRAM (EXAM)	13,100	11,281,100	861.2	17,058,800.0	151.2%
CARDIOLOGY (EXAM)	255	NA	–	NA	–
TOTAL OUT-PATIENT		162,359,000		291,352	0.2%
OUT-PATIENT (VISIT)	28,916	95,960,500	3,318.6	0.0	0.0%
EMERGENCY (VISIT)	26,358	51,683,700	1,960.8	0.0	0.0%
TOTAL HOSPITAL		1,445,040,169		72,471,961	5.0%

Note: Subtotals and total include costs and revenues related to services not displayed in table.
[1] Excludes operating theater, birthing room, and diagnostics.
[2] Utilization includes number of births and (.5 X number of abortions).
[3] Excludes S/23 million in income from fundraising activities.

ANNEX TABLE 3F
ENRIQUE SOTOMAYOR MATERNITY HOSPITAL:
COSTS, REVENUES, AND PERCENT COST RECOVERY, 1991
(Sucres and Percent)[1]

SERVICE	UTILIZATION	TOTAL COST	AVERAGE COST	TOTAL REVENUES	PERCENT RECOVERY
TOTAL IN-PATIENT		2,555,434,247		326,110,700	12.8%
BED-DAY: GINOB[2]	82,581	958,488,542	11,606.6	0	0.0%
BED DAY: NEONATAL UNIT[3]	11,797	488,336,004	41,394.9	13,083,500	2.7%
SURGERY	4,935	285,896,913	57,932.5	20,978,000	7.3%
BIRTHING ROOM	[3]	683,828,499		292,049,200	42.7%
TOTAL DIAGNOSTIC		314,187,842		225,763,050	
LABORATORY (EXAM)	347,977	137,083,702	393.9	45,583,900	33.3%
BLOOD BANK (UNITS)	204,440	73,492,380	359.5	132,810,400	180.7%
PATHOLOGY (EXAM)	13,593	32,163,502	2,366.2	9,532,000	29.6%
RADIOLOGY (EXAM)	11,958	41,957,174	3,508.7	4,043,400	9.6%
SONOGRAM (EXAM)	9,555	26,499,984	2,773.4	31,160,300	117.6%
CARDIOLOGY (EXAM)	--	2,991,100	--	375,700	12.6%
TOTAL OUT-PATIENT		131,804,300		33,923,187	25.7%
OUT-PATIENT/ EMERGENCY (VISIT)	63,279	95,825,500	1,514.3	33,923,187	35.4%
TOTAL		3,001,426,389		605,772,957	20.2%

Note: Subtotals and total include costs and revenues related to services not displayed in table.
[1] Data refer to services provided to "general" or non-private patients only.
[2] Excludes data on operating theater, birthing rooms, intensive care unit, and cholera ward.
[3] Normal births (16,376), c-sections (6,915), and abortions performed.
[4] Revenues from sale of medicines and medical supplies.

ANNEX TABLE 3G
LUIS VERNAZA HOSPITAL: PRIVATE WARDS COSTS, REVENUES, AND PERCENT COST RECOVERY, 1991
(Sucres and Percent)

SERVICE	UTILIZATION	TOTAL COST	AVERAGE COST	TOTAL REVENUES	PERCENT RECOVERY
TOTAL IN-PATIENT		408,719,704.2		411,205,400.0	100.6%
BED-DAY[1]	9,654	169,863,895	17,595.2	348,455,400	205.1%
SURGERY	1,255	238,855,809	190,323.4	62,750,000	26.3%
DIAGNOSTICS (IN-PATIENT)		8,173,565	--	[4]	--
LABORATORY (EXAM)	4,369	4,581,201	1,049	[4]	--
PATHOLOGY (EXAM)	34	360,055	10,590	[4]	--
RADIOLOGY (EXAM)	366	3,130,204	8,552	[4]	--
SONOGRAM (EXAM)	64	NA	0	[4]	--
CARDIOLOGY (EXAM)[4]	94	102,105	1,086	[4]	--

[1] Data exclude operating theater and intensive care unit. Total revenues include costs of and earnings from diagnostic tests.
[2] 1990.
[3] Revenues estimated from fixed fees.
[4] Break-down of earnings were unavailable. Revenues included in total.
[5] Cardiogram and encephalogram.

ANNEX TABLE 3H
ENRIQUE SOTOMAYOR HOSPITAL: PRIVATE WARDS
COSTS, REVENUES, AND PERCENT COST RECOVERY, 1991
(Sucres and Percent)

SERVICE	UTILIZATION	TOTAL COST	AVERAGE COST	TOTAL REVENUES	PERCENT RECOVERY
TOTAL IN-PATIENT		331,093,298		340,996,465	103.0%
BED-DAY: GINOB[1]	5239	100,493,699	19,181.8	132,464,155	131.8%
BED-DAY: PEDIATRICS[1]	749	32,071,900	42,819.6	27,593,105	86.0%
SURGERY/BIRTH-ING ROOM	[2]	198,527,699	--	180,939,205	91.1%
TOTAL DIAGNOSTICS		17,435,458		11,348,600	65.1%
LABORATORY (EXAM)	18,315	7,215,098	393.9	4,540,700	62.9%
BLOOD BANK (UNITS)	22,715	8,165,620	359.5	NA	--
PATHOLOGY (EXAM)	278	657,798	2,366.2	503,800	76.6%
RADIOLOGY (EXAM)	244	856,126	3,508.7	2,276,400	265.9%
SONOGRAM (EXAM)	195	540,816	2,773.4	863,300	159.6%
OTHER[3]				93,604,051	
TOTAL		348,528,756		445,949,112	128.0%

[1] Excludes operating theater and birthing rooms.
[2] Normal births, c-sections, and abortions.
[3] Revenues from sales of medicines, medical materials, special exams, ambulance.

ANNEX TABLE 4A (2 pages)

VOLUME OF PATIENTS AND LOSS EARNING BY PAYMENT CATEGORY, 1991

(Surgery/maternity Services)[1]

FACILITY/SERVICE	TOTAL	NUMBER OF PATIENTS[2]				AVERAGE BILL (E)	REVENUES FROM MEANS TESTED PATIENTS (F)	AMOUNT AND % OF REVENUES ESTIMATED LOSS DUE TO:		
		ESCAPED (A)	EXON. (B)	DISCOUNT. (C)	FULL PAY (D)			MEANS TEST ((B + C)E)-F	FLIGHT (AxE)	REVENUES
ISIDRO AYORA										
NORMAL BIRTHS	10,551	6,663	92	49	3,747	5,082	90,500	626,062	33,861,366	19,132,754
C-SECTIONS	3,108	1,886	88	148	986	16,088	756,500	3,040,268	30,341,968	16,619,268
ABORTIONS	2,464	1,601	60	8	795	5,280	11,500	347,540	8,453,280	3,716,801
MAJOR SURGERY	279	0	81	133	65	31,464	1,674,700	5,058,595	0	3,719,860
TOTAL	16,402	10,150	321	338	5,593	--	2,533,200	9,072,466	72,656,614	43,188,683
PERCENT	100%	62%	2%	2%	34%	--	--	21%	168%	100%
ENRIQUE SOTOMAYOR										
NORMAL BIRTHS	16,376	5,092	0	7,518	3,766	17,112	80,134,500	48,513,516	87,134,304	144,578,292
C-SECTIONS	6,915	1,550	0	4,092	1,273	28,612	75,949,800	41,130,504	44,348,600	112,372,876
ABORTIONS	2,505	0	0	2,430	75	16,289	26,193,300	13,388,970	0	29,213,800
STERILIZATIONS	1,872	173	0	1,656	43	14,460	5,254,200	18,691,560	2,501,580	5,875,980
MAJOR SURGERY	1,177	463	0	714	0	34,652	12,656,400	12,085,128	16,043,876	10,633,600
TOTAL	28,845	7,278	0	16,410	5,157	--	--	133,809,678	150,028,360	302,674,548
PERCENT	100%	25%	0%	57%	18%	--	--	44%	50%	100%

ANNEX TABLE 4A (2 pages)
VOLUME OF PATIENTS AND LOSS EARNING BY PAYMENT CATEGORY, 1991
(Surgery/maternity Services)[1]

FACILITY/SERVICE	TOTAL	NUMBER OF PATIENTS[2]				AVERAGE BILL (E)	REVENUES FROM MEANS TESTED PATIENTS (F)	AMOUNT AND % OF REVENUES ESTIMATED LOSS DUE TO:		
		ESCAPED (A)	EXON. (B)	DISCOUNT. (C)	FULL PAY (D)			MEANS TEST ([B+C]E)-F	FLIGHT (AxE)	REVENUES
BACA ORTIZ										
SURGERY	3,412	1,924	78	144	1,266	8,792	453,000	1,498,824	16,915,808	11,581,700
PERCENT	100%	56%	2%	4%	37%	--	--	13%	146%	100%
LUIS VERNAZA										
SURGERY[3]	2,160	180	66	1,908	6	33,500	25,476,007	40,652,993	6,030,000	25,677,007
PERCENT	100%	8%	3%	88%	0%	--	--	158%	23%	100%

[1] Based on sample of billing and payment ledgers, and social worker records for surgery/maternity patients
Isidro Ayora: 2 months; Enrique Sotomayor: 6 months; Baca Ortiz: 2 months; Luis Vernza: 2 months.
[2] Distribution inferred from sample.
[3] Sample based on 5 (of 15) surgical wards. Inferred to these wards only.

ANNEX TABLE 4B (small)
VOLUME OF PATIENTS AND LOSS EARNING BY PAYMENT CATEGORY, 1991
(Selected Diagnostics)[1]

FACILITY/SERVICE	TOTAL	NUMBER OF PATIENTS[2]				AVERAGE BILL (E)	REVENUES FROM MEANS TESTED PATIENTS (F)	AMOUNT AND % OF REVENUES ESTIMATED LOSS DUE TO:		
		ESCAPED (A)	EXON. (B)	DISCOUNT. (C)	FULL PAY (D)			MEANS TEST ((B + C)E)-F	FLIGHT (AxE)	REVENUES
BACA ORTIZ										
ENCEPHALOGRAM	1,321	125	42	66	1,088	2,000[3]	72000	144,000	250,000	2,248,000
CARDIOGRAM	652	360	12	0	280	1,500[3]	0	18,000	540,000	420,000
TOTAL	1,973	485	54	66	1,368	--	--	162,000	790,000	2,668,000
PERCENT	100%	25%	3%	3%	69%	--	--	6%	30%	100%
LUIS VERNAZA[3]										
RADIOLOGY (1990)	18,240	0	2,868	15,372	0	10,279	5,051,699	182,437,261	0	60,620,388
LABORATORY (1990)	8,713	0	744	7,968	1	4,024	1,253,857	33,803,231	0	15,069,084
TOTAL	26,953	0	3,612	23,340	1	--	--	216,240,492	0	75,689,472
PERCENT	100%	0%	13%	87%	0%	--	--	286%	0%	100%
EUGENIO ESPEJO										
ENCEPHALOGRAM	360	99	36	12	213	2,000[3]	12,000	84,000	198,000	437300
CARDIOGRAM	2,630	1,336	60	0	1,234	4,00[3]	0	24,000	534,400	493600
TOTAL	2,990	1,435	96	12	1,447	--	--	108,000	732,400	930,900
PERCENT	100%	48%	3%	0%	48%	--	--	12%	79%	100%

ANNEX TABLE 4B (small)
VOLUME OF PATIENTS AND LOSS EARNING BY PAYMENT CATEGORY, 1991
(Selected Diagnostics)[1]

FACILITY/SERVICE	TOTAL	NUMBER OF PATIENTS[2]				AVERAGE BILL (E)	REVENUES FROM MEANS TESTED PATIENTS (F)	AMOUNT AND % OF REVENUES ESTIMATED LOSS DUE TO:		
		ESCAPED (A)	EXON. (B)	DISCOUNT. (C)	FULL PAY (D)			MEANS TEST ((B + C)E)-F	FLIGHT (AxE)	REVENUES
ISIDRO AYORA										
SONOGRAM	13,100	9,433	112	22	3,533	3,299	38,500	403,566	31,119,467	17,058,800
PERCENT	100%	72%	1%	0%	27%	--	--	2%	182%	100%
ENRIQUE SOTOMAYOR										
SONOGRAM	9,555	2,295	0	7,260	0	9,226	32,369,640	34,611,120	21,173,670	31,160,250
PERCENT	100%	24%	0%	76%	0%	--	--	111%	68%	100%

[1] Based on sample of billing and payment ledgers, and social worker records for surgery/maternity patients
Isidro Ayora: 2 months; Enrique Sotomayor: 6 months; Baca Ortiz: 2 months; Luis Vernza: 1 month.
[2] Typical fee.
[3] Inferred for 1990.

ANNEX TABLE 5 (2 pages)
ESTIMATED COST OF MEANS TESTING, BILLING, AND COLLECTION OF USER FEES:
BY CATEGORY AND AS PERCENT OF REVENUES, 1991
(Sucres)

FACILITY/ COST CATEGORY	PERSONNEL	SUPPLIES	INDIRECT	TOTAL	REVENUES	COSTS AS % REVENUES
EUGENIO ESPEJO						
Means Testing[1]	32,990,894	7,659,590	7,811,025	48,461,509		
Billing and Collection	5,163,060	1,225,660	–	6,388,720		
Total	38,153,954	8,885,250	7,811,025	54,850,229	25,333,000	217%
SUBURBIO						
Means Testing[2]	13,423,434	6,202,200	3,842,730	23,468,364		
Billing and Collection	9,740,700	740,839	–	10,481,539		
Total	23,164,134	6,943,039	3,842,730	33,949,903	52,869,100	64%
BACA ORTIZ						
Means Testing[2]	16,235,748	225,357	6,406,668	22,867,773		
Billing and Collection	3,126,120	2,027,712		5,153,832		
Total	19,361,868	2,253,069	6,406,668	28,021,605	37,242,700	75%
INHMT						
Means Testing[3]	912,000	NA	NA	912,000		
Billing and Collection	4,248,000	NA	NA	4,248,000		
Total	5,160,000	0	0	5,160,000	57,539,318	9%
ISIDRO AYORA						
Means Testing[4]	8,986,752	55,591	5,694,840	14,[illegible]7,183		
Billing and Collection	7,129,845	807,[illegible]27	–	7,937,272		
Total	16,116,597	863,018	5,694,840	22,674,455	72,471,846	31%

ANNEX TABLE 5 (2 pages)
ESTIMATED COST OF MEANS TESTING, BILLING, AND COLLECTION OF USER FEES:
BY CATEGORY AND AS PERCENT OF REVENUES, 1991
(Sucres)

FACILITY/ COST CATEGORY	PERSONNEL	SUPPLIES	INDIRECT	TOTAL	REVENUES	COSTS AS % REVENUES
LUIS VERNAZA (non-private)						
Means Testing[2]	66,576,402	2,774,886	18,682,988	88,034,276		
Billing and Collection	11,690,000	–	6,646,950	18,336,950		
Total	78,266,402	2,774,886	25,329,938	106,371,226	455,893,494	23%
(private)						
Billing and Collection	5,070,895	489,686	5,273,048	10,833,629	411,205,400	3%
ENRIQUE SOTOMAYOR (non-private)						
Means Testing[2]	25,467,460	3,541,898	16,742,482	45,751,840		
Billing and Collection	18,703,923	–	8,275,950	26,979,873		
Total	44,171,383	3,541,898	25,018,432	72,731,713	605,772,562	12%
(private)						
Billing and Collection	5,430,171	1,028,293	2,402,695	8,861,159	445,949,112	2%

NOTE: Based on records, interviews, and observations.
[1] 70 percent of social worker time charged to means testing.
[2] 90 percent of social worker time charged to means testing.
[3] 100 percent of social worker time charged to means testing.
[4] 80 percent of social worker time charged to means testing.

ANNEX 2

ANNEX 2

COST ANALYSIS METHODOLOGY

This study employed a cost-finding methodology to estimate both direct and indirect costs. This method involves two major activities: (1) analyzing total expenses for each hospital department; and, (2) allocating expenditures from non-treatment departments (e.g., indirect cost centers) to departments that provide treatment to patients (e.g., direct cost centers). The indirect centers also are known as non-revenue producing centers (in private settings) since patients are not billed for these services. Similarly, a direct cost center provides services which can produce revenues (e.g., bed-day charge). The following are brief summaries of the steps used in the cost analysis:

1. *Identification of Departments*

Based on organizational charts and intra-hospital supply ledgers maintained by pharmacies and central stores, the HFS team classified all facility departments as either a direct or indirect cost centers. The former consisted of the in-patient wards (surgical, non-surgical, intensive care, and maternity), operating theater, birthing rooms, diagnostic departments, out-patient, and emergency. The latter contain support services such as laundry, general administration, linen repairs, nurse administration, etc.

2. *Identification of Expenses By Cost Center*

Since all facilities lacked an accounting system that accurately accumulated financial data by department or cost center, the investigators developed data collection methods to assess departmental costs by major expenditure category. The team did not rely on budgeted outlays. Rather, the cost analysis is derived from real spending on working staff (e.g, excluding vacancies), contracted services, and on drugs and supplies. Descriptions of data collection methods follow.

Personnel: The number and salaries of all facility personnel were obtained from the facility payroll for July 1991. Based on information supplied by personnel departments, together with interviews with staff from each department, the team determined where each employee actually worked and the number of hours assigned. In a number of cases, employees were assigned to two or more departments. This was particularly the case for physicians.

Salary expenditures by department were derived from the real salary for each staff member rather than from average salaries. This task was facilitated by the general lack of salary variation among categories of personnel. For example, a physician with 10 years of experience earned the same wage as a recent graduate. Service chiefs earn higher salaries, however. The MSP adjusted salaries for inflation in September 1991. To increase precision, a weighted average salary was generated for each employee.

Services: These expenditures were insignificant in terms of total spending. Major expenditures included utilities and service contracts. All utilities were assigned to Plant Operations while service contracts were allocated to Maintenance Department. Accounting ledgers were the source of these data.

Supplies: No facility maintained records of spending on drugs, medical supplies, and non-medical supplies by department. Central stores and pharmacies, however, registered the name and number of items dispatched to each department (and ward) on a daily basis, including the presentation and concentration of each drug. Total per department spending was estimated based on six-month samples of these registers (every other month). Prices paid for each item were obtained from facility purchasing departments. For the JBG, the Central Accounting Department supplied unit price information. An attempt was made to obtain mid-year prices.

3. *Allocation of Indirect Costs to Direct Cost Centers*

Many expenses are not incurred directly by cost centers, rather, they are shared. For example, the laundry provides services to a number of departments (e.g, operating theater, in-patient wards, maintenance department, kitchen, etc.). The cost of provided these services to other cost centers must be estimated. This is done by prorating the costs through non-financial data. Non-financial data can include: number of meals served, number of personnel per cost center, pounds of laundry washed, number of patients served, and so on. The following are the statistics used to allocate the indirect costs:

General Administration:	No. of staff per department
Laundry/Linen Repair:	No. of kilos washed per department
Kitchen:	No. of employees and No. of bed-days: all hospitals provide meals to employees
Maintenance:	No. of staff per department
Plant Operations:	No. of staff per department
Pharmacy:	Distribution of medicines per department
Cleaning:	No. staff per department
Transport:	Equal allocation to general administration and emergency
Central Stores:	Distribution of materials per department
Nurse Administration:	Nurse staff per department
Resident Service:	Resident staff per department
Social Worker:	Distribution of fee revenues

It is important to note that non-standard allocation statistics were used for three departments (e.g., plant operations, cleaning, and maintenance). For these departments, square footage is the appropriate allocation statistic, but this information was unavailable. Staff is a reasonable proxy for these type of services, assuming that variation in spending on the activities performed by these departments corresponds to the number of personnel.

This study used a double apportionment method to allocate indirect costs to direct cost centers. The method involves two distributions. First, costs of indirect costs centers are distributed to each other and to direct cost centers. For example, central administration provides services to the laundry (an indirect center) and to the laboratory (a direct cost center). The second distribution consists of redistributing all costs of the indirect centers to the direct centers using the same allocation statistic (e.g., pounds of laundry). Essentially, this method reflects inter-departmental exchanges between indirect service centers before costs are finally distributed to direct service departments.

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