

Technical Report No. 15

---

**A Feasibility  
Analysis of  
Franchising the  
PROSALUD/Bolivia  
Primary Health  
Care Service  
Delivery Strategy in  
Lusaka, Zambia**

*November 1998*

*Prepared by:*

**Jack Fiedler, Ph.D.**  
Consultant  
Abt Associates Inc.

**Ann Levin, M.P.H., Ph.D.**  
University Research Co., LLC

**Dennis Mulikelela, M.P.H.**  
Department of Economics  
University of Zambia



Partnerships  
for Health  
Reform



Abt Associates Inc. # 4800 Montgomery Lane, Suite 600  
Bethesda, Maryland 20814 # Tel: 301/913-0500 # Fax: 301/652-3916

*In collaboration with:*

Development Associates, Inc. # Harvard School of Public Health #  
Howard University International Affairs Center # University Research Co., LLC



*Funded by:*  
U.S. Agency for International Development





Partnerships  
for Health  
Reform

## Mission

*The Partnerships for Health Reform (PHR) Project seeks to improve people's health in low- and middle-income countries by supporting health sector reforms that ensure equitable access to efficient, sustainable, quality health care services. In partnership with local stakeholders, PHR promotes an integrated approach to health reform and builds capacity in the following key areas:*

- ▲ *Better informed and more participatory policy processes in health sector reform;*
- ▲ *More equitable and sustainable health financing systems;*
- ▲ *Improved incentives within health systems to encourage agents to use and deliver efficient and quality health service; and*
- ▲ *Enhanced organization and management of health care systems and institutions to support specific health sector reforms.*

*PHR advances knowledge and methodologies to develop, implement, and monitor health reforms and their impact, and promotes the exchange of information on critical health reform issues.*

## November 1998

### Recommended Citation

Fiedler, Jack, Ann Levin, and Dennis Mulikelela. November 1998. *A Feasibility Analysis of Franchising the PROSALUD/Bolivia Primary Health Care Service Delivery Strategy in Lusaka, Zambia*. Technical Report No. 15. Bethesda, MD: Partnerships for Health Reform Project, Abt Associates Inc.

For additional copies of this report, contact the PHR Resource Center at [PHR-InfoCenter@abtassoc.com](mailto:PHR-InfoCenter@abtassoc.com) or visit our website at [www.phrproject.com](http://www.phrproject.com).

**Contract No.:** HRN-C-00-95-00024  
**Project No.:** 936-5974.13

**Submitted to:** USAID/Lusaka

and: Robert Emrey, COTR  
Health Policy and Sector Reform Division  
Office of Health and Nutrition  
Center for Population, Health and Nutrition  
Bureau for Global Programs, Field Support and Research  
United States Agency for International Development



---

# Abstract

This study analyzes the feasibility of using Bolivia's PROSALUD-style franchising to improve the delivery of primary health care services to low-income people in Zambia. A key element is using unsalaried doctors who agree to split their fees with the clinic network in exchange for the use of a consulting room, large patient volume, and marketing and management support. The assessment conducted simulations of the impact of changes in PROSALUD's structure, including combining different levels of charges and paying doctors' salaries. The approach appears applicable to Lusaka if adapted to local conditions. Establishment requires a large initial subsidy for investments; the subsidy eventually will diminish to cover only a small operating cost gap. Indicators to monitor include: costs and prices of services, quality of care, and utilization. A PROSALUD-like approach may have significant indirect impacts in terms of increasing access, utilization, and quality of care, as well as direct effects in providing a large volume of quality services.



---

# Table of Contents

Acronyms .....	ix
Acknowledgments .....	xi
Executive Summary .....	xiii
1. Introduction .....	1
1.1 Introduction .....	1
1.2 Defining Franchising and the Scope of the Study .....	1
1.3 Franchising and the Health Sector of Zambia—Antecedents .....	2
1.3.1 A Brief Description of the PROSALUD Model .....	2
1.3.2 Adopting Elements of PSI’s Approach and Simulation Model .....	5
1.3.3 Questioning Some of PSI’s Assumptions and Parameters .....	5
1.4 Some Differences Between Bolivia and Zambia .....	6
1.5 Getting Zambian Market-Specific: The Selection of Lusaka as the Franchising Site .....	7
1.6 Organization of the Study .....	7
2. Methodology of the Study .....	9
2.1 Introduction .....	9
2.2 Sources of Data .....	9
2.3 Methods of Analysis .....	10
2.3.1 An Overview of the PROSALUD Financial Simulation/Break-Even Spreadsheet .....	11
2.4 Projecting the General Level of Service Delivery and the Mix of Services ...	11
2.5 Estimating the Cost of Providing Care .....	12
2.6 Estimating Revenues .....	12
3. An Analysis of the Health Care Market of Lusaka .....	13
3.1 Introduction .....	13
3.2 Health Care Utilization Rates .....	13
3.2.1 Institutional Sources .....	14
3.2.2 Provider Type Sources of Care .....	14
3.3 Utilization of Services by Age and Gender .....	14
3.4 Monthly Household Health Care Expenditures .....	18
3.5 Medical Consultation Expenditures in Lusaka .....	19
3.5.1 Free Care and Fee Exemption Status .....	19
3.5.2 Payment Levels .....	19
3.6 Prepayment Schemes .....	20
3.7 Effects of Facility Price on Choice of Provider .....	20
3.8 A Summary of the Implications of the Consumer Demand Findings for the Feasibility of the Franchising Model .....	22
3.9 A Closer, More Qualitative Look at the Lusakan Private, For-Profit Sector: Identifying Some Important Components of a	

	ZAMHEALTH Market Strategy .....	22
	3.9.1 ZAMHEALTH’s Private Sector Competitors—Numbers and Types of Private Practices .....	22
	3.9.2 Employer-Sponsored Care and Private Clinic Membership Schemes .....	23
	3.9.3 Current Market Dynamics: The Changing Nature and Significance of Membership Schemes .....	25
	3.9.4 Further Refining the Taxonomy of Private Sector Providers: Positioning ZAMHEALTH in the Market .....	26
	3.9.5 Evidence of a Demand-Constrained System: The Private Sector’s Capacity Utilization and Its Implications for ZAMHEALTH’s Doctor Strategy .....	27
3.10	A Summary of the Implications of the Market Analysis Findings for the Feasibility of the Franchising Approach .....	29
4.	Crafting a Niche for ZAMHEALTH within the Lusaka Health Care Market .....	31
	4.1 Introduction .....	31
	4.2 The Target Population’s Utilization Rate .....	32
	4.3 The Mix of Services and the Multiplier .....	32
	4.4 The Cost of Care .....	34
	4.4.1 Clinic Staffing .....	34
	4.4.2 Variable Medical Care Costs .....	35
	4.5 Care Provided Free-of-Charge .....	40
	4.6 The Prices of Care .....	40
	4.7 Clinical Officers Versus Doctor Providers: Recasting the Issue as a Market Niche Consideration .....	41
	4.8 Provisional Clinic-Site Selection: Criteria, Application, and Preliminary Results .....	43
5.	Assessing the Feasibility of Franchising the PROSALUD/Bolivia Model in Lusaka: The Break-Even Analysis .....	47
	5.1 Final Specification of the Nature of the Network Modeled: Additional Details and Assumptions .....	47
	5.2 The Simulation Results .....	48
	5.2.1 The Base Scenario Results .....	48
	5.2.2 Sensitivity Analysis: Investigating 17 Alternative Scenarios Based on Modifications of Key Assumptions .....	54
	5.2.2.1 Testing the Significance of the Estimated Level of Demand .	60
	5.2.2.2 Investigating the Level and Significance of Free Indigent Care .....	60
	5.2.2.3 Testing the Significance of the Fee-Splitting Doctors and the Potential Role of Clinical Officers .....	61
	5.2.2.4 Testing the Significance of the Price Levels .....	62
6.	Conclusions .....	65
	Bibliography .....	67

---

## List of Tables

Table 1. Key Characteristics of the PROSALUD Model .....	4
Table 2. The PROSALUD Multiplier .....	11
Table 3 . Percent of Children using Health Care by Age and Income .....	15
Table 4. Illness Patterns and Use of Health Services by Income Quintile .....	16
Table 5. Forms of Payment for Adult Curative Services .....	17
Table 6. Coefficients of Regression Analysis of Choice of Provider by Adults (N=846) .....	20
Table 7. Marginal Effects .....	21
Table 8. Coefficients of Regression Analysis of Choice of Child Curative Care Provider (N=926) .....	21
Table 9. A Taxonomy of the Private Clinics Most Similar to ZAMHEALTH: Key Characteristics .....	26
Table 10. Health Status and Consultation Rates by Income Quintile .....	32
Table 11. Lusaka Urban Health District Service Mix Multiplier .....	33
Table 12. Common Treatment Protocols, Costs and Prices for the Most Prevalent Curative Care Problems (in 1997 Kwacha, unless indicated otherwise) .....	36
Table 13. The Estimated Total Cost of Materials for an Average (Birth Canal) Delivery (in 1997 Kwacha, unless indicated otherwise) .....	37
Table 14. Ante-Natal Visit: Treatment Protocol and Cost (in 1997 Kwacha, unless indicated otherwise) .....	37
Table 15. Laboratory Tests: Required Consumable Materials and Costs (in 1997 Kwacha, unless indicated otherwise) .....	38
Table 16. Calculation of the Average Laboratory Test Cost (in 1997 Kwacha unless indicated otherwise) .....	39
Table 17. Amount Paid by Those Who Paid Directly for Their Care by Income Quintile .....	40
Table 18. The Provision of Free-of-Charge Public Health Services by a Private Health Centre in Lusaka, 1997 .....	42

Table 19. Lusaka Urban District Annual Average Number of Attendances per Person in the Center’s Catchment Area .....	44
Table 20. Relative Rankings of the Nine Potential Franchise Clinic Sites .....	45
Table 21. Key Findings from the CSO Household Survey in the Nine Potential ZAMHEALTH Clinic Site Compounds .....	46
Table 22. Summary of the Financial Analysis (Base Scenario) (Present Value, US\$) .....	50
Table 23. Annual Costs and the Required Annual and Cumulative Subsidy (Base Scenario) .....	52
Table 24. Average Cost per Person Covered, per Person Served, and per Visit (Base Scenario) (Present Value, Current US\$) .....	53
Table 25. The Cost of Franchising the PROSALUD/Bolivia Primary Health Care Network in Lusaka, Zambia: Alternative 10-Year Scenarios—Focus: The Level of Market Share (Demand) .....	55
Table 26. The Cost of Franchising the PROSALUD/Bolivia Primary Health Care Network in Lusaka, Zambia: Alternative Ten-Year Scenarios—Focus: Indigent Care .	56
Table 27. The Number of Risk-Sharing Doctors Required by Project Year and Type of Doctor .....	56
Table 28. The Cost of Franchising the PROSALUD/Bolivia Primary Health Care Network in Lusaka, Zambia: Alternative Ten-Year Scenario Focus: Risk-Sharing Physicians versus Paid Physicians versus Paid Clinical Officers .....	57
Table 29. The Cost of Franchising the PROSALUD/Bolivia Primary Health Care Network in Lusaka, Zambia: Alternative 10-Year Scenarios .....	58
Table 30. The Cost of Franchising the PROSALUD/Bolivia Primary Health Care Network in Lusaka, Zambia: Alternative 10-Year Scenarios .....	59

---

## List of Figures

Figure 1. Source of Child Health Care by Income Quintile .....	16
Figure 2 . Health Facility Utilization by Sex .....	18

---

# Acronyms

<b>CO</b>	Clinical Officer
<b>CMAZ</b>	Churches Medical Association of Zambia
<b>CSO</b>	Central Statistical Office
<b>GRZ</b>	Government of the Republic of Zambia
<b>GP</b>	General Practitioner
<b>HMO</b>	Health Maintenance Organization
<b>LCMS</b>	Living Conditions Monitoring Survey
<b>MCZ</b>	Medical Council of Zambia
<b>MEP</b>	Monitoring, Evaluation, and Planning System
<b>MSU</b>	Management Support Unit
<b>MOH</b>	Ministry of Health
<b>NGO</b>	Non-Governmental Organization
<b>ODA</b>	Overseas Development Administration (UK)
<b>PHR</b>	Partnerships for Health Reform
<b>PSI</b>	Population Services International, Inc.
<b>USAID</b>	United States Agency for International Development
<b>ZCCM</b>	Zambia Consolidated Copper and Mines

## Exchange Rates

October 1996 (LCMS data collected): US\$ 1.00=1,100 Kwacha

June-July 1997 (data collected for this analysis): US\$ 1.00=1,275 Kwacha



---

# Acknowledgments

The first round of analyses and writing for this paper were conducted by Jack Fiedler and Dennis Mulikelela during 1997. Additional analyses and writing were conducted by Ann Levin, with contributions from Sujata Ram, to further complete the paper during 1998. The authors thank Dr. Marty Makinen for his thorough review.



---

# Executive Summary

This study assesses the feasibility of franchising the business technology of PROSALUD/Bolivia to develop a network of largely self-financing, primary health care clinics in Lusaka, Zambia. In Zambia, this kind of network would be called ZAMHEALTH. This study grew out of work that Population Services International (PSI) has done over the course of the past two years. At the request of the Government of the Republic of Zambia, PSI reviewed franchising experiences in the health sector that had identified PROSALUD as a model worthy of emulation. Then, working with PROSALUD, PSI devised a specific franchising arrangement to improve the delivery of primary health care services to low-income people in Zambia, developed an implementation plan for that arrangement, and conducted a feasibility assessment of it. This included the use of a financial simulation spreadsheet developed by PROSALUD.

The centrally funded United States Agency for International Development (USAID) Partnerships for Health Reform (PHR) Project was asked by USAID/Zambia to review PSI analysis. While generally positive, that review raised a number of important concerns about the structure and operations of the proposed franchising arrangement. The major concerns generally shared a common theme: PROSALUD-specific parameters—developed from its Bolivian-based experience—were frequently adopted with inadequate attention to how important it might be to modify those parameters to better fit the different conditions of Zambia. USAID/Zambia subsequently requested PHR to conduct an independent analysis of using PROSALUD-style franchising to improve the delivery of primary health care services to low income people in Zambia. This report presents that analysis.

---

## The PROSALUD Strategy

PROSALUD is a patient-focused, primary health care delivery system distinguished by its capability to provide a high volume of high-quality services and to do so with high levels of efficiency, self-financing, and patient satisfaction. PROSALUD's more than 300 employees annually provide more than half a million health care services to a population of a quarter of a million Bolivians in its 30 clinics and small referral hospital. PROSALUD provides all preventive services, roughly half of all of its care, entirely free-of-charge and charges relatively low prices—prices that are only slightly higher than those levied by Ministry of Health facilities—for its curative care services. In addition, roughly 10 percent of all of the curative care provided by PROSALUD is provided free-of-charge to the poor. PROSALUD is approximately 75 percent self-financing. That is, PROSALUD pays for approximately three-quarters of all of the expenses of its clinics, its hospital, and its regional and central management support units primarily through fees it charges and collects for the health care services it provides.

PROSALUD is administered by a management support unit (MSU), which oversees system development, marketing, planning and overall system management, including the hiring and training of personnel, and the purchase and distribution of drugs and other supplies. The two foremost critical elements of PROSALUD's well-documented and institutionalized management system are (1) its development and reliance upon a data-driven monitoring, evaluation, and planning (MEP) system and (2) its personnel recruitment criteria, process, and training. Key

among the PROSALUD cost-containment strategies is its reliance on doctors who are not paid a salary, but instead agree to split their fees with PROSALUD in exchange for being provided with the use of a consulting room, together with a high volume of patient traffic, as well as marketing and management support. This fee-splitting arrangement allows PROSALUD to avoid substantial personnel costs and is a critically important source of PROSALUD's net revenues.

---

## Analysis of the Lusaka Health Care Market

One chapter in this study is devoted to analyzing the Lusaka market as depicted in the 1996 Living Conditions Monitoring Survey (LCMS), which contained a detailed set of questions about health and was administered to a probability sample of households in Lusaka province. The aim of this line of inquiry is to ascertain how the Lusaka market is different from that of Bolivia (as the latter is reflected in the structure of the PROSALUD spreadsheet model) and concomitantly identify ways in which the financial projections done by PSI might be modified to better fit Lusaka and thus be more accurate.

The analysis indicated that the utilization of health services by Zambians is high, and roughly twice as high as in Bolivia.<sup>1</sup> The Ministry of Health accounts for the vast majority of all curative care consultations in Lusaka, 79 percent, with 57 percent accounted for by health centers and 22 percent by hospitals. The private, for-profit sector provides only 12 percent of curative care consultations. Doctors are the most important type of provider in Lusaka, accounting for 45 percent of all curative care consultations. Clinical officers, however, are also a very important source of care, providing 38 percent of the total. Nurse and midwives account for 15 percent of all consultations.

The main users of private facility services are children age 6 to 12 and adults. Some 14.1 percent and 16.8 percent of children age 6 to 12 and adults, respectively, obtain their health care at private facilities. The users of private facilities are more likely to be of higher income.

While the majority of children do not pay for their health care (68.7 percent), most adults pay (77 percent). The forms of payment comprise direct pay (23 percent), prepayment schemes (41 percent), and by employer (6 percent). The average payment is approximately 9300 Kwacha, and the median payment is 2500 Kwacha.<sup>2</sup>

Of the persons who do not pay for their care, 22 percent qualify for fee exemption status; i.e., they are either less than five years or more than 65 years of age or had a chronic disease. These individuals constitute 10 percent of the total. The remainder are exempted because they were judged to be indigents or for some other reason.

Regression analysis was also conducted to determine whether health care fees and distance to facilities are important determinants of health service use in Lusaka. Health care fees are found to have a small, negative effect on the use of private services. Distance to facilities also affects the likelihood that public facilities are used for both adults and children.

---

<sup>1</sup>PSI used the Bolivia utilization rates in its financial projections for ZAMHEALTH.

<sup>2</sup>The exchange rate at the time of the LCMS was K1,100=US\$ 1.00.

The LCMS-based analysis was complemented with a more qualitative analysis based on other studies and a series of interviews which the authors conducted. This analysis uncovered three major findings: (1) that, while small, the private sector of Lusaka is underutilized, (2) that there already exists a number of private clinics that rely on fee-sharing doctors, and (3) that the principal source of patients and revenues of multi-doctor, private practices has traditionally been a system of long-standing contracts to provide health care to the upper-level workers of large businesses.

The analysis of health-seeking patterns of Lusakans and health providers suggests that there would be a market for ZAMHEALTH clinics if they were introduced. The most likely consumers would be older children and adults since they have high utilization of services and are already paying for services.

### **Private Clinic Contracts with Large Businesses**

These contractual arrangements generally involve a company paying a private clinic an initial enrollment fee and a quarterly fee for its employees. The initial enrollment fee is intended to encourage relatively constant membership rolls by providing a disincentive to frequent disenrollments and re-enrollments.

The purpose of the quarterly fee depends upon the general nature of the scheme. There are two general types of schemes: those that constitute a health maintenance organization (HMO)-like entity and those that function as traditional fee-for-service providers. In the HMO-like schemes, the quarterly fee is, in essence, a capitation fee, which renders the insured eligible to receive a defined package of services free of point-of-service charges. These plans provide coverage only for outpatient care. For inpatient care, generally the employer pays the inpatient facility and covers all “medically essential” service costs, which typically exclude maternity care.

In the second general type of membership scheme, the quarterly fee is usually much less and is paid in order to obtain “member” status, which simply entitles the insured to price discounts (from 5 percent to 20 percent) in a fee-for-service system. The employers are billed for services used by their members. It is common for the same private clinic to provide subscribers with a choice between these two types of schemes.

Usually these arrangements only covered skilled workers, and most workers covered under either of these arrangements do not have to pay for their care at the point-of-service. In the case of HMO-like arrangements, generally no accounts (other than personal medical records) are maintained on the services rendered if they are included in the covered services package. For services provided that are other than those in the package and for all of the services provided in the price-discounted, fee-for-service membership schemes, the clinic generally submits a detailed monthly bill to the company listing the type and quantity of each service provided to the company’s workers. Businesses regard this system of deferred payment as desirable because it simplifies administration and because, in many instances, there is an understanding between the business and the clinic that the business may not be required to pay the full bill upon receipt. In essence, this arrangement constitutes a type of credit for the business.

The business-supported segment of the private health care market has diminished substantially in the last two or three years. Until only very recently, huge parastatal enterprises dominated much of the Zambian economy and, insulated from domestic competition, commonly had relatively high

remuneration levels, including generous health benefits. Usually the parastatals (and most other large companies) have paid for all of the workers' health care, as well as that of family members, including parents. With the recent demise of most of the parastatals and other significant changes associated with the private and public efforts to stabilize and rejuvenate the economy, efforts to cut costs have undermined this long-standing relationship between businesses and private clinics, and with it the stable flow of patients and income.

### **The Small But Under-Utilized Private Health Care Sector**

Despite the fact that there are only 300 doctors in private practice and only 130 private practices in Lusaka, various indicators suggest that this sector has considerable excess capacity. First, on the basis of the LCMS survey data, it is estimated that Lusaka's private sector annually provides 430,000 consultations. Dividing this number by the Medical Council of Zambia's reported 130 private practices in Lusaka yields an annual average of 3,308 consultations per consulting room. Assuming there are 50 work weeks per year, this suggests that there are an average of just 66 consultations per practice per week, or, assuming six work-days a week (which is the norm), 11 consultations per day.

Additional corroborative evidence of the low capacity utilization in the private sector comes from a survey-based private sector report (Scott, 1996). The report provides data that allow one to calculate that the 42 clinics studied provide an average of 85 consultations over the course of an average work week of 57 hours. If it is assumed that a doctor can see one patient every 20 minutes, then the "individual" private clinics in Lusaka, on average, are operating at 50 percent of capacity.

One would expect in a country such as Zambia, where the doctor-to-population ratio is very low, the principal constraint on the market to be a supply constraint; i.e., that the primary reason the amount of doctor-provided care is not higher is the relative shortage of doctors. The low number of consultations per doctor, however, suggests that the market—at least the Lusaka market—is principally demand constrained. This is a different situation from the one PROSALUD has confronted in Bolivia. It suggests that it may be much harder for ZAMHEALTH to get a foothold in the Lusaka market. At the very least, it urges caution in estimating what size market share ZAMHEALTH can be expected to capture in its first years in operation, how rapidly that market share can be expected to grow, and what prices ZAMHEALTH may charge. On the other hand, the excess capacity of the private sector suggests that there are private providers available who could work for ZAMHEALTH clinics, despite the very low number of doctors in Zambia.

---

## **Modifying the PROSALUD Financial Model**

Based on analysis of the Lusaka market, revisions were made in five categories of parameters in the PROSALUD financial simulation model used by PSI: (1) the population-based consultation rate, (2) the multiplier and, by implication, the estimated level and mix of services, (3) the amount of no-charge care, (4) the costs of care, and (5) the prices of care.

The PROSALUD financial model uses a multiplier approach to predict the level and composition of different kinds of services, using the number of first visits for curative care as a numeraire. An analysis of the Lusaka Urban Health District's service delivery mix revealed substantial differences in the composition of services in Lusaka and Bolivia. The variation in the mix of services, variations in the personnel providing particular types of services, and variations in the

cost of services were all taken into account, constructing a Lusaka-specific multiplier, which varied considerably from its original PROSALUD-adopted version.

A second set of modifications that were made in the financial simulation model was in the estimated costs of services. PSI's cost estimates for (1) utilities, maintenance, security and insurance and (2) construction and equipment were found to be accurate, hence they were adopted. PSI's estimates of the costs of the management support unit also were accepted as reasonable, with the exception that the fringe benefit rate was reduced from 50 to 25 percent to reflect Zambian practices. The majority of changes made in the PSI assumption were in the cost of clinic operations.

The total remuneration for each clinic staff position was assumed to be the average of the average total remuneration (salary plus total fringe) paid by the Churches Medical Association of Zambia (CMAZ) and that five private clinics in Lusaka, plus 10 percent for additional pay incentives. Nine categories of variable medical care costs were empirically developed by the authors with the assistance of private and public sector providers and incorporated into the financial model.

Another change that was made in the PROSALUD financial model was the proportion of free care provided. Based on a compromise between the LCMS finding and the ZAMHEALTH marketing strategy—which is geared to developing an intermediate niche between public and current private providers—25 percent of patients would be assumed to be provided free curative care.

## The Base Scenario Results

Table 22 in Chapter 5 of this report presents a Summary of the Financial Analysis for what is termed the Base Scenario. The total network cost of operating the ZAMHEALTH franchise for 10 years is \$12.7 million. Adding in total network capital replacement costs of \$1.1 million, the total network cost comes to \$13.8 million. Over this ten year period it is estimated that ZAMHEALTH will generate \$5.6 million in revenues. ***To operate ZAMHEALTH for 10 years will require a subsidy of \$10.3 million. The cost recovery rate of the system improves every year it is in operation; starting at zero in year one, attaining 68 percent in year 10, and equaling 35 percent over the entire 10 year period.***

The structure of the overall costs of the development and operation of the ZAMHEALTH network changes over the 10-year period. Initially the costs are dominated by the need to develop ZAMHEALTH's infrastructure. In the first four years, as the infrastructure—the MSU office and its warehouse and the eight clinics—is constructed and equipped, and revenues are low because demand is still low, half (\$3.2 of \$6.5 million) of the total network cost to that which must be subsidized consists of capital investments. The longer the time period analyzed, the longer the period of time over which these fixed capital investments are spread, and thus (other things being equal) the higher the level of self-financing achieved by the network. Hence, if a period longer than 10 years were analyzed, the level of self-financing would increase. This trend is evident in Table 24, which presents three service-related, annual average cost estimates: it is not until, at minimum, year six of the project that the cost per person covered or cost per visit or cost per person covered begin to reach acceptable levels. The longer one's planning horizon, the better the project looks as judged with these average cost indicators. ZAMHEALTH must be regarded as, at minimum, an eight- or ten-year project, for these average costs to become very appealing.

## **Sensitivity Analyses of Critical Parameters to Assess Their Impact on the Level of Estimated Cost Recovery and ZAMHEALTH's Required Subsidy**

Simulations of the impact of changes in the structure of PROSALUD and of its market parameters were conducted to assess their significance and the sensitivity of the results to critical assumptions. These included:

- ▲ three different ways of treating no-charge care,
- ▲ increasing the basic clinic consultation price by 50 percent,
- ▲ various combinations of different levels of charges (including zero) for re-visits, for ante-natal care and for the under five clinic, and
- ▲ the impact of having to pay doctors' or clinical officers' salaries, as an alternative to a fee-splitting arrangement.

## **The Importance of Recognizing the Indirect Impacts of a PROSALUD-Like Organization on the Health Care Market**

The determination of whether or not ZAMHEALTH should be supported requires taking into account more than just the results of the financial analysis. The financial analysis provides (1) an estimate of the *direct* impact of ZAMHEALTH on the health care market of Zambia in terms of service provision and covered population, and (2) an estimate of the cost to donors or the Government of Zambia of backing the project. It is imperative to recognize, however, that—as has been found with PROSALUD in Bolivia—a ZAMHEALTH project can be expected to have a large, and perhaps more significant, *indirect* impact on the health sector. This indirect impact consists of ZAMHEALTH providing a highly visible model that other entities—both public and private—will strive to replicate, being both enticed (by the lure of greater success of more patients and more revenues) and pushed (by consumer-directed market forces) to do so.

Perhaps this point is best illustrated by noting some of the kinds of indirect effects that were ascribed to PROSALUD in the independent, 1994 mid-term project evaluation. That evaluation noted that PROSALUD had:

- ▲ sparked price competition,
- ▲ increased cost consciousness and cost-cutting,
- ▲ prompted improvements in the Ministry of Health (MOH) user fee system and in the Ministry's cost recovery performance,
- ▲ promoted coordination of all providers and improved organization within the local health care market,
- ▲ introduced change in the service mix, prompting other providers to offer inpatient care for normal deliveries,
- ▲ prompted other health care organizations to offer 24-hour service, and

- ▲ encouraged making health facilities more “user-friendly.”

---

## Lessons to Be Drawn

The lesson to be drawn from these findings is that a PROSALUD-like approach may have significant indirect impacts on the health care market in terms of increasing access, utilization, and the quality of care, as well as its direct effects of “merely” providing a large volume of quality services.

The PROSALUD approach appears to be applicable to Lusaka. The analysis of health-seeking patterns of Lusakans and health providers suggests that there would be a market for ZAMHEALTH clinics if they were introduced. The most likely consumers would be older children and adults since they have relatively high utilization of services and are already paying for services. However, ZAMHEALTH’s version of the PROSALUD approach needs to be adapted to local conditions—epidemiological situation, personnel availability, competition, input prices, and exemptions for the poor.

To establish a PROSALUD approach through a ZAMHEALTH adaptation will require a subsidy. The amount of subsidy will at first be large in order to cover initial investments, but will later diminish since it will only be needed to cover a small operating cost gap. ZAMHEALTH costs would be expected to be competitive with government costs of service delivery.

ZAMHEALTH can be expected to benefit numerous consumers directly, as well as many more indirectly. The indirect benefit will come from the competitive demonstration effect of ZAMHEALTH on public and private providers.

Several indicators should be monitored in the implementation of ZAMHEALTH. They should include the following: unit costs of services, population served (utilization), rates of exemptions from payment, net operating revenue, quality of care, consumer satisfaction, prices of services, socio-economic status of users, and utilization of preventive services. Many of these indicators should be monitored both for ZAMHEALTH and for competing public and private providers. ZAMHEALTH should be considered successful with a positive performance on a majority of the indicators.

In conclusion, ZAMHEALTH’s development can be expected to contribute to the objective of improving the health of the Zambian people both directly and indirectly. It can do so by taking advantage of the recent opening for greater private participation in health services delivery in Zambia.

---

# 1. Introduction

---

## 1.1 Introduction

The country of Zambia is located in southern Africa and has a population of more than nine million. The country is largely urban, with 45 percent of its population living in urban areas in 1996.

Zambia has a mixed economy that includes an urban-oriented sector as well as a rural agricultural sector. Copper mining is the main economic activity and is the main source of export earnings for the country. The country's fertility rate is high with a total fertility rate of 6.1 (Demographic and Health Surveys 1996).

Since 1991, the Government of the Republic of Zambia (GRZ) has embarked on an ambitious program of health sector reforms involving decentralization of the health system, hospital autonomy, the development of an essential package of health services to which all Zambians are entitled, cost-sharing strategies, and other efforts to provide Zambians with "equitable access to cost-effective, quality health care as close to the family as possible."

The Ministry of Health's (MOH) strategy recognizes that although the government is committed to making available a cost-effective essential health care package, it does not have sufficient resources to fully fund the package, even with donor support. Accordingly, the orientation is to mobilize non-governmental resources to contribute to the funding of the package.

Within this context, the option of franchising clinics in Zambia using the PROSALUD model of Bolivia is being considered as a mechanism to improve the delivery of primary health care services to the population in Zambia. The study investigates the feasibility of introducing the PROSALUD model in Zambia through modifying the model according to the characteristics of the Zambian health system.

---

## 1.2 Defining Franchising and the Scope of the Study

Franchising is a mechanism for replicating a proven business strategy that is based on the concept of minimizing start-up time and costs and economizing on scarce entrepreneurial talent. A franchise consists of one business entity granting legal permission to another business entity to sell a product or to use a trademark or a technology to produce and sell a particular good or service. The entity granting the permission is the franchiser and the entity being granted the permission to use the product, trademark, or technology is the franchisee.

In this study we are concerned with analyzing the feasibility of franchising a business technology. More specifically, we are concerned with the adoption of a systematic approach to developing, organizing, managing, and operating a network of primary health care clinics in Zambia, using the proven techniques of PROSALUD, a network of largely self-financing, primary health care clinics that has operated in Bolivia for more than a decade.

---

## 1.3 Franchising and the Health Sector of Zambia—Antecedents

This study grew out of work that Population Services International (PSI) has done in Zambia over the course of 1995-96 at the request of the GRZ and with the financial assistance of the Overseas Development Administration's (ODA) Seedcorn Fund. PSI reviewed franchising experiences in the health sector, devised a specific franchising arrangement to improve the delivery of primary health care services to low income people in Zambia, developed an implementation plan for that arrangement, and conducted a feasibility assessment of it. PSI conducted a break-even analysis, which included analysis of alternative scenarios based on modifications of several important assumptions underlying the financial simulation model used. This analysis concluded that a Zambian non-governmental organization (NGO)-owned and managed eight-clinic network of primary health care clinics could achieve 80 percent self-financing eight years after beginning the project. As already noted, the proposed franchiser and prototype system was the Bolivian NGO, PROSALUD. The hypothetical Zambian franchisee was labeled ProHealth in the PSI report. Here we call it ZAMHEALTH.

The United States Agency for International Development (USAID) Global Bureau's Partnerships for Health Reform (PHR) Project was asked by USAID/Zambia to review PSI's analysis as presented in its December 1996 report "Improving Health Care in Zambia Through the Franchising of Private Sector Clinics." While generally positive, that review raised a number of important concerns about the structure and operations of the proposed franchising arrangement. Subsequently, USAID/Zambia requested PHR to undertake an independent analysis of using franchising to improve the delivery of primary health care services to low income people in Zambia. This report presents that analysis.

This analysis does not start at zero. It adopts much of the structure of the PSI approach and uses a modified version of the financial simulation model. Foremost, it confirms the basic conclusion of PSI's pre-feasibility assessment that franchising merits serious consideration as a viable strategy for improving the delivery of primary health care services in Zambia, and it accepts the fundamental tenet of PSI's approach, that the most attractive franchising model is the PROSALUD model of Bolivia (the major elements of which will be described in the next section).<sup>3</sup>

### 1.3.1 A Brief Description of the PROSALUD Model<sup>4</sup>

PROSALUD is a patient-focused, primary health care-centered delivery system distinguished by its capability to provide a high volume of high-quality services, and doing so with high levels of efficiency, self-financing, and patient satisfaction. PROSALUD's more than 300 employees annually provide more than a half a million health care services to a service population of a quarter of a million Bolivians in its 30 clinics and a 25-bed referral hospital. PROSALUD provides all preventive

---

<sup>3</sup>PSI's selection of PROSALUD as the prototype was based on its application of the following criteria: (1) the delivery system must be designed to provide a high volume of low-income persons with quality primary health care, (2) the system must be more efficient and be able to recover more costs than the public sector, and (3) the system should achieve a substantial level of self-financing after an initial start-up phase (PSI, 1996, p. 22). These criteria allow for considerable discretion—particularly the last one in defining what level of self-financing is adequate and what is the duration of the start-up phase.

<sup>4</sup>For a more detailed description of PROSALUD see Fiedler (1996), Fiedler and Hougen (1995) and Richardson et al., (DATE).

services, roughly half of all of its care, entirely free-of-charge and charges relatively low prices—prices that are only slightly higher than those levied by MOH facilities—for its curative care services. In addition, roughly 10 percent of all of the curative care provided by PROSALUD is provided free-of-charge to the poor. PROSALUD is approximately 75 percent self-financing; that is, PROSALUD pays for approximately three-quarters of all of the expenses of its clinics, its hospital, and its regional and central management support units, primarily through fees it charges and collects for the health care services it provides.

Table 1 contains key characteristics of the PROSALUD model. The two foremost critical elements of PROSALUD's management system are (1) its development and reliance upon a data-driven monitoring, evaluation, and planning (MEP) system and (2) its personnel recruitment criteria, process, and training. The PROSALUD MEP system emphasizes and makes transparent the relationship between service delivery and financial performance. The organization's reliance on such a system and the way in which PROSALUD has made MEP participatory processes through a series of public meetings has nurtured a level of consciousness about the business aspects of health care that are conspicuously lacking in other systems—be they in the Third World or the First World.

All PROSALUD centers are staffed by a general practitioner who also serves as the director of the clinic and, depending upon the caseload, a minimum of one nurse, a nurse auxiliary, and a laboratory technician. These staff are all salaried employees of PROSALUD. In addition, most of the clinics also have a dentist, an obstetrician/gynecologist, and a pediatrician, who are non-salaried and operate under a fee-splitting arrangement.

The *quid pro quo* for agreeing to split fees is that PROSALUD provides its specialists with the use of a consulting room, together with a high volume of patient traffic, as well as marketing and management support. The specific terms of the agreements vary by specialist. Dentists are required to provide their own equipment and supplies and split the revenues they generate through consultations with PROSALUD, keeping 80 percent, with 20 percent going to PROSALUD. In the case of the OB/GYNs and pediatricians, while they must provide most of their own equipment, they do not have to provide all of it and are not expected to provide any supplies they might need. In their case, the fees are split 50/50 with PROSALUD. These fee-splitting arrangements allow PROSALUD to avoid substantial personnel costs and are a critically important source of PROSALUD's net revenues.

**Table 1. Key Characteristics of the PROSALUD Model**

1. Same services provided in all clinics
2. 24-hour service
3. All have pharmacies, delivery rooms, waiting rooms, and reception rooms
4. Clinics' physical layout is standardized
5. Same basic staffing pattern, but staff number varies by volume of patients
6. User fees for curative care services
7. All preventive care free-of-charge
8. Clinic directors are general practitioners (GP) who also provide care
9. Non-salaried specialists arrangements <ul style="list-style-type: none"> <li>▲ provided consultation room</li> <li>▲ provide their own supplies</li> <li>▲ Adhere to PROSALUD standards</li> <li>▲ split fees with PROSALUD <ul style="list-style-type: none"> <li>-Dentists: 80/20</li> <li>-OB/GYN and Pediatricians: 50/50</li> </ul> </li> </ul>
10. MSU oversees: <ul style="list-style-type: none"> <li>▲ purchase and distribution of supplies</li> <li>▲ hiring and training</li> <li>▲ data-driven monitoring, evaluation, and planning</li> <li>▲ marketing</li> <li>▲ system development</li> </ul>

PROSALUD facilities provide ambulatory preventive and curative care services, deliveries (generally including 2-3 inpatient days), dental care, laboratory tests, and drugs on a fee-for-service basis. They also treat minor emergencies. Among the different types of services it provides, deliveries—which are sold as a package including six prenatal visits, delivery, and a post-partum visit—are the most important net revenue generator.

PROSALUD is administered by a central office or management support unit (MSU), which oversees system development, marketing, planning, and overall system management, including the hiring and training of personnel and the purchase and distribution of drugs and other supplies. In addition, each of the two principal clinic sites—the cities of Santa Cruz and El Alto/La Paz, where 26 of the 30 clinics are located—has its own regional MSU.

PSI noted in its pre-feasibility assessment that:

The PROSALUD model offers several advantages for Zambia (1) there would be no need to invest resources in developing a new prototype; (2) sophisticated planning and management tools for starting and operating a clinic network have already been developed and proven effective; (3) the model's fee-sharing franchise scheme provides increased opportunities for income and training for private practitioners; and (4) the model avoids franchisee ownership of clinics, which has elsewhere led to difficulties in

sustaining the delivery of services that provide the most public health benefit (PSI, 1996: p.30).

### **1.3.2 Adopting Elements of PSI’s Approach and Simulation Model**

In addition to accepting PSI’s conclusions that (1) franchising merits serious consideration as a viable strategy for improving the delivery of primary health care and (2) PROSALUD is the most appealing model for franchising primary health care in Zambia, a substantial number of other aspects of the PSI approach have also been adopted in this analysis, many of which are derivative of having accepted the PROSALUD model as the prototype and franchiser. These include:

- ▲ the general structure of the PROSALUD model (a network of clinics with a management support unit [MSU]),
- ▲ the general staffing pattern of the PROSALUD clinics and its MSU (although with some small, but important modifications),
- ▲ the amount and timing of technical assistance required to get the system up and running,
- ▲ the general physical structure and layout of the clinics,
- ▲ the responsibilities, general functions, and operating procedures of the clinics and the MSU,
- ▲ the role of donor agencies in constructing the infrastructure and providing an on-going subsidy to enable the system to provide services at low prices to low-income persons,
- ▲ the PSI cost estimates for maintenance, utilities, and depreciation, and
- ▲ the PROSALUD financial simulation analysis (or break-even) model.

Because of this heavy “borrowing” from the PSI analysis (done with the full knowledge and agreement of PSI), the reader may find it useful to obtain a copy of the PSI report cited above. While the present report is an independent and free-standing one, it may be useful to refer to the PSI work for additional discussion of franchising, more on the rationale for using the PROSALUD model as a prototype, including a more complete description of the PROSALUD model, and a description of activities related to PSI’s investigation of the PROSALUD model, which included a field trip to Bolivia by key stakeholders in Zambia’s health sector to observe the PROSALUD system in operation.

### **1.3.3 Questioning Some of PSI’s Assumptions and Parameters**

The major concerns about the PSI analysis expressed in the PHR review generally shared a common theme: PROSALUD-specific parameters—developed from its Bolivian-based experience—frequently were adopted with inadequate attention to how important it might be to modify those parameters because of different conditions in Zambia. Of particular importance were two assumptions: (1) the assumption that an adequate number of Zambian doctors would be willing to work for the franchise on a fee-splitting basis and (2) that the mix of services that would be demanded by Zambians would be similar to that of Bolivians. PHR analyzed the impact of making

relatively minor modifications in these assumptions and found that they had important impacts on the level of self-financing the model could be expected to achieve, with other things being equal.

PHR also called for empirically developing several Zambian-specific parameters to include in the analysis. The most prominent of these were:

- ▲ general health care utilization rates (specifically the consultation rate),
- ▲ an assessment of the degree of substitutability of different types of health care providers,
- ▲ the cost of providing services, and
- ▲ the proportion of services that would be provided free-of-charge to poor patients.

In the following chapter each of these concerns is examined.

In addition to incorporating more Zambian-specific data into the financial simulation analysis, PHR recommended undertaking a market analysis to identify and assess potential clinic sites in order to improve the assessment of the feasibility of franchising.

---

## 1.4 Some Differences Between Bolivia and Zambia

A few observations of the differences in the Zambian and Bolivian health care situations suggested the need to make some fundamental changes in the parameters and/or structure of the Bolivian-based PROSALUD model. First, the critical enabling factor of one of PROSALUD's most important profit-generating aspects—the fee-splitting/risk-sharing arrangement that it has with all of its pediatricians, obstetricians, and dentists—is the excess supply of doctors in Bolivia. In the Bolivian state of Santa Cruz, where the PROSALUD model was first introduced, the president of the State Medical Association estimates that at least half of the registered doctors are unemployed. Nationally in Bolivia, the doctor/population ratio is 48/100,000, more than five times greater than Zambia's 9/100,000 (World Bank 1993). The relative scarcity of doctors in Zambia will make it difficult to find doctors who will be willing to work for ZAMHEALTH and split their fees with the organization. Specialists, who are even fewer in number in Zambia, will be even more difficult to recruit and retain. How would the feasibility of ZAMHEALTH be affected if it proved unable to implement the fee-splitting arrangement?

Two other very different circumstances in Zambia vis-à-vis Bolivia suggest the need to, or possibility of, making other types of modifications in the basic service delivery model. First, the nurse-to-doctor ratio in Zambia is nearly nine times greater than in Bolivia (6.0 compared to 0.7, World Bank 1993). Would it be possible to use nurses more extensively than in the standard PROSALUD model (wherein it is largely a product of Bolivians' keen preference for doctors)?

Second, what role should be played by clinical officers (COs)? This type of health care worker, which does not exist in Bolivia, is an important source of care in Zambia. It is estimated that roughly 40 percent of private clinics in Lusaka are staffed almost exclusively by clinical officers, with doctors providing, at most, the minimum legally (set by the Medical Council of Zambia) required three hours per week of oversight by a doctor (Scott 1996; Berman et al., 1995). While official registers are imprecise, it appears that there are roughly 50 percent more COs than doctors, and the ratio of those working outside of the MOH is estimated to be much greater: roughly two COs for

every doctor. Furthermore, COs are significantly less expensive to hire and are probably more likely to be willing to enter into a fee-splitting arrangement. The possibility of delegating at least some doctors' responsibilities to clinical officers and nurses needed to be more closely examined; in effect, considering substituting these more readily available, less expensive health care personnel for doctors.

It is also likely that the mix of services demanded will be different in the two countries. Zambia's HIV/AIDS and STD problems are likely to result in significantly higher proportionate usage levels of curative and family planning services than is the case in Bolivia. Similarly, the high incidence of malaria in Zambia probably means that it is a relatively much more important disease that absorbs a much larger proportion of total services delivered in Zambia vis-à-vis Bolivia. Working in the opposite direction, due to the fact that people tend to take care of their teeth and gums from a very young age in southern Africa, there is relatively little need for and far less demand for dental care in Zambia than in Bolivia. The high proportion of PROSALUD profits generated by dentists makes this an important feasibility assessment concern.

While the PROSALUD model assumes 10 percent of all care will be provided free of charge to the poor, there is reason to expect that free care would constitute a much larger proportion of care in Zambia, where average per capita income is less than half of what it is in Bolivia.

---

## **1.5 Getting Zambian Market-Specific: The Selection of Lusaka as the Franchising Site**

These observations suggest the need to modify—and perhaps substantially restructure—the basic PROSALUD model so as to better fit the Zambian reality. In turn, the simulation spreadsheet should be modified to predict more accurately the potential financial status of a ZAMHEALTH franchise.

Discussions with USAID/Zambia and MOH officials identified three possible city-sites for the franchising model: Lusaka and the copperbelt cities of Kitwe and Ndola. From the list, Lusaka was chosen as the area for in-depth analysis. Lusaka is a more favorable place to initiate ZAMHEALTH because of its higher average income, health care utilization rates, and health-related expenditures. Lusaka accounts for 55 percent of Zambian expenditures on modern care providers. In addition, there are uncertainties about the future of the Zambia Consolidated Copper Mines (ZCCM) and its health care system.

---

## **1.6 Organization of the Study**

The second chapter presents the methodology used in the study. It discusses the data collection and analysis methods that are used to examine the feasibility of the PROSALUD/Bolivia service delivery model.

The third chapter examines the characteristics of the health care market of Lusaka. In particular, it discusses the types of facilities available, utilization patterns, average health care expenditures, the impact of prices on utilization of services, and financing schemes that have been implemented. Following this section, chapter four discusses the need to modify the PROSALUD/Bolivia model in order to render it more appropriate for Zambia. The fifth chapter presents the results of simulations on costs of health service provision that incorporate the modified model assumptions.

The last chapter presents the conclusions of the study.

---

## 2. Methodology of the Study

---

### 2.1 Introduction

This study investigates the feasibility of introducing franchising in Zambia using a modified version of the financial simulation spreadsheet developed by PROSALUD/Bolivia. The analysis conducted by Population Services International using the spreadsheet was reviewed and then modified based on differences between Bolivia and Zambia in terms of: health care utilization patterns, health care market, health personnel resources, amount of indigent care, cost of providing care, and prices paid for care. Several sources of data were analyzed in order to obtain the data for these modifications.

This chapter presents the data sources that are used in the study and the methodology that is followed in this study.

---

### 2.2 Sources of Data

In order to determine population-based utilization rates of health services, sources of care, and payment levels, the 1996 Living Conditions Monitoring Survey (LCMS) was analyzed. The national survey has a sample size of 11,774 households (approximately 61,547 persons). Data were collected on household composition, monthly expenditures, household amenities and housing conditions, access to health facilities, household assets, and health-care seeking behavior. Questions were asked about illness episodes that had occurred within the last two weeks. When an episode had occurred, the respondents were asked for a description of symptoms, the type of health care sought, and amount of payment.

Additional data on private sector sources of health care were obtained through interviews with members of the Lusaka Urban Health Management Team, the directors of nine Neighbourhood Health Committees, private providers, staff of the Medical Council of Zambia (MCZ) and at several Ministry of Health health centers, data from a provider survey and a household survey conducted by the Central Statistic Office (CSO) that was commissioned for this analysis, and a review of recent studies. Included in the review were papers by Limbambala and Choongo (1994), Berman et al. (1995), the Lusaka Urban Health Project (1995), Ngwengwe (1997), PSI (1996), Scott (1996), and UNICEF (1996).

Information on potential sites for the franchise were obtained from a small survey of households and providers in potential franchise clinic-site compounds of Lusaka. The survey took place in nine MOH health center catchment areas where 25 household members were interviewed in each area. There were two criteria for selection of health center catchment areas: (1) the number of attendances per provider and (2) the number of attendances per person in the catchment area.

The information collected from providers included case mix and pricing structures. In the household survey, data were collected on socio-economic characteristics of households, prepaid scheme status, distance to usual source of care, health-care seeking behaviors, and perceptions of quality of care of health care facilities.

---

## 2.3 Methods of Analysis

Different types of analyses were undertaken in the study: (1) descriptive statistics of health care utilization patterns, (2) regression analysis of the impact of price and access on choice of provider for Lusaka residents, (3) a qualitative assessment of the private health sector in Lusaka, and (4) cost simulations for ZAMHEALTH facilities.

Both frequencies and cross-tabulations of health care utilization patterns were calculated. Use and type of provider were compared with demographic factors such as age, sex, and income to determine patterns of health-seeking behaviors in Lusaka. The age groups included three groups of children—less than 1 year, 1–5 years, 6–12 years and persons older than 12 years. The adult utilization was disaggregated by gender and five income groups.

Regression analysis of the effects of price and access on choice of health provider in Lusaka was conducted using multinomial logit estimation. The model for multinomial logit was:

$$\text{Prob}(Y=j) = \frac{\exp\beta'_j x_i}{\sum_{j=0} \exp\beta'_j x_i}$$

where the dependent variable is the log odds that individual  $i$  will choose facility  $j$  relative to provider 1.

The dependent variable is the choice of four types of health care: self-care, government hospital, government clinic or health center, and private facility. The reference group for the analysis was self-care.

The independent variables in the analysis were consultation fees, distance to facility, type of illness, income, age, household size, household income, education of head of household, occupational status of head of household, and sex of head of household. The regression results were estimated separately for adults and children.

Cost simulations or break-even analyses were also conducted in order to determine the financial feasibility of opening ZAMHEALTH clinics in Lusaka. In the simulation, operating costs were subtracted from clinic revenues to determine the total net surplus/deficit under different scenarios. Some of the assumptions that were made in this analysis include: a ZAMHEALTH doctor can provide 10,000 consultations per year; one-quarter of all patients will be treated after regular hours (5-8 p.m.); and, the central and basic clinics will capture 10 to 20 percent of the market share of the catchment area population in the first year, respectively, with 5 percent increases in market share over each of the next six years. Consultation fees were assumed to be higher for first visits or \$2 for visits to the general practitioner and \$1 to be treated by a pediatrician or gynecologist. Return visits were free except for nurse/midwife care. Other fees were assumed for medications and laboratory tests. Some 31 percent were expected to be exempted from payment of fees.

The costs of 17 alternative scenarios were estimated to determine the impact of critical assumptions and decision variables on the financial performance of ZAMHEALTH.

### 2.3.1 An Overview of the PROSALUD Financial Simulation/Break-Even Spreadsheet

The PROSALUD financial spreadsheet contains four major components: (1) a module that contains the capital costs; i.e., the equipment and construction costs of the clinics, the central administrative office and the warehouses, (2) a basic clinic module, (3) central clinic module, and (4) management support unit cost module.

The analysis presented in this report focuses overwhelmingly on the base clinic and the central clinic modules, as these are the components that are most likely in need to be modified to better fit the Zambian health care market. Both of the clinic modules are comprised of three basic components: (1) the first component estimates the general level and mix of service delivery, (2) a second component combines the general level and mix of service with unit cost estimates of those services to project variable service delivery costs, and (3) a third component combines the level and mix of services with prices to generate an estimate of anticipated revenues.

The discussion turns to a more detailed examination of these component parts of the clinics' modules.

---

## 2.4 Projecting the General Level of Service Delivery and the Mix of Services

The revenue projections of the PROSALUD financing spreadsheet are driven by population-based, curative care utilization rates. The curative care utilization rates are used in conjunction with an estimated market share and a multiplier to predict both the level and the mix of services that will be provided by each network clinic. There is a need to analyze the nature and current dynamics of the health care market to include Zambian utilization rates in the feasibility analysis.

The multiplier is a ratio of the number of services of a particular type provided for each curative care consultation. The Bolivia multiplier values are presented in Table 2. Zambian population-based utilization rates were obtained or calculated to create a multiplier for the ZAMHEALTH simulations.

**Table 2. The PROSALUD Multiplier**

Type of Service Provided	Multiplier Value
GENERAL VISITS	1.00
FOLLOW-UP VISITS	0.35
DENTAL VISITS	0.60
NURSING PROCEDURES	1.00
LAB PROCEDURES	0.40
MEDICATIONS	2.50
FAMILY PLANNING	0.30
DELIVERIES	0.06

---

## **2.5 Estimating the Cost of Providing Care**

In the simulation spreadsheet, the cost of care is the sum of fixed and variable costs. The fixed costs consist primarily of personnel costs, but also include outlays for maintenance, security, and insurance. The variable costs consist of medical, nursing, and laboratory supplies, office supplies, and drugs. The spreadsheet uses the multiplier approach to estimate the quantities of each of these variable inputs. Estimates were made of the average variable cost for each of these inputs.

---

## **2.6 Estimating Revenues**

The revenues that the clinics are expected to generate are the product of the quantity and mix of services that are expected to be provided and the price at which each service will be sold. The prices at which ZAMHEALTH services may be sold will depend upon the prevailing prices in the current market, prospective patients' preferences, and their willingness and ability to pay for care. PROSALUD provides most preventive health care services free-of-charge and uses excess revenues generated by clinics situated in more well-to-do neighborhoods (where utilization rates and the absolute level of demand for medical care are higher, higher fee levels are charged, and fewer persons are indigents who have their fees waived) to cross-subsidize the relatively lower revenues generated by clinics sited in poorer neighborhoods. The extent to which there are opportunities for following these same practices in Zambia is an important empirical question that needs to be investigated.

---

## 3. An Analysis of the Health Care Market of Lusaka

---

### 3.1 Introduction

This chapter presents an analytic description of the health care sector of Lusaka with an eye to ascertaining how it is different from that of Bolivia, since the latter is reflected in the structure of the PROSALUD spreadsheet simulation model. The purpose of this analysis is to identify ways in which the spreadsheet model might be modified to better fit the Zambian situation and thereby improve the model's accuracy, and with it, the likelihood that ZAMHEALTH would be successful.

---

### 3.2 Health Care Utilization Rates

Of the 11,190 Lusakans who were interviewed, 22 percent, (2,407 persons) reported that they had been ill in the previous two-week period. Forty-eight percent of the self-reported ill, or 11 percent of the Lusaka population, had at least one visit in the previous two weeks. Extrapolating this rate to a year (implicitly assuming relatively little seasonal variation in illness rates or the individual's predisposition to using care), it is estimated that Lusakans go for 3.1 consultations per person per year. This is a very high utilization rate; 24 percent higher than the World Health Organization-recommended average level, a benchmark most countries find unable to achieve. Moreover, the actual average number is even higher, as the Living Conditions Monitoring Survey (LCMS) contains data on only the number of persons who had at least one visit and no information on the total number of visits by persons who had made more than one visit. In other countries of similar income levels, this rate has been found to be 15 to 20 percent higher, which would put the Lusaka consultation rate at nearly 3.7 visits per person per year.

A second piece of information from the LCMS corroborates the high utilization rate in Lusaka: 87 percent of households indicated that at least one person in the household had used the nearest health center at least once in the year prior to the interview and 70 percent indicated they had used the nearest hospital. These are high proportions and also reflect high rates of utilization. These rates of utilization are much higher than the levels assumed in the PROSALUD simulations, though the PROSALUD figures are not directly comparable as those rates are specifically per curative care episode (or for the first visit of an illness episode). If it is assumed that one-third of curative care consultations are re-attendances, then the estimated curative care utilization rate in Lusaka is 1.80. This citywide average is roughly double the consultation rate assumed in the PROSALUD simulation and suggests the need to revise this parameter of the model.

### 3.2.1 Institutional Sources

According to the LCMS, facilities of the the Ministry of Health account for the vast majority of all curative care consultations in Lusaka, 79 percent, with 57 percent accounted for by health centers and 22 percent by hospitals. The private, for-profit sector is the next largest, but provided only 12 percent of curative care consultations. It should be noted that well-child visits (what the MOH refers to as its “under-five clinic” services) are not included in these calculations. If they were included, the Ministry’s share would be even greater, as these are services not commonly provided by other institutional sources, and they comprise an important proportion of total visits (18 percent of the Ministry’s total visits in 1995).<sup>5</sup>

Reasonable access to health facilities is found within Lusaka. The mean distances to the nearest health center and hospital from households were 0.7 and 6.0 kilometers, respectively.

### 3.2.2 Provider Type Sources of Care

According to the LCMS, doctors were the most important type of provider in Lusaka, accounting for 45 percent of all curative care consultations. Clinical officers (CO), however, were also an important source of care, providing 38 percent of the total. It is likely that the doctors’ total is somewhat overstated and the clinical officers’ total somewhat understated due to the likely event that some respondents did not distinguish between COs and doctors and may have identified a CO as a doctor. To the extent that this is true, it means the 18 percent differential in the share of doctor and CO-provided consultations—which is not great—is, in fact, even smaller. Nurses and midwives, who were lumped together in the questionnaire, accounted for 15 percent of all consultations. Again, if information were available about the well child visits provided by all provider types, this portrait would be different: since they constitute nearly one-fifth of all MOH visits and are provided overwhelmingly by nurses, the nurses/midwives share would increase substantially.<sup>6</sup>

---

## 3.3 Utilization of Services by Age and Gender

In this section, utilization patterns using LCMS data are disaggregated to determine whether use differs by age and/or gender of the user. Among the 24 percent of children aged 0–12 years that had an illness episode in the last two weeks, 56.4 percent had been taken to a health provider during the last two weeks (See Table 3). They were more likely to have been taken to a provider if they were less than one year of age (72 percent) or were of a higher income quintile, with the exception of Quintile 5, which had lower use of health services.

---

<sup>5</sup> While Mission institutions generally provide a significant amount of well-child visits, mission institutions are relatively minor actors in Lusaka province where they account for only 3 percent of all curative consultations. The LCMS questionnaire asked about under five clinic attendance only in a general way that is not directly comparable with the curative care and the specific “other” consultation, which was asked about only for adult respondents.

<sup>6</sup> If the analysis is confined to the MOH, inclusion of under five clinic visits would nearly double the share of nurses and midwives in care provision (assuming these visits are all provided by nurses/midwives).

**Table 3 . Percent of Children using Health Care by Age and Income**

	All Children (n=2943)	Children 0-1 years (n=280)	Children 1-4 years (n=1052)	Children 5-12 years (n=1609)
Percent Ill	24	44.6	32.7	14.1
Percentage Seeking Care	56.4	72.1	52.2	51.6
Income Quintile*: 1 (n=102) 2 (n= 87) 3 (n= 91) 4 (n= 67) 5 (n= 41)	55.9 57.5 59.3 65.7 34.2	NA	NA	NA
Facility: Gov. Hospital Gov. Clinic Gov. Health Centre Company Health Private Other	17.8 59.8 7.8 2.4 10.2 4.2	21.1 53.3 13.3 1.1 8.9 2.2	16.3 64.3 6.1 2.0 9.2 2.0	17.7 56.5 5.9 4.7 14.1 1.2
Provider Seen: Doctor Clinical Officer Nurse/midwife Other	40.2 32.9 26.2 0.8	NA	NA	NA
Percent that paid for health care	31.3 %			

\*The income quintiles range from a low of 1 to a high of 5.  
Source: 1996 LCMS

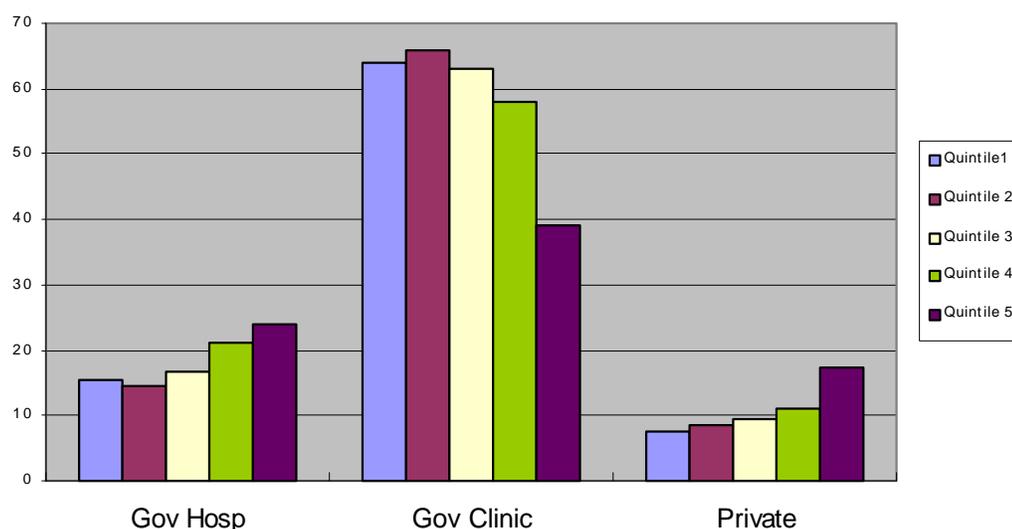
Extrapolating from these figures, since approximately 13.5 percent of total children were taken to providers during the two weeks preceding the survey (56.4 percent of 24 percent of children ill), and, assuming little seasonal variation, approximately 3.5 visits per year were made by children 0–12 years.

Children were most likely to have received health services at a government clinic (60 percent), followed by the government hospital (18 percent). A smaller number, about 10 percent of children, were taken to private facilities. The source of health care differed by the child’s age. If a child was less than one year of age, he or she was more likely to have been taken to the government hospital or health center than were older children. On the other hand, children age 5–12 years were more likely to attend private facilities than were younger children.

The majority of child health care services (69 percent) were provided free-of-charge at the health facilities. The remainder of services were either paid for directly with cash (13 percent), through prepayment schemes (15 percent), or by the parent’s employer (2.5 percent). The higher income households were more likely to have paid for child health care.

Some variation in health utilization among children by income quintile was found as well (Figure 1). Children from higher income quintiles were more likely to use private institutions and government hospitals. As expected, children from higher income households were more likely have been seen by a doctor than other types of health providers.

**Figure 1. Source of Child Health Care by Income Quintile**



Some 21.3 percent of adults from Lusaka reported that they had been ill during the previous two weeks (Table 4). They were a bit more likely to report illness if they were in the lower three income quintiles. Female adults reported about a third more illness (24 percent) than male adults (18 percent).

Of Lusakan adults reporting that they were ill, a smaller share visited health care services than did their children. Among the ill, approximately 44 percent sought care at a health facility. Approximately 40 percent of adults that used health services visited a government clinic while a third used government hospitals, and 17 percent used private institutions. More than three-fourths of adults paid for the health services that they used.

**Table 4. Illness Patterns and Use of Health Services by Income Quintile**

	Q1 (n=88)	Q2 (n=110)	Q3 (n=125)	Q4 (n=116)	Q5 (n=138)	All (n=577)
Percent of Adults Ill:						
All	21.0	24.6	23.1	21.5	17.8	21.3
Male	17.8	20.2	19.9	17.8	15.6	18.2
Female	24.4	29.3	25.2	23.0	20.5	24.4
Percent seeking Health Care:	NA	NA	NA	NA	NA	44.6%
Facilities:						
Gov. Hospital	33.7	31.8	28.8	35.0	31.9	32.1
Gov. Clinic	42.7	41.8	48.0	39.3	27.5	39.4
Gov. Hlth Center	3.4	2.7	4.0	5.1	5.0	4.1
Company	0.0	4.6	4.8	3.4	9.4	4.8
Private	15.7	15.5	12.0	15.4	23.9	16.8
Other	4.5	3.6	2.4	1.7	2.1	2.1
Providers:						
Doctor	58.4	58.2	50.4	59.5	65.9	58.7
Clinical Officer	30.3	26.4	34.4	25.9	21.0	27.3
Nurse/midwife	7.9	12.7	13.6	12.9	10.9	11.8
Other	3.4	2.7	1.6	1.8	2.2	2.2
Percent paying for Health Care	72.7	81.8	72.0	84.5	75.4	77.3
Average Monthly Fees * (in Kwacha)	1304 (\$1.19)	2613 (\$2.36)	3645 (\$3.31)	6279 (\$5.71)	14482 (\$13.17)	5223 (\$4.75)

\* The population sample was larger for this variable.  
Source: LCMS

The choice of provider for adults differed by income level. As income increased, adults were less likely to use government clinics and more likely to use private and company clinics, although the difference was only apparent for use of the private facilities for the fifth quintile. The average monthly fees paid also increased as the income quintile increased.

The majority of adults (77 percent) paid for their health care, either through direct pay or through a prepayment scheme (Table 5). Approximately a quarter paid directly for their care while approximately 40 percent used a prepayment scheme. In some cases (6 percent), employers paid for the health services of the respondents. Payment status varied considerably by type of institution visited. Whereas 40 percent of those visiting a hospital and 29 percent of those visiting a health center did not pay because they belonged to a prepayment scheme, this was true of only 4 percent of those visiting a private provider. Only about one-fifth of the users of hospitals and health centers paid directly for their care compared to 60 percent of the clients of traditional providers, 68 percent of private providers, and 72 percent of mission institutions. Nearly half of health center patients, one-third of hospital and only 14 percent of private provider patients did not pay.

**Table 5. Forms of Payment for Adult Curative Services**

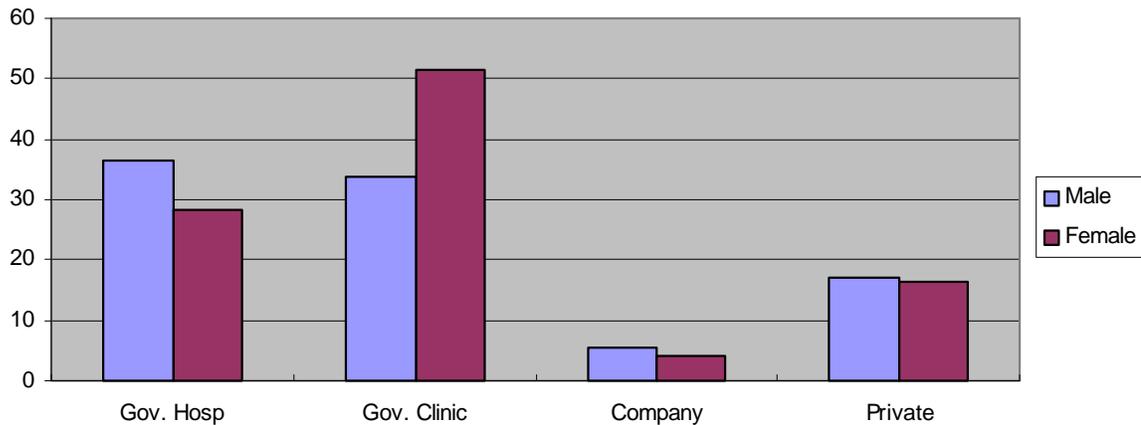
Forms of Payment	QI (n=88)	QII (n=110)	QIII (n=125)	QIV (n=116)	QV (n=138)	All (n=577)
Direct Pay	34.1%	33.6%	23.2%	31.9%	28.3%	23.3%
Prepayment Scheme	36.4%	40.9%	44.8%	45.7%	36.9%	41.1%
Employer	2.3%	7.3%	3.2%	6.0%	9.4%	5.9%
Other	0.0%		0.8%	0.9%	0.7%	0.5%
Didn't Pay	27.3%	18.2%	28.0%	15.5%	24.6%	22.7%

Source: LCMS Data

Payment status also varied substantially by type of provider visited. This discussion will look only at doctors, COs, and nurses/midwives who together accounted for 97 percent of visits in the previous two-week period. Doctors were most commonly paid directly by the patient, nurses/midwives least commonly, with COs coming in between these two (34 percent, 20 percent and 27 percent, respectively). Nurse/midwife visits were the most likely not to have been paid for, doctors the least likely, with COs again taking on an intermediate value (61 percent, 32 percent and 40 percent, respectively). COs and doctors were equally likely to have treated persons in prepayment schemes, though such visits constituted a larger proportion of the total care provided by COs compared to doctors (31 percent vis-à-vis 27 percent, respectively). Eighteen percent of the care provided by nurse/midwives was provided to prepayment scheme members.

Some differences in utilization of services were found between men and women (Figure 2). Men were slightly more likely to seek care when ill (45.9 percent) than were women (43.2 percent). In addition, women were more likely than males to use government clinics, while men were more likely to use government hospitals and private and company institutions. Men were also more likely to be attended by a doctor than were women. Women, on the other hand, were more often attended by a clinical officer or a nurse/midwife.

**Figure 2 . Health Facility Utilization by Sex**



### 3.4 Monthly Household Health Care Expenditures

Lusakans also spend considerable amounts of money on health care. According to the LCMS, Lusakans annually spend 24 billion Kwacha (US\$ 22 million) on all health-related goods and services, including:

- ▲ nearly 12 billion (US\$ 11 million, \$8.73 per capita) on drugs (50 percent of the total),
- ▲ 5 billion (US\$ 4.5 million, \$3.61 per capita) on modern health care providers (21 percent of the total),
- ▲ nearly 3 billion (US\$ 2.7 million, \$2.16 per capita) on traditional providers (11 percent of the total),
- ▲ more than 2 billion (US\$ 1.8 million, \$1.44 per capita) on hospital expenses (10 percent of the total) and
- ▲ contributions to prepayment schemes of nearly 2 billion Kwacha (US\$ 1.8 million, \$1.44 per capita) (8 percent of the total).

While Lusakans constitute 14 percent of all the households in Zambia, they account for a disproportionate share of total health-related expenditures, 37 percent. Of the five health-related expenditure categories reported in the LCMS, the most lopsided one in terms of the proportion of the national total accounted for by Lusaka is “modern provider fees;” Lusakans’ expenditures constituted 55 percent of the Zambia total. The average household’s monthly health-related expenditures were 8,433 Kwacha (US\$ 7.69). This is the equivalent of 7 percent of the median monthly household income. The average Lusakan household spends more than twice the amount spent by the average Copperbelt household on health-related items: 8,433 versus 4,131 Kwacha, respectively.

---

## 3.5 Medical Consultation Expenditures in Lusaka

### 3.5.1 Free Care and Fee Exemption Status

Of the 41 percent of the 1,269 persons who had a consultation in the previous two weeks and who reported that they did not pay for that care, 22 percent qualified for official fee exemption status; that is, they were either less than five years old or more than 65 years of age or had a chronic disease. Approximately 10.5 percent of adults did not pay for services because they had a chronic disease such as hypertension or tuberculosis. These persons constituted 10 percent of all of the persons who had at least one consultation in the previous two weeks.

Eleven percent of the total sample population—those with and those without a consultation—qualify for being exempted from paying for MOH care. The fact that the proportion of persons who are fee-exempt in the general population is roughly equal to the proportion of fee-exempt persons among those who had at least one curative consultation in the past two weeks (other things being equal) suggests that the fee exemption policy has not encouraged undue or superfluous utilization. By the same token, however, it also suggests (again, other things being equal) that it has not encouraged the utilization of these persons who are generally regarded as in need of more care than the “average” person.<sup>7</sup>

Eighty-eight percent of persons who did not pay for care visited either a government hospital (19 percent) or a government health center (69 percent). While the users of private institutions who did not pay for care comprised only 4 percent of the total non-paying patients, they constituted 14 percent of all private sector patients.

### 3.5.2 Payment Levels

The 27 percent of the respondents who had a consultation in the last two weeks and paid directly for it paid a mean of 9,346 Kwacha (US\$ 8.50). The value of the median payment was 2,500 Kwacha (US\$ 2.27), only one-quarter the mean payment, reflecting the highly skewed right distribution of payments. The median payment for children was 7543 Kwacha (US\$ 6.86), reflecting the fact that most payments were to private facilities.

As one would expect, payment levels vary considerably by source of care. For instance, the mean payment of persons who attended a government health center was 1,434 Kwacha (US\$ 1.30) and the median was 700 Kwacha (US\$ 0.64), whereas persons who visited a private, for-profit provider paid a mean of 18,116 (US\$ 16.47) and a median of 10,000 Kwacha (US\$ 9.09). While industrial/company institutions’ fees were even higher than the private, for-profits’, there were only four persons who reported having paid for this type of care. The figures reported for industrial/company institutions, traditional institutions, as well as the other three precoded response categories contained in the questionnaire, should only be regarded as indicative and not representative, as the low number of observations in these categories results in their having a very low level of statistical significance.

---

<sup>7</sup> Again, it is important to recall the shortcoming of this database: it does not include well child visits (the MOH’s “under five clinic” visits), which likely account for a large proportion of the care used by this important segment of those exempt from fees.

The variation in payment levels by provider type was substantial, both for a particular type of provider, as well as across different types. The mean of fees was 16,214 Kwacha (US\$ 14.74) and the median was 6,750 (US\$ 6.14). These levels are both roughly 10 times the average levels of clinical officers and nurse/midwives who had received payment levels comparable to each other.

### 3.6 Prepayment Schemes

Twenty-three percent of households in the total sample (i.e., including both those that had and those that had not made a consultation) belong to a prepayment scheme. While there are some prepayment schemes in the private sector, the public sector facility-based schemes are much more common. Ninety-seven percent of persons who did not pay because they belonged to a prepayment scheme visited a government facility, either a hospital (34 percent) or a health center (63 percent). In contrast, only 2 percent of those who did not pay because they belonged to a prepayment scheme were treated by a private provider. Only 4 percent of the users of private providers reported belonging to a prepayment scheme.

The substantial proportion of Lusakans who belong to a prepayment scheme and the even higher proportion of persons seeking care who belong to a prepayment scheme are essential elements that must be taken into account in developing a Lusaka-specific strategy for marketing ZAMHEALTH. It would be prudent to begin work on designing a similar type of scheme for ZAMHEALTH.

### 3.7 Effects of Facility Price on Choice of Provider

To determine whether price and distance to a facility are important determinants of the choice of provider for a consumer and to what extent these factors would affect the use of a ZAMHEALTH clinic, a regression analysis was conducted.

In the first regression, the effect of cash price and distance to adult curative care services on choice of provider were examined (Table 6). The results indicate that the cash price paid in private facilities had a small, negative effect on the use of private facilities.

**Table 6. Coefficients of Regression Analysis of Choice of Provider by Adults (N=846)**

Variable <sup>8</sup>	Government Hospital	Government Clinic	Private Facility
Private Clinic Price	.00009 (.99)	.00002 (.24)	-.0004(2.97**)
Distance to Government Clinic	-.280(1.58)	-.097(.88)	-.456(2.05**)
Distance to Government Hospital	-.093 (2.29**)	.043(1.64**)	-.006(.15)
Log of Income	-.192(1.46)	-.134(1.17)	.59(4.09**)
Primary Education	-.134(.351)	.147(.488)	-1.33(2.13**)
Secondary School Education	-.141(.458)	.245(1.02)	.149(.404)

\*\*Statistically significant at the 0.05 and 0.10 levels

Distance to facilities also affected the likelihood that public facilities were used. The distance to a government hospital was negatively associated with its use, but was weakly positively associated

<sup>8</sup>Other factors that are controlled for in this analysis are type of illness, household head's occupation, sex of household head, and age.

with use of the government clinic. This indicates that clinics and hospitals are substitutes for each other, and customers are more likely to visit a clinic if the distance to the hospital is further. In addition, the distance to a government clinic was negatively associated with the use of a private facility, suggesting that the two types of clinics frequently are found in the same locality.

Other factors that affected the likelihood of using private services were educational status and income level. If the educational level was low, i.e. at the primary level, the respondent was less likely to visit private facilities, while he/she was more likely to use them when from a higher income group.

The marginal effects, or elasticities of demand, of economic factors on choice of provider were also estimated in order to determine the magnitude of the effect (Table 7). They demonstrate that the magnitude of the effect of price on use of private facilities is small and was 0.001 percent, the magnitude of the negative effects of distance to government clinic was 0.7 percent to 1.6 percent, and the magnitude of the effect of income on choice of provider was larger and ranged from 1.2 percent to 1.9 percent. Due to the small size of these effects, no adjustment of price on utilization was made to the cost simulation in Chapter 5.

**Table 7. Marginal Effects**

Variable	Government Hospital	Government Clinic	Private Facility
Private Clinic Price	.0000	.0000	-.00001
Distance to Government Clinic	-.016	-.007	-.010
Distance to Government Hospital	-.006	.006	-.0001
Log of Income	.012	-.019	.0141

A second analysis was conducted to determine the effect of distance to facilities on the use of health providers for children in Lusaka (Table 8). Because children under the ages of five are exempt from fees in the public sector, and limited information is available on fees in private facilities, consultation fees were not used as independent variables in the analysis.

**Table 8. Coefficients of Regression Analysis of Choice of Child Curative Care Provider (N=926)**

Variable	Government Hospital	Government Clinic	Private Facility
Distance to Government Clinic	0.141 (0.129)	-0.352 (4.13***)	-0.99 (4.42***)
Distance to Government Hospital	-0.004 (0.148)	0.067 (3.309***)	0.211(4.85***)
Log of Income	0.459 (3.598***)	-0.327(3.328***)	1.37 (6.99***)

The regression results indicate that distance to clinics had an effect on choice of provider for child curative care. The distance to the government clinic had a negative effect on both the use of the government clinic and the private facility for child curative care. The distance to the government hospital also had a positive effect on use of both private and public clinics. The distance to a government hospital had no effect on the probability of its use, perhaps because there is no substitute for the services offered at this kind of facility.

---

### **3.8 A Summary of the Implications of the Consumer Demand Findings for the Feasibility of the Franchising Model**

- ▲ The initial consumers of ZAMHEALTH clinics would be men, women, and older children (5–12 years of age) of higher economic status, since they are more likely to use private facilities.
- ▲ Because the majority of clients are paying for services and the price elasticity of demand is low in Lusaka, if ZAMHEALTH clinics were opened, price would not be expected to be a major deterrent to the decision to use these facilities.
- ▲ Since distance to health clinics has a negative effect on consumers' demand for private services and distance to public hospitals a positive effect, the placement of ZAMHEALTH clinics should be carefully considered to encourage use of their services by target populations. The clinics should not be placed next to government hospitals but in areas where clinics are more likely to be used.
- ▲ If ZAMHEALTH clinics are accessible and fees for services are comparable to those at government clinics, consumers from lower income groups are likely to make use of these facilities.

---

### **3.9 A Closer, More Qualitative Look at the Lusakan Private, For-Profit Sector: Identifying Some Important Components of a ZAMHEALTH Market Strategy**

In an effort to identify the nature and extent of competition that ZAMHEALTH clinics might confront in Lusaka, it is necessary to take a closer look at the private and public sectors. The discussion turns first to an analysis of the private sector. The major sources of information here are interviews conducted with the staff and official documents of the MCZ; a private provider survey, commissioned by PSI and performed in 1996; interviews conducted with private sector providers; and a small survey of households and providers in potential franchise clinic-site compounds of Lusaka.

In a subsequent section, aspects of the public sector are analyzed in a discussion of how to strategically locate the ZAMHEALTH clinics.

#### **3.9.1 ZAMHEALTH's Private Sector Competitors—Numbers and Types of Private Practices**

The MCZ is charged with certifying and regulating health practitioners and health care practices throughout Zambia. The Council refers to all private health care practices as “consulting rooms,” which include individual doctor practices, multi-doctor clinics, surgeries or dental clinics all open to the general public, or a company- or some other institution-based health care facility that treats only its own workers or members. By law, all consulting rooms must be registered with the MCZ. The MCZ has established minimum (primarily structural) requirements that are a prerequisite to becoming certified, as well as to maintaining certification.

The MCZ employs a consulting room inspector who maintains a list of certified consulting rooms. The list, which was updated in early 1997, identifies 130 consulting rooms in Lusaka province. With the help of the inspector, the 130 consulting rooms were classified as institutional, industrial/company, and individual, where:

- ▲ “institutional” refers to a facility that is owned and operated by a particular group of persons or society for its exclusive use (e.g., the Makeni Islamic Society Clinic, the Lusaka Adventist Church Clinic, etc.),
- ▲ “company” designates a facility that is owned and operated by a commercial business for exclusive use by its employees, and
- ▲ “individual” refers to facilities that are owned by private individuals and open to the general public.

Slightly less than two-thirds of the consulting rooms in Lusaka province, a total of 83 practices, consist of MCZ “individual” category practices, which are the ones that are likely to be the most directly competitive with ZAMHEALTH clinics.

These 83 individual clinics can be further categorized to distill a group more directly comparable to the ZAMHEALTH clinics. First, the ZAMHEALTH clinics will be urban-based. This rules out six of the 83 individual clinics. Then the specialty dental and eye clinics—of which there are a total of 12—can be dropped. Finally, another five can be ruled out because they target the highest socioeconomic strata and are very high cost/high price operations (Scott, 1996). This leaves 60 private sector facilities that are most likely to be competing with ZAMHEALTH clinics. Hence, the number of private providers who are likely to be most directly competing with ZAMHEALTH clinics is considerably less (about 46 percent)—suggesting that the feasibility of a ZAMHEALTH franchise is much better—than had initially appeared to be the case.

### **3.9.2 Employer-Sponsored Care and Private Clinic Membership Schemes**

There are two common ways in which businesses pay for the health care costs of their employees in Lusaka: either the business (for profit or non-profit) directly employs a health care professional and provides him/her with an office and supplies or the business enters into a contract with one or more providers. The former type of arrangement has already been alluded to: it consists of the private provider consulting rooms that were earlier labeled “industrial/company,” and of which there are 38 (29 percent of all consulting rooms) in urban Lusaka. The output of these clinics appears to be quite low, however, as has already been noted.

The second type of arrangement generally involves the company’s entering into a contract with a private clinic and paying an initial enrollment fee and a quarterly (or occasionally an annual) fee that varies by the number of workers to be covered by the agreement. Private clinics generally regard the initial joining fee as being intended to cover the clinic’s administrative costs, while encouraging relatively constant membership rolls by providing a disincentive to frequent disenrollments and re-enrollments. The purpose of the quarterly fee depends upon the nature of the scheme. There are two general types of schemes: those that constitute an HMO-like entity and those that function as traditional fee-for-service providers. In the HMO-like schemes, the quarterly fee is, in essence, a capitation fee, which makes the insured eligible to receive a defined package of services free-of-

charge. This type of arrangement is sometimes referred to as “fee-for-coverage,” which may be contrasted with “fee-for-service.” To our knowledge these plans provide coverage only for outpatient care. For inpatient care, generally the employer pays the inpatient facility on a fee-for-service basis and covers all “medically essential” service costs, which typically exclude maternity care.

In the second type of membership scheme, the quarterly fee is usually much less and is paid in order to obtain “member” status, which simply entitles the insured to price discounts in a fee-for-service system. It is also fairly common for the same private clinic to provide subscribers with a choice of paying a quarterly fee for a package of service or paying fee-for-service.

Generally workers covered under any of these types of arrangements do not have to pay for their care at the point-of-service. In the case of HMO-like arrangements, no accounts (other than personal medical records) are maintained about the services included in the covered services package. When the services provided are other than those in the covered services package and for all of the services provided in the price-discounted, fee-for-service membership schemes, the clinic submits a detailed monthly bill to the company listing the type and quantity of each service provided to the company’s workers. Businesses regard this system of deferred payment as desirable because it simplifies administration and because, in many instances, there is an understanding between the business and the clinic. Depending upon the recent financial performance of the business and the amount and cost of care obtained in a particular month, the business may not be able to pay the full bill upon receipt. In essence, this arrangement constitutes a type of credit for the business.

Historically, the norm has been for the company to pay the entire medical care bill of an employee who has used the contracted provider. In return for channeling patients to the clinic, the employer generally receives (in addition to the deferred billing) a discount from the prices normally charged by the clinic to individual patients. The discounts are modest, ranging from 5 to 20 percent. The size of the annual fee may vary somewhat by the number of workers covered by the agreement. In some cases, the fee is a fixed amount per insured or per insured family. In other cases, the fee structure varies by firm-size categories; e.g., one fee for firms with 1 to 100 employees, another fee for those with 101–200 employees, and a third fee for those with more than 200 workers.

In addition to companies, annual memberships are offered to individuals and families as well. The incentive for an individual or a family to enter into such an agreement is the anticipation of large medical care expenditures, since the only advantage of belonging to the plan is the price discount members are given. It is noteworthy that while individual and family subscribers to these membership schemes appear to put the clinics they enroll in at great risk of adverse selection (because the enrollees are anticipating using a relatively large amount of medical care), the clinics (still) do not establish any deterrents to their excessive use of care; there are no maximum number of visits allowed and no utilization controls. This suggests that the discounted prices are adequately high enough to cover the variable costs of the care provided and probably also reflects the clinic’s business strategy in the demand-constrained Lusaka market.

It is important, however, to put these arrangements in perspective: individual and family memberships appear to constitute a relatively small proportion of the total members in these plans. One busy clinic, for instance, reported that it had membership scheme contracts with 75 companies and only 52 individuals and families.

In terms of the cost of these arrangements, Charlotte Scott (1996) reports that annual membership fees range from US\$20 to \$100 for doctor-care clinics and from US\$2 to \$20 for clinical officer-care clinics (although she does not indicate if these are individual or family rates).

### **3.9.3 Current Market Dynamics: The Changing Nature and Significance of Membership Schemes**

How important are business membership scheme contracts to private clinics? On the basis of LCMS data, it appears that company contracts accounted for 13 percent of all private sector health care use in Lusaka in late 1996. Two other close-ended response categories in the survey questionnaire also capture, at least in part, company-sponsored health care. These are (1) the 4 percent of the persons with a health care visit who reported that they did not pay directly for their care because they had coverage from a private sector prepayment plan and (2) another 1 percent who said that they had paid for only part of their care and that “some other person/agent” had paid for the remainder.

If all of these persons had some type of company contract coverage, employers would have covered 18 percent of all private sector care. If it is assumed that a substantial portion of the 14 percent of persons who responded that they “did not pay” for care did not do so because they had employment-related care, the total would be less than one-third of the private sector patients. Thus, while employer-sponsored care may account for as much as one-quarter or, perhaps, nearly one-third of private sector care, and that this may be the foundation of the busiest, largest, best staffed and equipped clinics’ businesses in Lusaka, it must be concluded that for the sector as a whole, walk-in patients are the mainstay.

From our interviews with private sector providers and businesses it appears that the business-supported segment of the private health care market has changed substantially in the last two or three years. It appears, therefore, that the current size and importance of these employer-related arrangements has diminished, and perhaps dramatically so, in the past few years. Until only recently, huge parastatal enterprises dominated much of the Zambian economy and, insulated from domestic competition, commonly had high remuneration levels, including generous health benefits. Usually the parastatals (and most other large companies) have paid for all of the workers’ health care, as well as that of his/her family, including his/her parents. With the recent demise of most of the parastatals and other significant changes associated with the private and public efforts to stabilize and rejuvenate the economy, efforts to cut costs have had an important impact on the relationship between businesses and private clinics.

The health care benefits manager of one large company reported that it had cut its annual health care costs by nearly 70 percent by moving from a system where the company had provided 100 percent coverage to one in which the company’s liability is limited and defined. Under the new system (introduced in April 1996), the company and the worker both put 2.5 percent of the worker’s salary into a medical care account. That account can only be used to pay health care costs. If the worker and his family’s annual health care costs exceed the amount in the account, it is the worker’s responsibility to pay the difference. If their costs in a given year are less than the sum of money put into the account, the worker may either withdraw his contribution at the end of the year—in which case he/she loses the company’s matching contribution—or he/she may leave their excess contribution for the year in question in the account, in which case the company match is retained as well, both continuing to accumulate and to be used to cover excessive health care bills in some future year.

In some instances, it is reported that businesses simply terminated health care benefits. In other cases, it has been reported that improvements in the public sector’s performance (that of MOH health centers, in particular), together with the introduction of the prepayment schemes, have prompted

some businesses to substitute the new public scheme for their former private clinic scheme. Where businesses have maintained private clinic membership contracts for their workers, it is reported that, in many instances, the coverage has been reduced to the worker’s immediate family or to just the worker. In other instances, it is reported that the worker now must make a contribution to the health scheme, as in the previously noted example. There are also reports that some companies have monetized their health care contribution and now simply pay a fixed amount to the worker, in lieu of the company’s directly purchasing any medical care or paying enrollment scheme subscriptions.

Another way in which the traditional relationships between large companies and private clinics has changed is that some companies now enter into contracts with more than a single clinic. In such instances, workers are given the right to choose which clinic membership scheme they will enroll in each year. Few companies have introduced this type of change, however.

Finally, it is also reported that three private companies have started to work on offering hospitalization insurance plans. Of the three companies—Zambia State, Madison and PIC—only Zambia State is reported already to be marketing its plan. As noted, employment-based membership schemes usually cover only outpatient care. Employers’ coverage of inpatient care usually has excluded maternity services. This suggests that this is a potentially important niche for ZAMHEALTH to cultivate. Packages of maternity services (including specified numbers of ante-natal visits, inpatient delivery, and a post-partum check-up) have proven to be one of the most effectively marketed and most lucrative services provided by PROSALUD in Bolivia.

### 3.9.4 Further Refining the Taxonomy of Private Sector Providers: Positioning ZAMHEALTH in the Market

Scott (1996) developed a taxonomy of the 60 private “individual” providers. She identified two distinct groups, distinguished primarily by their chief care provider: one being characterized as doctor-care-providing and the second as chiefly clinical officer-care-providing. Group 1, the doctor-care clinics, all have at least one full-time doctor, whereas in the Group 2 clinics, doctors are, at most, only part-time. Scott then takes a closer look at each of these groups, and finds other differences, as well. The Group 1 clinics which are larger practices in terms of their staff and facility, offer more services and are generally more formal, structured businesses. Table 9 provides a summary of the major comparison points. All of the Group 1 clinics have at least one nurse and two other support staff, half also have a midwife and many (7 of 19) have at least a part-time specialist, as well. In contrast, the Group 2 clinics have few other staff; half have a nurse and half have a midwife. The Group 1 clinics generally have shorter work weeks, providing services for an average of 54 hours per week, compared to Group 2 clinics’ 62-hour average.

**Table 9. A Taxonomy of the Private Clinics Most Similar to ZAMHEALTH: Key Characteristics**

Group 1 (n=19)	Group 2 (n=14)
All have at least one full-time doctor 7 have at least part-time specialists Generally have other staff, as well: Most also have a a nurse Half have a midwife At least two support staff One-third have lab technicians Half are located in compounds, Remainder in other parts of town	Doctors are at most only part-time Generally longer service hours Few other staff: Half have a nurse Half have a midwife

It appears that we can further disaggregate Group 1 clinics as being either single doctor practices or multi-provider clinics (the latter having either more than one doctor or a full-time doctor and one or more COs). One would expect that most of the Group 1 clinics with contracts with employers are the multi-provider clinics, since they must be judged as having adequate capacity for expeditiously treating workers. Another distinction that can be made is by location: Scott noted that half of the Group 1 clinics are located in compounds, the majority of which are single doctor practices. On the basis of these systematic differences in the Group 1 clinics, two subgroups clinic types may be distinguished: (1) larger, generally busy clinics with company contracts generally located in more commercial areas of Lusaka and (2) small, usually single provider clinics, which are very similar in structure and operations to the CO-care providing Group 2 clinics and which generally do not have company contracts. These single-provider clinics rely principally on walk-in patients and, relative to their capacity, do not provide many consultations. It is these larger Group 1 clinics that are presently undergoing the most change in their business and are being forced to search for new strategies with which to deal with the current market dynamics discussed in the preceding section.

### **3.9.5 Evidence of a Demand-Constrained System: The Private Sector's Capacity Utilization and Its Implications for ZAMHEALTH's Doctor Strategy**

Despite the fact that there are only an estimated 1500 doctors in Zambia, with about 300 of these in private practice (including Zambia Consolidated Copper and Mines [ZCCM] facilities), and only 130 private consulting rooms in Lusaka, various indicators suggest that there is considerable excess capacity in the private health care sector. First, on the basis of the LCMS survey data, it is estimated that the entire private sector in Lusaka province annually provides about 430,000 consultations. Dividing by the MCZ's figure of 130 facilities, this comes to an annual average of 3,308 consultations per consulting room, and, assuming there are 50 work weeks per year, there is an average of just 66 consultations per consulting room per week. This is a low level of output, suggesting there is considerable excess capacity in the private sector. If, for instance, it is assumed that the average consulting room offers care for five days a week, eight hours per day, this comes to just 1.7 consultations per hour.

There is another source of quantitative data that may cast some additional light on the issue of the private sector's capacity utilization and that may be reviewed to see how consistent it is with this preliminary portrait of a small but underutilized private sector. In her 1996 private sector survey, Charlotte Scott closely studied 33 private clinics. These clinics were all of the "individual" type (in the foregoing taxonomy) and Scott regarded them as most representative of the private entities likely to compete with franchise clinics. She reported that the "typical" clinics had roughly 105 consultations per week and that, on average, they provided care for 57 hours per week. Assuming clinics are open 50 weeks per year, we can estimate that the average private sector consultation lasts 33 minutes. That is a lengthy average consultation time. Moreover, this does not include the nine facilities that Scott found that had only about ten patients per week. If these are included, the average number of consultations per clinic per week falls to 85, and the average consultation time increases to slightly more than 40 minutes.

It may be concluded that private sector health facilities in Lusaka operate at well below their capacity; that is, they could expand the number of consultations they are providing considerably. If we assume that a doctor can see one patient every 15 to 20 minutes then, the "individual" private clinics in Lusaka, considered together, are operating at between 38 and 50 percent of capacity.

One would expect in a country such as Zambia, where the doctor-to-population ratio is low—there are only 0.09 doctors per 1,000 population—that the principal constraint on the market is a supply constraint; i.e., the primary reason the amount of doctor-provided care is not higher is the relative shortage of doctors. The low number of consultations per doctor, however, suggests that the market—at least the Lusakan market—is principally demand constrained. This is a different situation than the one PROSALUD has confronted in Bolivia. It suggests that it may be much harder for ZAMHEALTH to get a foothold in the Lusaka market. At the very least, it urges caution in estimating what size market share ZAMHEALTH can be expected to capture in its first years in operation and how rapidly that market share can be expected to grow. On the other hand, the excess capacity of the private sector suggests that there are private providers available who could work for ZAMHEALTH clinics, despite the very low number of doctors in Zambia. Hence, from a doctor manpower availability perspective, the ZAMHEALTH franchise looks viable. There appear to be adequate numbers of doctors that are underemployed in Lusaka and that ZAMHEALTH could hire at roughly the current market rates.

What are the current market rates for doctors in Lusaka? There are three distinct segments within the market, comprised of the MOH, the Catholic Medical Association of Zambia (CMAZ), and the private sector. Their monthly rates of remuneration vary markedly, from a low of 234,000 Kwacha in public service, to the CMAZ's average salary of 352,000 Kwacha, and the private sector's average of nearly 2 million Kwacha.

In a doctor-scarce environment such as Zambia, one would expect that it would be exceedingly difficult to implement an organization that relies to a significant extent on net revenues generated by unsalaried doctors splitting their fees with the organization. In the demand-constrained market, which renders many doctors under-employed in Lusaka, doctor fee-splitting arrangements are already a reality and are fairly common. These arrangements most commonly involve specialists, but at least one involves general practitioners (GP) as well. Other private clinics hire specialists whom they pay by the hour. One clinic reported that it has seven specialists that it hires to provide specialty clinics at specified times during the week, all of whom work on a fee-splitting basis, with 60 percent of the consultation fee/honorarium (i.e., exclusive of ancillary tests, medicines and other charges) going to the clinic and 40 percent being retained by the doctor. Another clinic reported that it hires GPs on an as-needed basis and pays them a set fee. Yet another clinic reported that it had employed specialists in fee splitting arrangements for several years, but had just decided to refer its patients to specialists as needed rather than maintaining the fee-splitting arrangements. This clinic found that when it provided specialists with a work site and patients, the specialists tended to “steal” its patients by referring them to the specialists' own private clinics. This clinic's strategy was to use referrals as a means to forestall the erosion of its client base.

The conclusion that the private health care market is demand constrained should not be interpreted as suggesting that all private clinics in Lusaka are struggling. There are some that are keeping very busy. For instance, the Primary Health Services clinic reports an average of more than 3,000 consultations per month and the Premium Medical Services' registration book for the first eight months of 1997 has a monthly average of 3,500 patients. It is interesting to note that these two clinics' approach to the market are markedly different: one is a high-end, upscale clinic with a relatively high consultation price (K. 9,000) and much higher average total consultation costs of roughly K. 80,000 (including ancillary tests and prescriptions) compared to prices of K.5,000 and K. 15,000 that the other clinic charges. While both rely overwhelmingly on institutional contracts, with walk-ins comprising only 10-15 percent of their patients, their marketing strategies are very different. One takes pride in providing what it regards as the highest quality care available in Lusaka. The other takes pride in the high volume of patients it serves. In the former, only doctors provide care. In the

latter, there is a single doctor and two clinical officers, who together provide more consultations per month than the other clinic's five full-time staff doctors and seven part-time specialists. Clearly, the development of a business strategy and the cultivation of a particular market niche are crucially important in this environment.

---

### **3.10 A Summary of the Implications of the Market Analysis Findings for the Feasibility of the Franchising Approach**

- ▲ There are adequate underemployed doctors and clinical officers in Lusaka suggesting it will not be difficult to recruit professional staff for the franchise clinics.
- ▲ There already exist fee-splitting arrangements with both GPs and specialists, suggesting it will be possible for the franchise clinics to implement such schemes.
- ▲ The market is highly differentiated/segmented, suggesting there exists considerable competition in the market.
- ▲ Competition is of both a price and a non-price nature.
- ▲ Employment-related membership plans have long been an important source of patients and revenues for private clinics.
- ▲ The nature of employment-related membership plans has changed substantially in the past two or three years, having become much more competitive.
- ▲ The establishment and significant coverage of the MOH's Prepayment Schemes in Lusaka constitutes an important potential constraint on the ZAMHEALTH model's expected market share.
- ▲ The significant improvement in the structure and functioning of the public health system in the last two or three years has made it much more competitive with the private sector.
- ▲ The PROSALUD low price, high volume approach is well-suited to the price sensitivity of Zambians.



---

## 4. Crafting a Niche for ZAMHEALTH within the Lusaka Health Care Market

---

### 4.1 Introduction

Franchising provides a ready-made technology for starting a business. As such, it embodies a general business strategy that targets a particular market niche. The specific nature of that niche, however, is likely to vary depending upon the characteristics of the market. While the general business strategy remains the same, the way in which that strategy is implemented in a new market may require some adjustments so as to better ensure the success of the enterprise in its new environment. This chapter refines the work of identifying the chief characteristics of a niche for the PROSALUD-type franchise, given the nature and dynamics of the Lusakan health care market identified in Chapter III. This elaboration of the definition of ZAMHEALTH's niche provides the specific parameters which are to be introduced into the PROSALUD financial model to assess the viability of the ZAMHEALTH franchise—the topic of the following chapter.

While many of the most important changes that must be made in the PROSALUD financial model in order to better position in the Lusaka market are relatively straight-forward substitutions of fairly readily obtainable and quantifiable pieces of information, others are not readily or definitively obtainable. These inputs into the model—such as the degree of substitutability of clinical officers and nurse midwives for doctors, the prices to charge for care, the market share that a new ZAMHEALTH clinic can be expected to achieve, and what is a reasonable expected rate of growth in a ZAMHEALTH clinic's level of service delivery and in its market share—require making informed judgments based on an understanding of the specific market setting and the specific nature of the market niche which ZAMHEALTH will target. The way in which these decisions are made constitutes a fine-tuning of the franchise approach and its technology so as to best fit the unique market conditions of Lusaka.

Primarily by virtue of their ownership and managerial independence, the ZAMHEALTH clinics will have some characteristics of other private sector health care providers. Also, primarily by virtue of the nature of their mission—their target population of low to middle income Lusakans, their relatively low prices, and their concern for public health—ZAMHEALTH clinics will also share some of the characteristics of public sector facilities. As a result, the ZAMHEALTH clinics will compete to some extent with at least some portions of both the private and the public sectors. Just how competitive that relationship is likely to be, however, will depend upon the specific conditions of the Lusakan health care market, as well as the sites at which ZAMHEALTH clinics are established and various aspects of their mode of operations.

The strategy that ZAMHEALTH should be encouraged to pursue should be one in which it seeks to complement existing public and private providers. ZAMHEALTH should strive to carve out a place for itself in the Lusaka market which is as competitive as possible—i.e., one that best ensures the organization's success—while it conducts itself in a manner consistent with its stated objective of providing a high volume of high quality, low priced services to lower middle- and middle-income persons. Such an approach need not bring ZAMHEALTH into direct conflict with the private sector.

It should be a strategic imperative of ZAMHEALTH that it seek to avoid unnecessarily destructive competition with the nascent private sector. The supply of private doctors in Zambia is low; ZAMHEALTH should strive not to exacerbate this already adverse situation. Understanding the market is essential to developing a market niche and a business strategy. While reliance on a franchising-based approach is espoused precisely because it provides a general, ready-made approach to the development of a business strategy, there remain a host of market-specific considerations that need to be taken into account to fine-tune that strategy and to carve out a particular market niche, thereby better ensuring success.

---

## 4.2 The Target Population’s Utilization Rate

PROSALUD has been identified as the proposed franchiser because it has been reasonably successful at achieving its objective, which is similar to the objective of this proposed project: to provide a high volume of high quality, low priced primary health care services to a lower- and middle-income population, while covering a substantial proportion of its costs. The target population of this system is not the well-to-do, and the goal to be largely self-financing precludes targeting only the poorest. The target population, then, is the middle-income 60 percent of Lusakans.

As may be seen in Table 10, the annual per capita consultation rate of the three middle-income quintiles ranges from 2.32 to 2.90 and averages 2.66. Assuming that half of these consultations are re-visits, and adjusting the resulting rate up by 20 percent to account for the estimated number of persons who had more than a single visit in the recall period (which the LCMS did not ask about), our estimated base rate is 1.59 episodes of illness per capita per year.

**Table 10. Health Status and Consultation Rates by Income Quintile**

Income Quintile	Self-Reported to be Sick	Sick Who Consulted	% of Total Population Reporting Being Ill and Consulting	Average Number of Consultations per Person per Year
Quintile #1	22.9%	47.2%	10.8%	2.81
Quintile #2	21.9%	40.8%	8.9%	2.32
Quintile #3	23.1%	48.3%	11.2%	2.90
Quintile #4	21.2%	49.6%	10.5%	2.73
Quintile #5	18.7%	53.1%	9.9%	2.58

---

## 4.3 The Mix of Services and the Multiplier

The most detailed information available about the types of illnesses treated in Lusaka is the Ministry of Health’s service provision statistics. The MOH data revealed substantial differences in the composition of services between PROSALUD in Bolivia and Lusaka. This prompted the construction of a Lusaka-specific case mix multiplier for use in the financial simulation model. The final configuration of the multiplier was influenced not only by the mix of services provided in Lusaka, but also by the relative cost of providing different types of care. This was deemed an important additional consideration because (as described in Chapter 2) the PROSALUD financial model uses the multiplier to project the number of different types of services which it then combines with unit variable costs to develop a clinic’s and the entire network’s total variable costs.

A high proportion of all services are accounted for by three particular types of curative care consultations in Zambia—malaria, upper respiratory infections, and diarrheal disease. The costs of each of these types of consultations vary significantly. Thus, it was decided that each of these three types of visits warranted being treated as a distinct type of curative care visit. In place of PROSALUD’s single curative care measure, the Zambia model has four categories: malaria, upper respiratory infections, diarrheal diseases, and “all other” curative care.

Another change that was made in the PROSALUD case mix multiplier was in the treatment of “nursing services.” Nurse/midwives play a much more important and independent role in Zambia than in Bolivia. In the public sector and throughout most of the private sector, nurse/midwives provide virtually all well-child visits and maternity-related visits. Three distinct categories of nursing services were substituted in the simulation model for the single PROSALUD category of “nursing procedures.” The three Zambian categories are “children clinic attendances” (sometimes referred to as “under five clinic visits,” which consist of well-baby and growth monitoring visits), ante-natal, visits and a combination of post-natal and family planning visits. A decision was made to establish a separate category for ante-natal visits because their costs, on average, are considerably greater than those of post-natal and family planning services.

Another change from the PROSALUD multiplier was prompted by the observation that two of the services for which there are multipliers for Bolivia have low absolute numbers of consultations in Zambia: dental consultations and family planning visits. Dental visits were simply dropped, while family planning visits (as already noted) were combined with post-natal care to yield another service category. Deliveries, while small in absolute number, were retained as a separate category because of their (potential) financial significance.

Another modification that was made in the multiplier was in the ratio of re-attendances to first attendances. The Bolivian experience-derived number, 0.35, is far too low for Zambia. In discussions with MOH and health facility staff it was established that re-attendance rates are high in Zambia; estimates of up to 3.5 re-attendances were mentioned by some. It was decided that a rate of 1.0 would be assumed. The resulting service mix multiplier is presented in Table 11. (Refer back to Table 2 for the PROSALUD multiplier).

**Table 11. Lusaka Urban Health District Service Mix Multiplier**

Type of Service	Number of Visits	Multiplier
Upper Respiratory Infection	222,810	0.19
Malaria	206,676	0.18
Diarrhoeal Diseases	166,662	0.14
All Other Curative Care, First Attendances	566,076	0.49
Total Curative Care First Attendances	1,164,224	1.00
All Curative Care Re-Attendances	1,164,224	1.00
Children Clinic Attendances	585,043	0.50
Ante-Natal Care	194,259	0.17
Post-Natal Care and Family Planning	64,638	0.06
Deliveries	22,210	0.02

The two remaining service categories included in the PROSALUD multiplier, “laboratory procedures” and “medications,” were retained. Their multipliers, however, were modified based on interviews with, as well as a review of the records and documents of, both public and private sector providers. The average number of medications and laboratory tests were increased from PROSALUD’s 2.5 and 0.40 levels to 3.0 and 0.41, respectively. These are the number of medications and the number of laboratory tests per first attendance for other than malaria, diarrheal disease, and upper respiratory tract problems. These changes were derived from total (i.e., all illness-type) average rates of 3.0 and 0.40 for medications and lab tests, respectively, from which the weighted average numbers of medications and lab tests for malaria, diarrheal disease, and upper respiratory tract problems (respectively) were subtracted.

---

## 4.4 The Cost of Care

The PROSALUD financial simulation model has four major cost categories:

- ▲ staff,
- ▲ variable medical care costs (primarily drugs and lab and medical supplies),
- ▲ utilities, maintenance, security, and insurance, and
- ▲ construction and equipment costs.

Most of these costs do not vary with the level of services provided by a clinic, and thus may be referred to as “fixed” costs. The only category of costs for which this is not true is the second one listed, “variable medical care costs,” which has accordingly been labeled “variable” costs. The estimates of variable medical care costs were specifically prepared as part of this exercise.

As noted in Chapter 1, after reviewing them and finding them to be reasonable, we have adopted Population Services International, Inc.’s estimates of two cost categories of (1) utilities, maintenance, security, and insurance and (2) construction and equipment. (The details of those costs are presented in Annex C, available in paper copy from the PHR Resource Center.) The PSI-prepared estimates of the costs of the management support unit have also been accepted as reasonable, with the exception that the fringe benefit rate has been reduced from 50 to 25 percent to reflect Zambian practices.

### 4.4.1 Clinic Staffing

The average staffing patterns of the two types of ZAMHEALTH clinics, the base clinic and the central clinic, are presented in Annex B (available in paper copy from the PHR Resource Center) along with the estimated total remuneration for each position. The total remuneration for each position is the average (arithmetic mean) of the average total remuneration (salary plus total fringe) paid by the CMAZ and that paid in five private clinics in Lusaka, plus 10 percent for additional pay incentives.

#### 4.4.2 Variable Medical Care Costs

Nine categories of variable medical care costs were developed and incorporated into the financial simulation model:

- ▲ drugs,
- ▲ upper respiratory tract,
- ▲ malaria,
- ▲ diarrheal disease,
- ▲ ante-natal care visit,
- ▲ medical and nursing supplies,
- ▲ lab supplies,
- ▲ obstetric supplies, and
- ▲ office supplies.

Average variable cost estimates for each of the categories were prepared working primarily with two cooperative private clinics, which are well matched with the proposed ZAMHEALTH franchise in that their approach, too, is low cost, high volume. The unit cost estimates for particular illnesses and types of care were constructed by first developing a treatment protocol, and then pricing the items in the protocols and weighting each protocol by the frequency with which they were reported to be used (i.e., the percentage of total cases of the particular illness type in question). The development of these estimates involved working closely with laboratory and pharmacy personnel, and sometimes the accountants or clinic directors, to obtain unit costs for the identified inputs. The treatment protocols were reviewed and fine-tuned with input from various public and private clinic staff. Table 12 contains the treatment protocols and costs for upper respiratory tract illnesses, malaria, and diarrheal disease. Table 13 contains the estimated cost of materials for an average delivery without complications. Table 14 presents the treatment protocol and cost of ante-natal care.

For the remaining categories—drugs, medical and nursing supplies, lab supplies, and office supplies—two approaches were used to develop and check the unit cost estimates. First for drugs and lab supplies, clinic directors, individual doctors, clinical officers, or nurse/midwives were asked what the “typical” patient’s experience was like in terms of the number of lab exams and medications prescribed. A review of the last few records was used to help the interviewees generalize. In the case of laboratory personnel, this involved looking at their registers for the past few weeks to identify the number and types of tests conducted.

Working closely with one particular private clinic lab technician, we identified each of the consumable inputs required to perform each of the major types of lab tests and identified the purchase price and the quantity of those materials used in each test (table 15). Summing the per test cost of these input costs yielded our estimate of the average variable cost per lab test for each major test type. Table 16 contains our estimates of the seven most common laboratory tests using this approach.

**Table 12. Common Treatment Protocols, Costs and Prices for the Most Prevalent Curative Care Problems (in 1997 Kwacha, unless indicated otherwise)**

**A. Respiratory Tract Infection**

Treatment Component	Percent of Patients	Average Cost per Treatment Course	Weighted Average Cost per Patient
Antibiotics	20%	1,200	240
Panadol (20)	50%	120	60
Cough Syrup	25%	500	125
Antihistamine	100%	200	200
<b>Total</b>			625 \$0.49

**B. Malaria**

Treatment Component	Percent of Patients	Average Cost per Treatment Course	Weighted Average Cost per Patient
Lab Test	70%	1,221	855
Panadol	100%	120	120
Chloroquine Tabs	80%	240	192
Quinine Injection/Other	20%	7,796	1,559
<b>Total</b>			2,276 \$2.14

**C. Diarrheal Disease**

Treatment Component	Percent of Patients	Average Cost per Treatment Course	Weighted Average Cost per Patient
ORS	90%	800	720
Antibiotic	25%	1,500	375
Nalidixic Acid Tabs	20%	5,000	1,000
<b>Total</b>			2,095 \$1.64

**Table 13. The Estimated Total Cost of Materials for an Average (Birth Canal) Delivery  
(in 1997 Kwacha, unless indicated otherwise)**

Item	Percent of Births Requiring*	Cost per Birth	Weighted Cost per Average Birth
Maternity Pads	100%	40	40
Cord Clamps	100%	250	250
Examination Gloves	100%	1000	1000
Dextrose	70%	2060	1442
Ergometrine	80%	500	400
Oxytocine	20%	100	20
<b>Average Total Cost of a Birth</b>			3152 \$2.47

**Table 14. Ante-Natal Visit: Treatment Protocol and Cost  
(in 1997 Kwacha, unless indicated otherwise)**

Treatment Component	Percent of Patients	Average Cost per Treatment Course
<b>Tetanus Toxoide Vaccination</b>	100%	
Syringe and needle		465
Vaccine provided free by MOH		
<b>Multi-vitamins</b> (30 tables @K6tablet)	100%	180
<b>Lab Tests</b>		
1st Visit: RPR	100%	2,300
1st Visit: Hb	100%	1,391
All Visits: Urinalysis if clinically indicated	5%	60
<b>Total</b>		4,396 \$3.43
Average number of ante-natal visits: 5		
Average ante-natal visit cost per woman (Averages the high cost first visit over the average number of ante-natal visits)		1,059 \$0.83
Total ante-natal care costs (all visits)		5,296 \$4.14

Table 15. Laboratory Tests: Required Consumable Materials and Costs  
(in 1997 Kwacha, unless indicated otherwise)

TYPE OF TEST	REQUIRED (CONSUMABLE) MATERIALS	MATERIALS COST (In Kwacha)	UNITS IN WHICH IT IS PURCHASED	UNITS OF MATERIAL PER TEST	COST OF MATERIAL PER TEST
<b>MALARIA</b>	SLIDE	16	SLIDE	1 slide	16
	LANCET	50	LANCET	1 lancet	50
	COTTON	42.5	WOOL BALL	1 ball	42.5
	SPRIT	2,800	LITRE	2 drops	5.6
	FIELD STAIN(A/B)	1,100	LITRE	2 drops	2.2
	GREASE PENCIL	250	PENCIL	negligible	0
	OIL	250,000	LITRE	2 drops	500
			TOTAL:		616.3 \$0.48
<b>HAEMOGLOBIN</b>	NEEDLE	85	NEEDLE	NEEDLE	85
	SYRINGE	280	SYRINGE	SYRINGE	280
	SPRIT	2,800	LITRE	2 DROPS	5.6
	COTTON	42.5	WOOL BALL	BALL	42.5
	FBC CONTAINER	480	CONTAINER	CONTAINER	480
	MINICLEAN	420,000	LITRE	2 DROPS	840
	MINOLYSE	220,000	LITRE	2 DROPS	440
	MINITONE	350,000	LITRE	2 DROPS	700
	MINOCLAIR	325,000	LITRE	2 DROPS	650
				TOTAL:	
<b>GRAVINDEX</b>	URINE CONTAINER	500	CONTAINER	1 CONTAINER	500
	GRAVINDEX REAGENT	50,000	200 ML	2 DROPS	100
			TOTAL:		600 \$0.47
<b>WBC, RBC, PLT</b>	NEEDLE	85	NEEDLE	NEEDLE	85
	SYRINGE	280	SYRINGE	SYRINGE	280
	SPRIT	2,800	LITRE	2 DROPS	5.6
	COTTON	42.5	WOOL BALL	BALL	42.5
	FBC CONTAINER	480	CONTAINER	CONTAINER	480
	MINICLEAN	420,000	LITRE	2 DROPS	840
	MINOLYSE	220,000	LITRE	2 DROPS	440
	MINITONE	350,000	LITRE	2 DROPS	700
	MINOCLAIR	325,000	LITRE	2 DROPS	650
				TOTAL:	
<b>BLOOD SUGAR</b>	NEEDLE	85	NEEDLE	NEEDLE	85
	SYRINGE	280	SYRINGE	SYRINGE	280
	SPRIT	2,800	LITRE	2 DROPS	5.6
	COTTON	42.5	WOOL BALL	BALL	42.5
	GLUCOSTIX	2,800	LITRE	2 DROPS	5.6
	GLUCOMETER	58,000	PER 50 STICKS	2 STICKS	2,320
			TOTAL:		2,739 \$2.14
<b>RPR</b>	NEEDLE	85	NEEDLE	NEEDLE	85
	SYRINGE	280	SYRINGE	SYRINGE	280
	SPRIT	2,800	LITRE	2 DROPS	5.6
	COTTON	42.5	WOOL BALL	BALL	42.5
	RPR REAGENT (REAGRIN)	50,000	200 ML	2 DROPS	100.0
	CONTAINER	480	CONTAINER	CONTAINER	480
			TOTAL:		993 \$0.78
<b>URINE</b>	URINE CONTAINER	500	CONTAINER	CONTAINER	500
	MULTISTIX	69,000	100 STICKS	1 STICK	690
			TOTAL:		1190 \$0.93

We weighted each of these unit cost estimates by the number of each of these types of tests that were conducted in the last four months to develop an average unit cost of a lab test. Since malaria lab tests account for such an important proportion of all lab exams and we also calculated a malaria treatment-specific cost which included a laboratory test cost, we calculated the average cost per lab test exclusive of malaria tests. That calculation and the overall average lab test cost is presented in Table 14.

In the case of pharmacy and other materials, the last few days' prescriptions or patient bills were reviewed. The estimates derived from this approach were then cross-checked by multiplying these average-per-patient costs by the total number of patients seen in order to derive the total costs of each of these categories of expenditures. These totals were then compared with total expenditures on each of these categories of inputs as documented in the facility's accounts books or as reported by the clinic director. These totals were adjusted to net out the disease-specific or care type-specific inputs to avoid double counting.

The average variable costs of medical and nursing supplies and office supplies were estimated by taking the total expenditures over a six month period (as reported in the clinic's accounting system) and spreading these over the number of patients seen during the same period (i.e., dividing by the number of patients—as reported in the patient log/daily register).

**Table 16. Calculation of the Average Laboratory Test Cost  
(in 1997 Kwacha unless indicated otherwise)**

Type of Test	Number of Tests	Cost per Test	Total Cost
Malaria	736	616	453,376
HB	102	3,523	359,346
FBC	161	3,523	567,203
Blood Sugar	24	2,739	65,736
RPR	89	993	88,377
Gravindex	42	600	25,200
Urine	214	1,190	254,660
Totals	1368		1,814,119
Average Cost per Test			1,326 \$1.04
Totals w/o Malaria	632		1,360,522
Average Cost per Test w/o Malaria			2,153 \$1.69

---

## 4.5 Care Provided Free-of-Charge

As noted in the discussion of the LCMS data in Chapter 3, the proportion of all care (independent of provider or institution) that is provided free-of-charge in Lusaka is 41 percent. This is more than four times the level in PROSALUD. Even if the analysis is restricted to only those persons who did not pay and were supposed to be exempted from paying, the proportion of free care provided (presumably because of the patient's indigence) is 3.2 times the level in PROSALUD. Furthermore, even if the analysis is limited to only the free care provided by private practitioners (14 percent), it is greater than the 10 percent in Bolivia. Clearly, this is an important modification that must be made in the Zambian version of the financial simulation and its implications carefully analyzed in the feasibility analysis.

The ZAMHEALTH marketing strategy—which is geared to developing a niche somewhere intermediate between the public and current private providers—should anticipate a proportion of non-paying patients that is somewhere between the two extreme values of 14 and 41 percent. The ZAMHEALTH version of the financial model will need to at least double the estimate of 10 percent of total care that it will provide free-of-charge, and it would be prudent to consider making it an even higher level. This is an important parameter that will be investigated in the sensitivity analyses.

---

## 4.6 The Prices of Care

According to the LCMS data, those who paid something for their care had a median payment of 2,500 Kwacha (US\$ 2.27). If we look at only the three middle-income quintiles, however, (the targeted population of the franchise), we see that this average is disproportionately affected by the much higher average payment made by the highest income quintile group (Table 17). The target population middle-three income quintiles, had median payments of only 1,000, 1,825, and 3,000 Kwacha. If we limit the analysis to those who visited a private provider, the overall median payment jumps to 10,000 Kwacha, and that of the middle three income quintiles to 9,000.

**Table 17. Amount Paid by Those Who Paid Directly for Their Care by Income Quintile**

Income Quintile	Number of Persons	Minimum	Maximum	Mean	Median	Standard Deviation
Quintile #1	71	500	78,000	3,937	650	11,552
Quintile #2	45	500	45,000	4,288	1,000	7,620
Quintile #3	50	500	45,000	3,890	1,825	6,833
Quintile #4	62	500	150,000	9,114	3,000	20,617
Quintile #5	72	350	200,000	19,756	7,500	33,200

Note: Excludes a fifth quintile outlier who paid a doctor Kw. 300,000

Source: LCMS database for Lusaka province

One successful and busy private health clinic in Lusaka is planning to open a second clinic site in the Soweto market area. It is planning to charge 2,000 Kwacha for a consultation. This clinic, however, relies to a significant extent on clinical officers to provide care and will probably rely nearly exclusively on COs in its new Soweto facility. Depending on the type of provider and the specific location, the market conditions of Lusaka suggest that this general price range is what ZAMHEALTH should start charging in its facilities. It will be necessary to investigate (through

simulations) how variations in this price will effect the self-financing performance of the network, and, once ZAMHEALTH is in operation, it will be important to conduct some research into optimal pricing.

---

#### **4.7 Clinical Officers Versus Doctor Providers: Recasting the Issue as a Market Niche Consideration**

The PROSALUD approach specifies a uniform base level and composition of staffing for each of its clinics. That staffing level, however, is a reflection of Bolivia’s epidemiological profile, its health care provider/human resource market, and its consumers’ preferences. Thus, whether the standard PROSALUD staffing pattern is appropriate for Zambia is uncertain. Perhaps the foremost concern is the different human resource constraints and provider mix existing in Zambia. This study has concluded that there are adequate numbers of underemployed doctors available and willing and able to fee-split in Lusaka. But there are other considerations to assess before concluding that ZAMHEALTH should adhere to the traditional PROSALUD approach and rely exclusively on doctors; i.e., that because it can split fees with doctors, then it should rely exclusively on them.

First, there is a demand-side consideration; viz., what are consumers preferences? According to the LCMS, 35 percent of all medical care provided to respondents in the two-week period immediately prior to being interviewed is provided by COs, compared to 45 percent by doctors and 15 by nurses. The LCMS also reveals that 90 percent of private institution care is provided by doctors. COs provide only 5 percent of private provider care. Is this a reflection of consumers/patients not being able to distinguish COs and doctors, and making many false positive identifications of COs as doctors? Or is it that “all” of the CO-based, Group 2 private facilities are those with the low service provision levels that were identified by Scott, while the Group 1 facilities do well, providing significantly higher levels of consultations, and that this is a reflection of consumers’ preferences? Or is it a reflection of the combination of (1) the demand-constrained market, (2) underemployed doctors, and (3) the Medical Council of Zambia’s requirement that COs be supervised by doctors for at least three hours per week? The true explanation probably lies somewhere intermediate to these explanations. If CO consultations are priced considerably below those of doctors (reflecting the COs’ much lower salary), it is likely that substantial number of Lusakans would opt to see a CO rather than a doctor. This may be an important consideration in Lusaka’s demand-constrained environment, particularly since it appears that the major demand constraint is income, which impacts willingness and ability to pay higher prices.

The attractiveness of the CO option is underscored by some additional considerations. First, a general consensus that emerged in our interviews with private sector providers and officials of the MCZ was that a good CO can handle 70 percent of presenting cases. Second, it appears that the amount of free care that will be provided in Lusaka is on the order of two to four times the 10 percent in Bolivia. How many doctors are likely to agree to fee-splitting if they are going to be burdened with the need to agree to PROSALUD’s stipulation that they provide preventive care free-of-charge? This stipulation and the specter of providing inordinate amounts of free care is likely to discourage prospective fee-splitting doctors from ever entering into the ZAMHEALTH system. While it might be tempting to carve out a PROSALUD market niche that provides “only doctor-provided, high quality care,” that may be an insupportable strategy to pursue in the demand-constrained Lusaka market environment, and abandoning or backpedaling from such an image may prove destructive. A more judicious approach would be to start with clinics staffed by both doctors and COs and eventually to move, perhaps only in selected sub-markets, toward the “doctor-only” model, should it prove viable.

A telling lesson indicating the type of scenario that ZAMHEALTH could find itself in owing to the need to provide unanticipated levels of free care is provided by the recent experience of the Rabat Health Centre in Lilanda. In February 1997, this private clinic started providing free ante-natal care and a free children's (under five) clinic. (It receives the inputs for these services from the MOH George Health Centre.) Table 18 shows the evolution of these services in six months. As the figures in the table testify, the clinic was quickly inundated by free-care patients. The owner of the Rabat Health Centre realized that if the Centre was not to have all of its resources absorbed providing these free services, that it had to restructure its operations. First, the time of day during which the free care services were offered was restricted: they were made available only in the morning. Next, the Centre devoted one side of its clinic building to the free services—to which it devoted two COs and a nurse—while restricting the use of the other side of the clinic to only fee-for-service clients—to which it devoted but one CO.

**Table 18. The Provision of Free-of-Charge Public Health Services by a Private Health Centre in Lusaka, 1997**

Type of Service	Feb	Mar	April	May	June	July	Total
<b>Ante-natal</b>							
First Attendances	15	76	104	54	118	74	441
Re-Attendances	46	53	141	313	324	470	1347
Total	61	129	245	367	442	544	1788
<b>Children's Clinic</b>							
First Attendances	5	63	39	67	55	55	284
Re-Attendances	205	487	651	840	914	751	3848
Total	210	550	690	907	969	806	4132
<b>Total Attendances</b>	271	679	935	1274	1411	1350	5920

The potential danger of providing free preventive care and free indigent care in Lusaka, therefore, is a serious one that merits careful consideration. At the very least, it would be prudent to devise some contingency plans. One strategy for dealing with this situation is to be prepared to use COs to provide most free care.

Another consideration, one from the supply-side, which involves comparing the relative salaries of doctors and COs, has already been hinted at, but warrants explicit discussion. Under the terms of the fee-splitting arrangement, ZAMHEALTH would not have to directly pay the salary of the participating doctor. The doctor's salary, however, would still be reflected in the price at which the ZAMHEALTH clients would have to purchase the doctor's services. A private sector doctor in Lusaka earns roughly 2.5 million Kwacha per month. That is five times the average 500,000 Kwacha paid to clinical officers. The much lower level of remuneration of COs makes it possible to provide their services at a much lower price, and yet they can be more profitable than doctor-provided care.

There are three other points to be made in this CO versus doctor debate. First, according to staff at two MOH health centers, Lusakans have recently started asking to see a doctor rather than a clinical officer. This preference is strongly enough felt that many who wait and then see a CO are reported to then opt to wait still longer in order to be able to see a doctor, as well. Similarly, two private clinic directors reported that their patients have increasingly come to demand to see specialists as opposed to general practitioners.

All things considered, it would seem best, at least initially, to staff the clinics with both COs and doctors. This approach will allow ZAMHEALTH to empirically investigate the preferences of Lusakans and their willingness and ability to purchase doctor services, while learning first-hand just how burdensome free preventive services and free indigent care are. Depending upon its clinic-by-clinic experiences, it can then modify its strategy and marketing, should it prove necessary or advantageous to do so.

---

## **4.8 Provisional Clinic-Site Selection: Criteria, Application, and Preliminary Results**

Having decided that the franchise would be set up in Lusaka, the franchise-siting issue becomes: Where within Lusaka should the eight individual clinics be situated? It was decided that data on the coverage and performance of each of the 20 MOH Lusaka Urban Health District health centers should be analyzed in order to identify areas in greatest need of additional health care clinics.

Various measures of the coverage and performance of the 20 health centers were assembled or developed:

- ▲ the size of the official catchment area,
- ▲ number of providers in the clinic, where “provider” was defined as the sum of all doctors, nurses and clinical officers,
- ▲ the number of providers per person in the official catchment area,
- ▲ the annual number of consultations provided,
- ▲ the annual number consultations per person in the official catchment area, and
- ▲ the number of visits per provider.

Six indicators for each of the 20 Lusaka urban health centers and the ranking of each center on that specific indicator were developed (see Annex D, available in paper copy from the PHR Resource Center). The higher the center’s ranking on the particular indicator, the greater is either (a) the apparent shortage of health resources in the center’s catchment area, or, (b) the lower is the amount of health care services provided by the center. Hence, the higher a health center’s ranking, the greater is the attractiveness of the center’s catchment area as a potential site for locating a franchising clinic.

A consultative Market Analysis Methodology Meeting was conducted with MOH, the Central Board of Health, the private sector, Lusaka District, and cooperating partner personnel. They indicated that the measures most important to consider in the clinic siting decision were the composite indicators; i.e., those that combined two measures. In particular, the number of consultations per person in the catchment area and the number of visits per provider were regarded as the two best measures: combining coverage and performance measures and going beyond potential coverage towards a more operationalized measure (albeit, still with some significant shortcomings—most notably not being able to identify the service as distinct from the catchment area from which patients were drawn).

Nine MOH health center catchment areas were surveyed, with 25 households interviewed in each area. Applying the two “preferred” criteria—number of attendances per provider and number of attendances per person in the catchment area—yields the same seven selections of MOH health center catchment areas as potential franchising clinic sites in eight of the nine places. (See Tables 20 and 21.) On the basis of judging the number of attendances per provider as a more powerful indicator of the need for more health care, it was decided that the ninth clinic site would be the one indicated by this criterion. The resulting list of potential franchising clinic sites to be surveyed, in order of their ranking (with a higher ranking indicating a site which is more likely to be selected), is presented in Table 20, along with some additional information pertinent to site selection, viz.: (1) the socio-economic status of the compounds within the clinics’ catchment areas and (2) whether or not the clinic was one that would be upgraded in the next year as part of the ODA Lusaka Urban Health Project.

**Table 19. Lusaka Urban District Annual Average Number of Attendances per Person in the Center’s Catchment Area**

Rank	Health Center	Average Number of Visits per Person
1	Kalingalinga	0.27
2	Chainda	0.41
3	Chilenje	0.45
4	Mandevu	0.75
5	Bauleni	0.82
6	Lilayi	1.11
7	Chelstone	1.21
8	Kanyama	1.22
9	Kabwata	1.30
10	Civic Centre	1.42
11	Chawama	1.46
12	Matero Reference	1.48
13	George	1.75
14	Mtendre	1.97
15	Matero Main	2.48
16	Kaunda Square	4.20
17	Makeni	5.21
18	Kamwala	6.59
19	Chipata	7.26

**Table 20. Relative Rankings of the Nine Potential Franchise Clinic Sites**

<b>Ranking</b>	<b>Name of Clinic</b>	<b>Catchment Area's Socio-econ. Status</b>	<b>To Be Upgraded?</b>
1	Chipata	3 compounds-SES2	
2	Makeni	1 compound-SES 1	
3	Kamwala	2 compounds-SES2, 1 of 3	Yes
4	Matero Main	2 compounds-SES3	
5	Mtendere	1 compounds-SES1, 2 of 3	
6	George	5 compounds-SES2	
7	Kaunda Square	1 compounds-SES1, 1 of 3, 1 of SES4, 4 of SES5	
8	Matero Reference	2 compounds-SES2	Yes
9	Mandevu	2 compounds-SES2, 1 of 4	

Note: SES=socio-economic status from 1 to 5. 1 is lowest, 5 is highest

It is important to note that the term “site” is being used somewhat loosely here. The intention here is neither (a) to determine the specific building that will house a franchise clinic nor (b) to identify the specific site on which a franchise clinic will be built. In light of the fact that it will probably be at least one year, and could possibly be as long as two or three years, before a franchise operation might need to get to the clinic site location decision, it seems advisable not to make so precise a determination at this time. Rather than lock the franchise into any exact location, at this moment in time, the location analysis is performed at the compound/township level.

This was the first step in the site selection process. These nine potential clinic sites were then surveyed by the Central Statistic Office (CSO) using questionnaires which were developed by PHR, and reviewed and revised first, with the assistance of representatives of the CSO and the University of Zambia Department of Economics, and later, with the attendees of the Market Analysis Methodology Meeting. The purpose of this survey (which is not based on a statistically representative sample) was to take a closer look at the market conditions of these potential sites for two reasons: (1) to determine if it appears that the general characteristics of the Lusaka market (identified using Lusaka province data from the LCMS) are found to characterize these compounds, and can, therefore be relied upon with greater confidence and (2) to take a closer look at some aspects of the market which are particularly important to the PROSALUD approach, such as maternity services.

The key findings from the CSO survey are presented in Table 21. For the most part, the findings corroborate the LCMS’s findings. The surveyed compounds are promising ZAMHEALTH clinic sites. The final determination of a clinic site should also take into account the available transportation system, traffic flows within Lusaka, security considerations, the proximity of alternative sources of care, and the socioeconomic characteristics of the catchment area population.

**Table 21. Key Findings from the CSO Household Survey in the Nine Potential ZAMHEALTH Clinic Site Compounds**

<p>1. Ninety percent of the 52 women who reported having had a baby in the past year delivered in a government health center or hospital, and 77 percent of the women who delivered in these sites either paid directly for the care they received or did not pay because they belonged to a prepayment scheme. This reflects a high willingness to pay for delivery services.</p>
<p>2. The proportion of care provided by private providers in these compounds is less than half the proportion found in the LCMS study, 5 percent versus 12 percent, respectively. When combined with travel time concerns (97 percent reported they obtain their care from the nearest available source) and the generally high apparent willingness to pay for care suggests that there is potential market for ZAMHEALTH clinics in these compounds.</p>
<p>3. Government health centers, which provided 93 percent of the care used in these compounds in the two week period prior to the survey, look to be the primary competitor of the ZAMHEALTH clinics. Neither traditional providers, nor modern private providers are important sources of care for this population. Given that one of the criteria used to select these compounds as potential clinic sites was the apparent high volume of care provided by government health centers there, this suggests that there is an opportunity for ZAMHEALTH clinics to capture some of the overflow demand of these centers, and to relieve the excessive burden on these centers. This suggests that the ZAMHEALTH clinics will be able to play a more supplementary—as opposed to a more directly competitive—role in these compounds.</p>
<p>4. Of the persons who obtained care at a health center, 21 percent paid directly for their care, 37 percent belonged to a prepayment scheme, 39 percent were exempted from payment, and only 3 percent did not pay for some other reason (presumably because they were indigent). Comparing these figures to the LCMS-derived figures for all of Lusaka suggests that a slightly larger proportion are paying for their care in these compounds either directly or indirectly (58 vs 55 percent), and that the prepayment scheme is relatively more important in these compounds than in Lusaka in general (37 vs 28 percent). ZAMHEALTH may need to devise an effective means to attract subscribers to the public prepayment schemes.</p>
<p>5. The population of these compounds is accustomed to being treated by health personnel other than doctors. Clinical Officers were the care providers for 35 percent and nurses for 13 percent of the people who had a medical care consultation in the recall period. ZAMHEALTH may find it advantageous to offer patients a choice to obtain their care from a lower-priced CO or nurse/midwife, rather than simply offering doctor services.</p>
<p>6. Nearly half of the persons who self-reported they were ill and did not obtain care said their lack of money had prevented them from seeking care. Indigent care is likely to be a major ZAMHEALTH responsibility.</p>
<p>7. Those who paid directly for their care paid an average (mean) of 3,943 Kwacha (US\$ 3.09). Good news for ZAMHEALTH, this is twice the mean payment made by respondents to the LCMS who fell into the middle three income quintiles.</p>

---

## 5. Assessing the Feasibility of Franchising the PROSALUD/Bolivia Model in Lusaka: The Break-Even Analysis

This chapter presents a financial break-even analysis of franchising the PROSALUD/Bolivia approach in Lusaka. Several alternative scenarios are presented to demonstrate the sensitivity of the results of financial simulations to some critical assumptions and to show the impact of what are regarded as some likely developments that the base scenario does not incorporate.

---

### 5.1 Final Specification of the Nature of the Network Modeled: Additional Details and Assumptions

The financial analysis assumes that the network to be developed will consist of a management support unit and eight clinics, comprising one central clinic and seven basic clinics. The central clinic will be larger in terms of its staff and its building. The central clinic will have five consultation rooms, compared to three in the basic clinics, and it will have facilities where new ZAMHEALTH network staff will be trained. The central clinic will serve as a referral center for the network's basic clinics for some diagnostics. The medical director of all of the clinics will be a general practitioner. The central clinic will also have at least one gynecologist and one pediatrician who will be employed on a fee-splitting basis, splitting their fees with ZAMHEALTH on a 50/50 basis. To the extent that the central clinic requires additional doctors it is assumed that they will be general practitioners, and that they will be hired on a fee-splitting basis. Given the assumptions analyzed in the various scenarios presented in this chapter, two individual specialists (one pediatrician and one gynecologist) would be capable of providing all of the specialist care demanded throughout the ten year period.

The basic clinics' required additional doctor manpower (beyond its GP-director) is also assumed to be supplied entirely by fee-splitting doctors—in this case, GPs. The financial model assumes that the demand for each of the central clinic's two specialists will constitute 10 percent of total demand for curative care (estimated as the product of the clinic's catchment area and its market share).

It is assumed that the MSU will be developed and begin operations soon after the project is authorized. At the beginning of year two, the first two clinics—the central clinic and one basic clinic—will be opened. Then, each year in years three, four and five, two additional basic clinics are opened. Thus, at the beginning of year five, the entire eight-clinic complement is to be operational.

The discussion here focuses on the clinic costs and the total costs of the network. Two clinic-specific financial analyses are presented. One for the central clinic and one for the basic clinic. The single basic clinic analysis is assumed to represent each of the seven basic clinics, which vary only by the year in which they are put in operation.

Annex C contains additional tables showing detailed, year-by-year analyses of the MSU costs and the clinic construction and equipment costs, which, as already noted, with one exception, are identical to the cost estimates prepared by Population Services International, Inc. It is assumed in these

calculations that a ZAMHEALTH doctor can provide 10,000 consultations per year (4.8 per hour, the equivalent of a PROSALUD doctor in Bolivia, 18 percent more than was assumed in the PSI simulation, but 25 percent less than was found in two busy private clinics in Lusaka). In identifying the maximum capacity of the ZAMHEALTH clinics to accommodate doctors and their patients, it is assumed that at least one-quarter of all patients will be treated after regular hours (i.e., between 5 pm and 8 am). Thus the central clinic with its five consulting rooms will have a maximum annual capacity of 62,500 doctor consultations, and the basic clinics with their three consulting rooms will each have an annual capacity of 37,500.

The catchment area population of both the central and the base clinics is likely to be somewhat smaller than that of the typical MOH health center, as the latter has more than twice as many staff as the central clinic and about three times the number of staff of the basic clinic. It is assumed that the catchment area of a ZAMHEALTH is two-thirds that of the typical MOH health center, or 33,500 persons. It is further assumed that the size of the catchment area population increases at a rate of 1.5 percent per year.

The assumed market share of the franchise clinics is substantially less in this analysis than it was in PSI's optimistic estimates. Here, it is assumed that in the first year of operations that the central clinic captures a 20 percent share of the catchment area population. For the next six years it is assumed that the central clinic's share of the curative care market increases 5 percent each year, peaking in its eighth year of operations at 50 percent and thereafter maintaining that level. The basic clinic's market share is assumed to start off at a substantially lower level and to grow more slowly. Its initial market share is assumed to be 10 percent. For the next five years it is assumed that the basic clinic's share of the market increases 5 percent each year, reaching 35 percent in year seven of operations. Thereafter, its annual rate of growth in the share of the market slows to 2.5 percent. In year nine of the base clinic's operations (which is actually year 10 of the network's operations), it provides an estimated 42.5 percent of its catchment area population's total curative care health care visits.

Finally, one important additional assumption embedded in the structure of the spreadsheet model is that all re-visits are provided by health personnel other than doctors. This assumption, together with the assumption that all doctor-provided care is provided either by the single salaried doctor at each clinic (viz., the clinic's medical director) or by fee-splitting doctors, implicitly assumes that beyond the salaried medical directors of the clinics, that all of the doctors required to meet the demand for services throughout the ten-year period of analysis will be fee-splitting doctors, and that there will be adequate numbers of doctors willing to enter into such arrangements. This set of assumptions generates what must be regarded as minimum doctor cost estimates and maximum doctor productivity estimates. As such, if this set of assumptions proves untenable, the cost estimates presented here are likely to be underestimated.

---

## **5.2 The Simulation Results**

### **5.2.1 The Base Scenario Results**

Detailed year-by-year analyses of each of the two individual clinic types—the central clinic and the basic clinic—including their levels and composition of service provision and their costs and revenues generated by specific services, are provided in Annex C. The analysis presented here

focuses only on the entire ZAMHEALTH network's performance. All financial figures are reported in U.S. dollars.

Table 22 presents a Summary of the Financial Analysis for what we have termed the Base Scenario. The total network operating cost of the ZAMHEALTH franchise for 10 years is \$12.7 million. Adding in total network capital replacement costs (depreciation) of \$1.1 million (to ensure the sustainability of the investments in the clinic and MSU buildings and equipment) the total network cost comes to \$13.8 million. Over this ten-year period, it is estimated that ZAMHEALTH will generate \$5.6 million in revenues, and its total network cost recovery will be 35 percent over the ten year period. The rate of cost recovery of the system improves every year it is in operation, starting at zero in year one and attaining 68 percent in year 10.

As may be seen in Table 23, row II, it is estimated that operating ZAMHEALTH for ten years will require a subsidy of \$10.3 million. This is roughly 13 percent higher than the PSI estimate. The major reasons for the difference in the two estimates are:

- ▲ 250 percent higher level of indigent care (here assumed to be 25 percent of all curative care consultations, compared to PSI's assumed 10 percent level),
- ▲ higher re-visit rate (re-visits, too, are provided free-of-charge in the base scenario), and
- ▲ PSI's omission of indigent care from its spreadsheet model.

After their first year in operation, the clinics' combined operating cost-recovery rate increases each year and reaches 94 percent in year ten. Over the entire ten-year period, the clinics' operating cost-recovery rate is 77 percent. When the clinics' capital replacement cost (depreciation) is added in, the combined total cost-recovery rate over the entire 10-year period is 61 percent, and its level in year 10 is 86 percent.

The MSU adds costs but does not directly generate any revenues. Thus, incorporating it into the analysis decreases the cost-recovery rate. When the MSU operating costs are factored in, the total network operating cost-recovery rate over the ten-year period is 38 percent, while the year 10 rate is 74 percent. Adding in total MSU costs (both operating costs and capital replacement costs), the total cost-recovery rate is 35 percent over the ten-year period, and 68 percent in year 10.

**Table 22. Summary of the Financial Analysis (Base Scenario) (Present Value, US\$)**

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Cum. Tot.
<b>I. Operating Cost Recovery— Clinics Only</b>											
Total Clinic Revenues	0	76,837	151,901	248,528	390,741	546,248	736,051	952,160	1,154,262	1,367,617	5,624,345
Less: Total Clinic Operating Costs	0	142,922	295,766	477,168	691,846	818,297	965,315	1,128,647	1,287,037	1,453,713	7,260,711
Net Surplus/Deficit	0	(66,085)	(143,865)	(228,641)	(301,105)	(272,049)	(229,264)	(176,487)	(132,775)	(86,096)	(1,636,366)
<b>Clinic Operating Cost Recovery</b>	n.a.	54%	51%	52%	56%	67%	76%	84%	90%	94%	77%
<b>II. Total Cost Recovery— Clinics Only</b>											
Total Clinic Revenues	0	76,837	151,901	248,528	390,741	546,248	736,051	952,160	1,154,262	1,367,617	5,624,345
Less: Total Clinic Operating Costs	0	142,922	295,766	477,168	691,846	818,297	965,315	1,128,647	1,287,037	1,453,713	7,260,711
Net Surplus/Deficit	0	(66,085)	(143,865)	(228,641)	(301,105)	(272,049)	(229,264)	(176,487)	(132,775)	(86,096)	(1,636,366)
Less: Clinic Capital Replacement Cost (Depreciation)	0	27,000	54,945	83,868	113,803	117,787	121,909	126,176	130,592	135,163	911,243
Total Profit / (Loss)	0	142,922	295,766	477,168	691,846	818,297	965,315	1,128,647	1,287,037	1,453,713	(2,547,609)
<b>Total Clinic Cost Recovery</b>	n.a.	45%	43%	44%	49%	58%	68%	76%	81%	86%	61%
<b>III. Management Support Unit Costs</b>											
Management Support Unit Operating Costs	518,189	669,404	840,623	804,407	763,460	365,075	374,715	368,615	378,942	389,630	5,473,060
Management Support Unit Replacement Costs	7,894	14,925	15,631	16,178	16,745	17,331	17,937	18,565	19,215	19,887	164,308
<b>Total Management Support Unit Costs</b>	526,083	684,329	856,254	820,585	780,204	382,406	392,652	387,180	398,157	409,517	5,637,368

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Cum. Tot.
<b>IV. Total Network Operating Cost Recovery</b>											
Total Clinic Revenues	0	76,837	151,901	248,528	390,741	546,248	736,051	952,160	1,154,262	1,367,617	5,624,345
Total Network Operating Costs	518,189	812,326	1,136,389	1,281,575	1,455,306	1,183,373	1,340,030	1,497,263	1,665,979	1,843,342	12,733,772
Total Net Surplus/Deficit	(518,189)	(735,489)	(984,488)	(1,033,048)	(1,064,565)	(637,124)	(603,979)	(545,103)	(511,717)	(475,725)	(7,109,427)
<b>Network Operating Cost Recovery</b>	0%	9%	13%	19%	27%	46%	55%	64%	69%	74%	38%
<b>V. Total Network Cost Recovery</b>											
Total Clinic Revenues	0	76,837	151,901	248,528	390,741	546,248	736,051	952,160	1,154,262	1,367,617	5,624,345
Total Network Operating Costs	518,189	812,326	1,136,389	1,281,575	1,455,306	1,183,373	1,340,030	1,497,263	1,665,979	1,843,342	12,733,772
Total Net Surplus/Deficit	(518,189)	(735,489)	(984,488)	(1,033,048)	(1,064,565)	(637,124)	(603,979)	(545,103)	(511,717)	(475,725)	(7,109,427)
Total Network Capital Replacement Costs (Depreciation)	7,894	41,925	70,576	100,046	130,548	135,117	139,846	144,741	149,807	155,050	1,075,551
Total Network Cost	526,083	854,251	1,206,965	1,381,622	1,585,854	1,318,490	1,479,877	1,642,004	1,815,786	1,998,392	13,809,323
<b>Total Network Cost Recovery</b>	0%	9%	13%	18%	25%	41%	50%	58%	64%	68%	35%

**Table 23. Annual Costs and the Required Annual and Cumulative Subsidy (Base Scenario)**

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
I. Net Subsidy Required										
A. MSU Operating Costs	518,189	669,404	840,623	804,407	763,460	365,075	374,715	368,615	378,942	389,630
A.1. Percent of Total Network Operating Costs	100%	82%	74%	63%	52%	31%	28%	25%	23%	21%
B. Clinic Operating Costs	0	142,922	295,766	477,168	691,846	818,297	965,315	1,128,647	1,287,037	1,453,713
B.1. Percent of Total Network Operating Costs	0%	18%	26%	37%	48%	69%	72%	75%	77%	79%
C. Total Network Operating Costs	518,189	812,326	1,136,389	1,281,575	1,455,306	1,183,373	1,340,030	1,497,263	1,665,979	1,843,342
D. Capital Investments	993,150	776,250	725,650	720,000	0	0	0	0	0	0
E. Total Network Cash Outlay	1,511,339	1,588,576	1,862,039	2,001,575	1,455,306	1,183,373	1,340,030	1,497,263	1,665,979	1,843,342
F. MSU and Capital Investments as a Percent of Total Network Cash Outlay	100%	91%	84%	76%	52%	31%	28%	25%	23%	21%
G. Less: Clinic Revenues	0	76,837	151,901	248,528	390,741	546,248	736,051	952,160	1,154,262	1,367,617
H. Net Subsidy Required	1,511,339	1,511,739	1,710,138	1,753,048	1,064,565	637,124	603,979	545,103	511,717	475,725
II. Cumulative Subsidy	1,511,339	3,023,078	4,733,216	6,486,263	7,550,829	8,187,953	8,791,932	9,337,035	9,848,751	10,324,477
III. Total Catchment Area Population	0	67,000	135,005	204,030	274,091	278,202	282,375	286,611	290,910	295,273
IV. Total Number of Visits*	0	43,944	91,740	159,316	249,066	334,319	429,706	530,825	621,214	710,463
V. Total Number of Persons Served**	n.a.	16,002	33,408	58,016	90,699	121,744	156,480	193,303	226,219	258,720

\* The total number of visits is the sum of curative care first attendance, curative care re-visits, ante-natal care, under five clinic, post-natal and family planning visits, and deliveries.

\*\* Assumes 1.59 curative care visits per person, per year, a re-attendance rate for curative care visits of 1.0, 4 ante-natal visits per woman with at least one, and 2 under-five visits per child with at least one.

As Table 23, row I.F. shows, 100 percent of the total network’s required cash outlay in year one is comprised of capital investments and the MSU’s operating costs. This proportion decreases each year as capital investments decrease (reaching zero in year five), as more clinics come online. In year ten the proportion of total cash outlays comprised of MSU costs is 21 percent. Clearly, the MSU constitutes a high fixed cost of ZAMHEALTH. Given that the MSU does not directly generate any revenues, it reduces the cost recovery performance of ZAMHEALTH. Every effort must be made to find ways to minimize the costs of the MSU.

As both Tables 23 and 24 testify, the structure of the costs of the proposed ZAMHEALTH network change dramatically over the ten-year period. Initially the costs of the project are largely infrastructure driven. In its first four years, as the infrastructure—the MSU office and its warehouse and the eight clinics—is constructed and equipped, and revenues are low because demand is still low, half (\$3.2 of \$6.5 million) of the total network cost (labeled “Cumulative Subsidy” in Row II of Table 23) consists of capital investments. The longer the time period analyzed, the longer the period of time over which these fixed capital investments are spread, and thus (other things being equal) the higher the level of self-financing achieved by the network. Hence, if a period longer than ten years were analyzed, the level of self-financing would increase.

Table 24 presents three service-related, annual average cost estimates. Due to the manner in which the project is rolled out (with two clinics being built in each of the first four years and two clinics being opened annually in years two through five) and the resulting change in cost structure, it is not until year six that the cost per person covered or cost per visit begins to reach acceptable levels. For these average costs to become appealing, ZAMHEALTH must be regarded as, at minimum, an eight to ten year project.

**Table 24. Average Cost per Person Covered, per Person Served, and per Visit (Base Scenario)  
(Present Value, Current US\$)**

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
<b>A. Cost per Person Served*</b>										
1. Net annual subsidy	N/A	91.3	47.8	27.3	10.2	4.4	3.1	2.2	1.7	1.3
2. Total network operating cost	N/A	44.4	27.5	16.1	10.2	4.4	3.1	2.2	1.7	1.3
3. Total network cost	N/A	50.6	33.7	21.5	15.2	9.1	7.7	6.7	6.1	5.7
<b>B. Cost per Visit**</b>										
1. Net annual subsidy	N/A	33.2	17.4	9.9	3.7	1.6	1.1	0.8	0.6	0.5
2. Total network operating cost	N/A	16.2	10.0	5.8	3.7	1.6	1.1	0.8	0.6	0.5
3. Total implied network cost	N/A	18.8	12.3	7.8	5.5	3.3	2.8	2.4	2.2	2.1
<b>C. Cost per Person in the Catchment Area Population</b>										
1. Net subsidy	N/A	21.8	11.8	7.7	3.4	1.9	1.7	1.5	1.9	1.2
2. Total network operating cost	N/A	10.6	6.8	4.6	3.4	1.9	1.7	1.5	1.9	1.2
3. Total implied network cost	N/A	12.3	8.3	6.1	5.0	4.0	4.3	4.5	4.7	5.0

\*The total number of visits is the sum of curative care first attendances, curative care re-visits, ante-natal care, under-five clinic, post-natal and family planning visits, and deliveries.

\*\*Assumes 1.59 curative care visits per person, per year, a re-attendance rate for curative care visits of 1.0, 4 ante-natal visits per woman with at least one, and 2 under-five visits per child with at least 0.

## 5.2.2 Sensitivity Analysis: Investigating 17 Alternative Scenarios Based on Modifications of Key Assumptions

Tables 25 through 30 present summary tables of 17 alternative scenarios or sensitivity analyses. The purpose of analyzing these alternative scenarios is:

- ▲ to elucidate the impact of critical assumptions and decision variables on the financial performance of ZAMHEALTH with the intent of demonstrating how changes in those assumptions and values of those decision variables impact the financial status of the organization;
- ▲ by virtue of having simulated various alternative scenarios and investigated the impact of altering critical parameters, to identify and provide insight into potential strategy options available to ZAMHEALTH both *a priori* and as the project unfolds; and
- ▲ to provide donors and the Government of Zambia a menu of options—of alternative financing/subsidy levels that the franchise will require under alternative scenarios, and the implications of each in terms of: (a) the expected level of performance (demand), (b) the level of prices charged, (c) the treatment of indigents, and (d) the provision of free preventive care services.<sup>9</sup>

The PROSALUD approach has been refined over time so as to ensure minimization of the costs of service delivery while maintaining the capacity to provide quality, patient-focused health care. Its most important strategies for doing so involve economizing on personnel costs, the major cost of providing health care. Given that cost-minimization is the strength of the PROSALUD approach, rather than second guess the PROSALUD technology of service provision, the focus of the sensitivity analyses investigated here, with the exception of the doctor-clinical officer staffing issue, are demand- and pricing-related.

---

<sup>9</sup> While Tables 25 and 27 identify what the financing shortfall would be of each scenario and label that shortfall “Total Network Cost to Donor(s),” it should be noted that this shortfall could also be paid by the Government of Zambia under a commissioning arrangement.

**Table 25. The Cost of Franchising the PROSALUD/Bolivia Primary Health Care Network in Lusaka, Zambia: Alternative 10-Year Scenarios—Focus: The Level of Market Share (Demand)**

Cost Component	(A)	(B)	(C)
	Base Scenario	Half the Base Scenario Level of Demand	Twice the Base Scenario Level of Demand
<b>Operating Costs Only</b>			
Operating Costs—clinics only	7,463,174	5,332,486	11,724,551
Management Support Unit Costs	5,473,060	5,473,060	5,473,060
Total Network Operating Costs	12,936,234	10,805,546	17,197,611
Total Clinic Revenues	5,624,345	2,659,489	11,554,544
Total Network Operating Cost Recovery	43%	25%	67%
<b>Total Costs =(Operating Costs + Depreciation)</b>			
Total Cost—clinics only	8,374,417	6,243,729	12,635,794
Total Management Support Unit Costs	5,637,368	5,637,368	5,637,368
Total Network Total Costs	14,011,785	11,881,097	18,273,162
Total Network Revenues	5,624,345	2,659,489	11,554,544
Total Network Total Cost Recovery	40%	22%	63%
<b>Total Network Cost to Donor(s)</b>	<b>10,526,940</b>	<b>11,361,108</b>	<b>8,858,118</b>

Base Scenario with Basic Clinic Consultation Fee=US\$ 1.60

**Table 26. The Cost of Franchising the PROSALUD/Bolivia Primary Health Care Network in Lusaka, Zambia: Alternative Ten-Year Scenarios—Focus: Indigent Care**

Cost Component	(A)	(B)	(C)
	Base Scenario with No Indigent Care	Base Scenario, free Indigent Care Is 25 % of All Visits, but Indigents Pay Full-price for Drugs & Lab Tests	Base Scenario, free Indigent Care Is 25% of All Visits and Indigents Do Not Pay for All Drugs & Lab Tests
<b>Operating Costs Only</b>			
Operating Costs—clinics Only	7,463,174	7,463,174	7,463,174
Management Support Unit Costs	5,473,060	5,473,060	5,473,060
Total Network Operating Costs	12,936,234	12,936,234	12,936,234
Total Clinic Revenues	5,814,030	5,624,345	4,567,671
Total Network Operating Cost Recovery	45%	43%	35%
<b>Total Costs=(Operating Costs + Depreciation)</b>			
Total Cost—clinics only	8,374,417	8,374,417	8,374,417
Total Management Support Unit Costs	5,637,368	5,637,368	5,637,368
Total Network Total Costs	14,011,785	14,011,785	14,011,785
Total Clinic Revenues	5,814,030	5,624,345	4,567,671
Total Network Total Cost Recovery	41%	40%	33%
<b>Total Network Cost to Donor(s)</b>	10,337,255	10,526,940	11,583,613

Base Scenario with Basic Clinic Consultation Fee=US\$ 1.60

**Table 27. The Number of Risk-Sharing Doctors Required by Project Year and Type of Doctor**

Type of Docotor	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
<b>General Practitioners</b>									
Central Clinic	1	1	2	2	3	3	4	4	5
For First Basic Clinic			1	1	1	2	3	3	3
Basic Clinics #2 and #3				2	2	2	4	4	6
Basic Clinics #4 and #5					2	2	2	2	4
Basic Clinics #6 and #7						2	2	2	4
<b>For All Clinics</b>	1	1	3	5	8	11	14	17	22
<b>Specialists: All at Central Clinic</b>									
Pediatrician	1	1	1	1	1	1	1	1	1
Gynecologist	1	1	1	1	1	1	1	1	1
<b>Total</b>	3	3	5	7	10	13	16	19	24



**Table 28. The Cost of Franchising the PROSALUD/Bolivia Primary Health Care Network in Lusaka, Zambia: Alternative Ten-Year Scenario**  
**Focus: Risk-Sharing Physicians versus Paid Physicians versus Paid Clinical Officers**

Cost Component	(A)	(B)	(C)
	Base Scenario: Risk-Sharing Physicians	Physicians	Officers
<b>Operating Costs Only</b>			
Operating Costs—clinics only	7,463,174	8,501,336	7,568,830
Management Support Unit Costs	5,473,060	5,473,060	5,473,060
Total Network Operating Costs	12,936,234	13,974,396	13,041,890
Total Clinic Revenues	5,624,345	5,624,345	5,624,345
Total Network Operating Cost Recovery	43%	40%	43%
<b>Total Costs =(Operating Costs + Depreciation)</b>			
Total Cost—clinics only	8,374,417	9,412,579	8,480,073
Total Management Support Unit Costs	5,637,368	5,637,368	5,637,368
Total Network Total Costs	14,011,785	15,049,947	14,117,441
Total Network Revenues	5,624,345	5,624,345	5,624,345
Total Network Total Cost Recovery	40%	37%	40%
<b>Total Network Cost to Donor(s)</b>	10,526,940	11,505,152	10,572,647

Base Scenario with Basic Consultatin Fee=US\$1.60

**Table 29. The Cost of Franchising the PROSALUD/Bolivia Primary Health Care Network in Lusaka, Zambia: Alternative 10-Year Scenarios**

Cost Component	(A)	(B)	(C)	(D)	(E)
	Base Scenario	(A) and Half-Priced Re-Visits	(A) and Full-Priced Re-Visits	(B) and Charging \$0.80 for Ante-Natal and Under 5	(C) and Charging \$.080 for Ante-Natal and Under 5
<b>Operating Costs Only</b>					
Operating Costs—clinics only	7,463,174	7,463,174	7,463,174	7,463,174	7,463,174
Management Support Unit Costs	5,473,060	5,473,060	5,473,060	5,473,060	5,473,060
Total Network Operating Costs	12,936,234	12,936,234	12,936,234	12,936,234	12,936,234
Total Clinic Revenues	5,624,345	6,930,540	8,236,735	7,694,174	9,000,369
Total Network Operating Cost Recovery	43%	54%	64%	59%	70%
<b>Total Costs=(Operating Costs + Depreciation)</b>					
Total Cost—clinics only	8,374,417	8,374,417	8,374,417	8,374,417	8,374,417
Total Management Support Unit Costs	5,637,368	5,637,368	5,637,368	5,637,368	5,637,368
Total Network Total Costs	14,011,785	14,011,785	14,011,785	14,011,785	14,011,785
Total Network Revenues	5,624,345	6,930,540	8,236,735	7,694,174	9,000,369
Total Network Total Cost Recovery	40%	49%	59%	55%	64%
<b>Total Network Cost to Donor(s)</b>	10,526,940	9,220,745	7,914,550	8,457,111	7,150,916

Base Scenario with Basic Clinic Consultation Fee=US\$ 1.60 and altered pricing policies and price levels.  
25% of all care is provided free to indigents, but indigents pay full price for drugs and laboratory tests.

**Table 30. The Cost of Franchising the PROSALUD/Bolivia Primary Health Care Network in Lusaka, Zambia:  
Alternative 10-Year Scenarios**

Cost Component	(A)	(B)	(C)	(D)	(E)	(F)
	Modified Base Scenario	(A) and Half-Priced Re-Visits	(A) and Full-Priced Re-Visits	(B) & Charging \$0.80 for Ante-Natal and Under 5	(C) & Charging \$0.80 for Ante-Natal and Under 5	(C) & Charging \$1.20 per Visit for Ante-Natal and Under 5
<b>Operating Costs Only</b>						
Operating Costs—clinics only	7,463,174	7,463,174	7,463,174	7,463,174	7,463,174	7,463,174
Management Support Unit Costs	5,473,060	5,473,060	5,473,060	5,473,060	5,473,060	5,473,060
Total Network Operating Costs	12,936,234	12,936,234	12,936,234	12,936,234	12,936,234	12,936,234
Total Clinic Revenues	6,027,232	8,336,164	10,645,095	9,099,798	11,408,729	11,824,739
Total Network Operating Cost Recovery	47%	64%	82%	70%	88%	91%
<b>Total Costs =(Operating Costs + Depreciation)</b>						
Total Cost—clinics Only	8,374,417	8,374,417	8,374,417	8,374,417	8,374,417	8,374,417
Total Management Support Unit Costs	5,637,368	5,637,368	5,637,368	5,637,368	5,637,368	5,637,368
Total Network Total Costs	14,011,785	14,011,785	14,011,785	14,011,785	14,011,785	14,011,785
Total Network Revenues	6,027,232	7,815,121	10,645,095	9,099,798	11,408,729	11,824,739
Total Network Total Cost Recovery	43%	56%	76%	65%	81%	84%
<b>Total Network Cost to Donor(s)</b>	10,124,052	7,815,121	5,506,190	7,051,487	4,742,556	4,326,546

Modified Base Scenario: Basic Clinic Consultation Fee=US\$ 2.40 and altered pricing policies and price levels  
25% of all care is provided free to indigents, but indigents pay full price for drugs and laboratory tests

### 5.2.2.1 Testing the Significance of the Estimated Level of Demand

It is imperative to recognize the fundamentally important role played by the two demand parameters, the size of the clinic's catchment area population and the clinic's assumed market share. Together these parameters determine the projected level of demand, which, in turn, is a key determinant of the revenue and cost projections. Given the unavoidably speculative nature of this key parameter, the room for error in the break-even analysis is substantial, calling for an answer to the question: If the anticipated level of demand is not forthcoming, what will happen to the expected level of cost recovery and the required subsidy of donors?

Table 25 provides information with which to examine the financial impact of the level of the ZAMHEALTH clinics' market share for curative care first attendances. In the column labeled "A" the base scenario data is presented for reference. Column "B" presents financial projections based on the assumption that the market share is 50 percent less than the annual levels posited in the base scenario. Column "C" presents the projections assuming the level of demand is 50 percent greater than that of the base scenario.<sup>10</sup>

Due to the substantial infrastructure costs, which do not change when the level of demand (and thereby the level of operating costs and the level of revenues) changes, the derivative change in the level of cost recovery is not proportional to the change in demand. A 50 percent increase in the demand for curative care first attendances results in a more than proportional increase in the level of cost recovery: it generates an increase of 58 percent, propelling the network to a total cost-recovery rate of 63 percent. A 50 percent decrease in the demand for curative care first attendances generates a less than proportional (45 percent) decrease in the level of cost recovery, as the total cost-recovery rate slips to 22 percent.

### 5.2.2.2 Investigating the Level and Significance of Free Indigent Care

Table 26 presents three alternative scenarios that are differentiated by their treatment of indigent care. The PROSALUD approach includes the provision of free care for indigents. The base scenario assumes that while the estimated 25 percent of all curative care first attendances will be provided free of charge, it further assumes that indigents will be charged full-price for drugs and laboratory tests they may receive; i.e., it assumes that only the consultation fee is waived. The base scenario is presented in column B. The column A scenario assumes that no indigent care will be provided. It is interesting that the total elimination of indigent care only increases the rate of operating cost recovery from 43 to 45 percent and the rate of total cost recovery from 40 to 41 percent. In sum, providing indigent consultations free-of-charge, when indigents pay for their medicines and laboratory examinations, is not very expensive.

The column C scenario assumes that all care provided to indigents is free-of-charge, including drugs and lab tests. Compared to the no indigent care scenario, the provision of all indigent care completely free-of-charge is an expensive proposal. It erodes the total network operating cost-

---

<sup>10</sup> While the tables are labeled "half the market share" and "twice the market share" it should be recognized that, given the way in which the model is constructed, this is the equivalent of "half the base scenario assumed level of demand" and "twice the base scenario assumed level of demand," regardless of whether the difference in demand is due to a change in the market share or the size of the catchment area population or some combination thereof.

recovery rate by 22 percent, falling from 45 to 35 percent, and the total network total cost-recovery rate by 20 percent, as it falls to 33 percent. It is recommended that free consultations be provided to indigents, but not free drugs and lab tests.

### **5.2.2.3 Testing the Significance of the Fee-Splitting Doctors and the Potential Role of Clinical Officers**

The number of fee-splitting doctors required by year of operation of the project is presented in Table 27. The cost calculations assume that doctors are hired when the number of curative care first attendances per doctor per year exceeds 10,000. Thus, in most cases in the particular year when an additional doctor is added, he/she is hired and assumed to work for only a portion of the year. In constructing Table 27 the last doctor hired may work on only a part-time basis—depending upon the level of demand—for several years. Table 27 identifies the maximum number of individual doctors that would be required to work in the ZAMHEALTH clinics because (1) in any year, two or more of the part-time positions could be combined and worked by a single doctor and because (2) the positions indicated are ones that would need to be filled at any time during the year—even if for only one month. In year 10, the total number of full-time equivalent fee-sharing doctors required is just less than 19.

If ZAMHEALTH were to find that it was unable to recruit sufficient numbers of doctors on a fee-splitting basis, it could hire additional doctors to provide the projected levels of care, but would, of course, incur much greater costs in doing so. Alternatively, it could hire COs which would also increase costs, but by much less. Assuming that both types of personnel would be paid total remuneration levels equal to the average of the current amounts paid by CMAZ and the private sector, a CO can be hired for 21 percent of what a doctor costs (see staff salary table in Annex B).<sup>11</sup>

Table 28 presents the financial implications of two alternative staffing scenarios. Column A again presents the Base Scenario, predicated on the assumption that additional required doctors will be hired on a fee-sharing basis. Column B presents the paid doctors scenario. The required additional doctors increase operating costs by 13 percent, \$1 million, over the ten-year period. With revenues unchanged, the increased operating costs decreases the rate of cost recovery to 37 percent.

Column C presents the paid clinical officers scenario. The COs increase operating costs by only 1 percent, far less than the paid doctors. Relying on paid COs results in only a small decrease in the rate of cost recovery, less than one percent over the 10-year period. There are, of course, many intermediate levels of combined fee-sharing doctor and CO staffing that might be introduced, as well. Their financial impacts would be intermediate to the two extremes examined here.

The use of COs, however, is a more involved decision requiring criteria beyond the simple, straightforward one of its impact on costs. The use of COs might be problematic because it might compromise the high profile, high quality market niche PROSALUD has traditionally worked. Reliance on a large cadre of COs is likely to risk ZAMHEALTH becoming just another private provider. Another pertinent consideration is that the use of COs might have an impact on demand—especially in the more distant future years—as the increasing preference of Lusakans for doctors and specialists becomes more widespread and intensifies.

---

<sup>11</sup> In the scenario modeled here, it is assumed that the price charged for CO-provided care is equal to the price charged for doctor-provided care. It would, of course, be possible to charge less for CO services, and, given the increasingly discriminating Lusaka medical care consumer, it may be wise to do so.

Furthermore, the use of COs is likely to complicate the organization of care. Given the general consensus that COs can handle roughly 70 percent of all cases, it is likely that reliance on COs would adversely affect the productivity of ZAMHEALTH clinics. The COs will need to refer roughly 30 percent of patients to the medical director/doctor, or alternatively, will require the introduction of a triage system, either of which will reduce the productivity of both doctors and COs; i.e., decrease the maximum number of consultations they can be expected to provide annually.

These additional considerations suggest that if adequate numbers of doctors cannot be recruited on a fee-sharing basis, that ZAMHEALTH should first strive to hire as many doctors as possible. It may find it necessary to modify the terms of the fee-sharing arrangement—allowing the doctor to keep a larger proportion of the fees he/she generates—in order to recruit adequate numbers of doctors. Alternatively, it could introduce a combination of fee-sharing with some minimal level of salary that is provided independent of the level of service provision. To the extent that it finds it must rely on COs, ZAMHEALTH should strive to distribute them across its different clinics so as to minimize their impact on both the network’s productivity and the quality of care image it seeks to establish.

#### **5.2.2.4 Testing the Significance of the Price Levels**

Although a price elasticity of demand for the country as a whole has recently been estimated, it is not regarded as pertinent to this exercise because the willingness and ability of Lusakans to purchase privately provided medical care is significantly higher than throughout the rest of the country. This higher rate exists because the availability of private providers in Lusaka is significantly greater than throughout the remainder of the country, and because the analysis here is concerned with the demand for what is regarded as a substantially different product, i.e., a patient-focused, high quality, high efficiency, low priced, high volume approach to providing health care. The ZAMHEALTH care product would be expected to have a lower (less elastic) price elasticity of demand; i.e., ZAMHEALTH consumers would be expected to be less responsive to changes in prices than the consumers of other sources of care.

While it is expected that the quantity of ZAMHEALTH care demanded will depend on the price, the approach taken here is to simply maintain the starting assumptions about the level of demand and to investigate the impact of a change in price on the financial status of ZAMHEALTH, other things being equal.

Table 29 presents five alternative scenarios based on variations in pricing policies. Table 29 examines the impact of an increase in the basic clinic consultation fee on each of those same five alternative scenarios. In both tables, column A presents the Base Scenario, while the next four columns examine the financial impacts of changing policies of providing free care, other things being equal. Columns B and C show what happens when re-visits are charged for, and columns D and E show the financial impact of charging for ante-natal and under-five care. The discussion turns first to the financial impact of an increase in the price of the basic consultation fee.

## **Increasing the Price of a Curative Care Consultation**

In the base scenario with a basic clinic consultation fee of \$1.60 the ZAMHEALTH network generates \$5.6 million in revenues.<sup>12</sup> Increasing the basic clinic consultation fee by 50 percent, to \$2.60, increases ZAMHEALTH's revenues by 7 percent over the 10-year period. It would appear that if there is a need to improve the rate of cost recovery by hiking fees, either a substantially larger increase in the consultation fee will be needed, fees for drugs, lab exams and other services will need to be increased, or ZAMHEALTH services that are provided free-of-charge will need to introduce fees.

## **Testing the Financial Impact of Charging for Re-visits (Follow-up Visits for a Given Curative Care Illness)**

The column B scenario in Tables 29 and 30 investigates the impact of introducing a charge for re-visits that is equal to one-half the basic clinic's first visit fee of the base scenario, i.e., introducing a re-visit fee of \$0.80, in Table 29, and, in Table 30, a fee of \$1.20. The column C scenario in both tables looks at eliminating the distinction between first visit and re-visit fees; i.e., charging the full first visit fee for re-visits, as well.

Since a substantial proportion of all visits in Lusaka are re-visits, this change results in a significant impact on the financial status of ZAMHEALTH in both of these scenarios (other things being equal). With a basic clinic consultation fee of \$1.60, half-priced re-visits would increase the total network total cost recovery by 23 percent, increasing it from 40 to 49 percent. Full-priced re-visits would increase the total cost-recovery rate by nearly 50 percent, pushing it up to 59 percent, and reducing the total network cost to donors from \$10.5 million to less than \$8 million.

With a basic clinic consultation fee of \$2.40, the impact of charging for re-visits would be even more pronounced. Half-priced re-visits would increase the total network total cost recovery by 37 percent, boosting it from 43 to 56 percent. Full-priced re-visits would increase the total cost-recovery rate by nearly 77 percent, pumping it up to 76 percent. Charging full-price for re-visits at the higher fee level would reduce the total network's cost to donors by 46 percent, from the modified base scenario's \$10.1 million to \$5.5 million.

These increases in revenues and the rate of cost recovery are substantial. To our knowledge no other private provider distinguishes first and re-visit fees. Given the high level of re-visits in Lusaka (one for every curative care first attendance), this is one of the more attractive options to consider should ZAMHEALTH find that it needs to improve its cost recovery position and that increasing or modifying its fee levels is necessary.

---

<sup>12</sup> Recall that in each year after the first year of operations, all prices are increased at a pace assumed to be equal to the annual rate of inflation (in US\$ terms), 3.5 percent. The reader is further reminded that costs, too, are assumed to annually increase at this same rate.

## Testing the Financial Impact of Charging for Re-Visits, Ante-natal Care, and Under Five Clinic Visits

The column D and E scenarios in Tables 29 and 30 investigate incremental additions to the types of services analyzed in the Column B and C scenarios. Both the Columns D and E scenarios investigate the impact of introducing a charge for ante-natal care and under-five clinic visits, in addition to re-visits, and charging \$0.80 in both scenarios in both tables (as the re-visit fee changes from column to column and from table to table). Column F in Table 30 shows the financial impact of further increasing the level of the fee for ante-natal care and under-5 clinic visits to \$1.20, with a re-visit price of \$2.40.

As Table 29 shows, with a basic clinic consultation fee of \$1.60, half-priced re-visits, ante-natal visits and under-five clinic visits would increase the total network total cost recovery by 38 percent, increasing it from 40 to 55 percent. Charging full-price for all three of these types of visits would increase the total cost-recovery rate by 60 percent, pushing it up to 59 percent, and reducing the total network cost to donors from \$10.5 million to less than \$8 million.

As may be seen in Table 30, with a basic clinic consultation fee of \$2.40, the impact of introducing charges for all three of these types of visits would be pronounced. With an \$0.80 charge for ante-natal care and the under 5 clinic, half-priced re-visits would increase the total network total cost recovery by 51 percent, boosting it from 43 to 65 percent, and with full-priced re-visits it would increase the total cost-recovery rate by nearly 88 percent, pushing it up to 81 percent. Finally, with re-visits priced at \$2.40, a hike of ante-natal and under-five visits to \$1.20, would increase revenues nearly another half a million dollars and leave the total cost-recovery rate at 84 percent.

Charging full-price for re-visits at the higher fee level, coupled with an \$0.80 levy for ante-natal and under-five visits, would reduce the total network's cost to donors by 55 percent, from the base scenario's from \$10.5 million to \$4.7 million. If the fee on ante-natal and under-five visits were increased to \$1.20, it would further reduce the donor cost to \$4.3 million, a 59 percent reduction from the base scenario cost.

---

## 6. Conclusions

This study assesses the feasibility of adapting the approach of PROSALUD/Bolivia to develop a network of largely self-financing, primary health care clinics in Lusaka, Zambia. At the request of the Government of the Republic of Zambia, PSI reviewed franchising experiences in the health sector and identified PROSALUD as the model most worthy of emulation. Then, working with PROSALUD, PSI devised a specific franchising arrangement to improve the delivery of primary health care services to low income people in Zambia, developed an implementation plan for that arrangement and conducted a feasibility assessment of it.

The centrally funded United States Agency for International Development Partnerships for Health Reform Project was asked by USAID/Zambia to review the PSI analysis. While generally positive, that review raised a number of important concerns about the structure and operations of the proposed franchising arrangement. The major concerns generally shared a common theme: PROSALUD-specific parameters—developed from its Bolivian-based experience—were frequently adopted with inadequate attention to how important it might be to modify those parameters to better fit the different conditions of Zambia. USAID/Zambia subsequently requested PHR to undertake an independent analysis of using franchising to improve the delivery of primary health care services to low income people in Zambia. This report presents that analysis.

The PROSALUD approach appears to be applicable. The analysis of health-seeking patterns of Lusakans and health providers suggests that there would be a market for ZAMHEALTH clinics if they were introduced. The most likely consumers would be older children and adults since they have relatively high utilization of services and largely already are paying for services. However, the approach needs to be adapted to local Zambian conditions—epidemiological situations, personnel availability, competition, input prices, and exemptions for the poor.

To establish a PROSALUD approach through a ZAMHEALTH adaptation will require a subsidy. The amount of subsidy will at first be large in order to cover initial investments, but will later diminish since it will only be needed to cover a small operating cost gap. ZAMHEALTH costs would be expected to be competitive with government costs of service delivery.

ZAMHEALTH can be expected to benefit numerous consumers directly and also have indirect benefits as well. The indirect benefit will come from the competitive demonstration effect of ZAMHEALTH on public and private providers. PROSALUD's high quality, patient-focused, highly visible, and transparent approach is likely to cause other health care providers to adopt various aspects of its approach; that is, to copy various ways of how it provides health care and manages its clinics.

Several indicators should be monitored in the implementation of ZAMHEALTH. They include the following: unit costs of services, population served (utilization), rates of exemptions from payment, net operating revenue, quality of care, consumer satisfaction, prices of services, socio-economic status of users, and utilization of preventive services. Many should be monitored both for ZAMHEALTH and for competing public and private providers. ZAMHEALTH should be considered successful with positive performance of most of the indicators and few major areas of negative performance.

In conclusion, ZAMHEALTH's development can be expected to contribute to the objective of improving the health of the Zambian people both directly and indirectly. It can do so by taking advantage of the recent opening to greater private participation in health services delivery in Zambia.



---

# Bibliography

- Atkinson, Sarah, Macwan'gi, Mubiana, Ngenda, Love and Douglas, Hannah-Rose. 1996. "Quality of Urban Health Services: Lusaka, Zambia." Bamako Initiative Operations Research Programme Research Paper No. 2. UNICEF.
- Berman, Peter et al. 1995. *Zambia: Non-Governmental Health Care Provision*. Data for Decision-Making (DDM) Project.
- Fiedler, John L. 1990. "Organizational Development and Privatization: A Bolivian Success Story." *The International Journal of Health Planning and Management* (5):167-186.
- Fiedler, John L. and Hougen, Lee R. 1995. "Midterm Evaluation of the Self-Financing Primary Health Care II Project (PROSALUD)." Arlington, VA: USAID Population Technical Assistance Project Report, No. 95-034-029.
- Limbambala, Mumbuwa and Debbie Emma Choongo. 1994. "Assessment of Current Government Health Care Delivery Services in Lusaka Urban." The Study Fund of the Social Recovery Project.
- Living Conditions Monitoring Survey (LCMS). 1996. World Health Organization.
- Lusaka Urban Health Project. 1996. "Zambia Health and Population Sector Aid: Baseline Study, 1995." Lusaka.
- Macro International, Inc. 1997. "Zambia Demographic and Health Survey, 1996, Summary Report." Columbia, MD.
- Ngwenge, Dr. Alasford M. 1997. "Impact on the Workload at the Lusaka UHC OPD's Due to the Closure of the UTH Filter Clinics." Study commissioned by the Lusaka Urban Health Project Management Group (PMG).
- Population Services International (PSI). 1996. "Improving Health Care in Zambia through the Franchising of Primary Health Care Clinics." U. K. Overseas Development Administration.
- Richardson et al. "Quality, Costs and Cost Recovery: A Comparative Study of the *Unidad Sanitaria* of the Ministry of Health and PROSALUD in Santa Cruz, Bolivia." USAID Latin American and Caribbean Health and Nutrition Sustainability Project. Arlington, VA: International Science and Technology and University Research Co., LLC.
- Scott, Charlotte. 1996. "Study of the Private Health Sector in Lusaka." Lusaka: USAID.
- World Bank. 1993. *World Development Report 1993*. Washington, DC: Oxford University Press.