COMMUNITY FINANCING OF PRIMARY HEALTH CARE: THE PRICOR EXPERIENCE

A Comparative Analysis

March 1987

PRICOR

Primary Health Care Operations Research

Center for Human Services
5530 Wisconsin Avenue
Chevy Chase, Maryland 20815

ACKNOWLEDGEMENTS

PRICOR acknowledges the efforts of its researchers with respect and appreciation. They worked long and hard in difficult settings and contributed significantly to our knowledge of PHC design and financing. Researchers whose work is reported here include:

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Many pioneered operations research in specific topics and countries and generated additional operations research that is only now occurring.

This analysis is based largely on investigator reports and the personal knowledge of PRICOR study monitors. Its authors are Wayne Stinson, Marty Pipp, La Rue Seims, and Pat Sayer. Time and distance constraints precluded review by the majority of principal investigators. We apologize for any errors or misinterpretations of their studies.

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INTRODUCTION

Research and action projects over the past decade have pioneered new methods of improving people's health, using simple techniques, mainly local manpower, and a few basic drugs, vaccines and supplies from national or international sources. Relatively low cost interventions - oral rehydration therapy, immunization, growth monitoring, breast feeding, vitamin A, among others - have been widely promoted as ways to increase chances for children's survival in the first difficult years. There has been encouraging progress in a number of countries. Enough progress has been made to give health care planners hope that at least some "health" may be achievable for major parts of the world's population by the year 2000 - if only ways can be found to pay for it.

In the early years of the primary health care movement, especially at and after the Alma Ata conference, enthusiasts in many countries promoted the low cost virtues of community-based preventive and promotive activities and suggested that much of the cost of these activities could be paid for by the community residents themselves. This argument had some validity when set against the weak technical rationale for curative medical care, hospitals, and European or American professional standards. Primary health care is low cost and relatively affordable in these terms. The problem is that neither governments nor peoples value it sufficiently to overcome the forces favoring curative care or to expend the necessary resources. The problem of primary care financing remains acute and tops the agenda of such major organizations as the World Health Organization and the Agency for International Development.

SUSTAINABILITY REQUIRES MORE THAN RESOURCE GENERATION

Discussions have distinguished four basic finance-related tactics. The first, and often most promoted, element is new resource generation, emphasizing user fees and, now, employer financing. The subject of community-managed financing, as distinct from user fees managed by the government, was widely discussed in the early 1980s but seems to be less emphasized currently. The second tactic is cost containment, seen both as a way to make basic services more affordable and as a way to save money on politically popular but expensive hospitals. The third tactic is resource reallocation, particularly from hospitals to preventive care and from ineffective interventions to effective ones. A final but strongly promoted tactic is reorganization of health services, particularly favoring the private sector. Recent AID Health Financing Guidelines support all four of these tactical approaches.

Recognizing financing's urgency, the USAID-financed Primary Health Care Operations Research Project (PRICOR) selected community financing as one of four subject areas in which it would work between 1981 and 1986. Sixteen studies were funded either to document or to develop community/user financing activities. Six of these studies were in Africa, three in Asia, and seven in the Latin American/Caribbean region. Six additional studies produced significant data on health care expenditures, costs, and productivity. In all cases, PRICOR supported American and LDC researchers through funding and technical guidance but did not do the research itself.

Community financing has been broadly defined in the literature to include user payments of all kinds, whether managed directly (1) by community groups/other non-health system personnel, or (2) by health system/government personnel. Among PRICOR-supported studies, both Dominica and Liberia/Cole I are considered community financing studies, even though the Dominica system was managed by the Central Medical Stores and district health officers, while the Liberian one was managed by a village health committee. Both systems are discussed here because users of PHC goods and services helped pay for them, but study results showed that the distinction between professionally managed activities and community managed ones is just as important for financing as it is for primary health care.

Though all studies reported here related to costs and financing, they varied greatly in their venues, objectives, and outcomes. Locations varied from the sometimes violent urban slums of Rio de Janeiro to the relatively traditional rural communities of Zaire, Liberia, and Bolivia. Some studies tried to guide design of specific community financing schemes, while others were meant to influence the policy environment. Some studies were prospective, that is, intended to study and influence future conditions, while others, like traditional evaluation, were mainly intended to analyze current conditions and their causes. Some studies were national in scope, while others encompassed only a few communities. Some studied government ministries, others private groups. Brief summaries of these studies are given in Chart 1 and Appendix A. Further detail on specific studies may be obtained from PRICOR.

OPERATIONS RESEARCH IS A MANAGEMENT DESIGN PROCESS

PRICOR's objective in these studies was to resolve specific operational problems, not to produce generalizable knowledge. Often the key factors affecting problem resolution were decisionmaker perceptions and preferences, rather than objectively verifiable conditions. The least workable problem solutions were ones developed by traditional

researchers using abstract models or working in isolation from implementers.

Operations research of conmmunity financing is an economics question, but also a sociological/anthropological one (because of the importance of community organizations) and a management one. Both the service delivery mechanism and its financing have to be studied because people will only pay for functioning, reasonably high quality activities. Design of community financing schemes in PRICOR-supported studies often required strengthening and partial redesign of the PHC system itself to increase users' ability and willingness to pay.

THIS PAPER APPLIES A COMPARATIVE FRAMEWORK

This report describes and analyzes how PRICOR-supported decisionmakers investigated and resolved specific operational problems in PHC and financing. It makes extensive use of charts to present study activities and results within a comparative framework. It attempts to draw patterns where they are apparent and to at least describe processes and results within a common framework when they are not. It is identified as a comparative analysis even though studies were designed to produce locally valid solutions, not universally valid knowledge. PRICOR learned much of general interest about how to resolve community financing problems, but results should be applied cautiously because they were never intended to be fully generalizable.

CHART 1: PRICOR-SUPPORTED COMMUNITY FINANCING STUDIES:
PROBLEMS, OBJECTIVES, PROPOSED SOLUTIONS, AND RESULTS

STUDY	SUBJECTS ADDRESSED	PROBLEM	OBJECTIVE	PROPOSED SOLUTION	RESULTS	COMMENTS
Benin/ Coit	RG	Need to develop CF system for new PHC services to complement government and donor financing	Identify, implement, and monitor community financing methods for PHC	Pricing and revenue management system; fees to be charged by episode	Schemes were instituted in study villages and cover approximately one third of direct and indirect PHC costs	Non-residents charged 4 times the resident fee--an important revenue-generating technique
Bolivia/ Gonzalez	RG, CC	Very high CHW attrition rate in Cochabamba, thus decrease in PHC coverage in rural areas	Reduce high attritition rate and thus increase PHC coverage	New, lower paid, CHW cadre; periodic collection of potatoes from community residents to finance CHW salaries and medications	Six promotoras trained and worked without pay until first potato harvest; then accepted inkind payment	Due to Bolivian hyperinflation, revenues from sale of in-kind payments changed into dollars.
Bolivia/ Miller	RG, PS	Inadequate PHC services and financing	To develop the PHC activities of 12 agricultural cooperatives	See Comments	See Comments	Cooperatives decided not to develop PHC services
Brazil/ Baker	RG	See Comments	Analyze FSESP experience with CHWs and community financing of water supply	See Comments; job security, stable salaries, system support found to contribute to CHW stability and effectiveness	CHW information system found to be weak; revisions based on study results implemented	This was a retrospective study not directly intended for problem analysis and solution development.
Brazil/ Lassner	RG, PS	Overdependence on external resources for PHC and other social services	Develop community cost-sharing mechanisms, while increasing service accessibility and use; develop replicable models for other parts of Brazil	Variety of community and user financing mechanisms	Solutions partly implemented; most successful communities covered 20% of direct recurrent costs	Study conducted in urban slums

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STUDY	SUBJECTS ADDRESSED	PROBLEM	OBJECTIVE	PROPOSED SOLUTION	RESULTS	COMMENTS
Brazil/ Nations	PS	Use of ORS is low, even though caretaker awareness and knowledge are high.	Train and incorporate traditional healers into the ORT delivery system	Training curricula and method for generating interest about ORT among traditional healers	Solution successfully implemented, will be partially replicated in major regional project	Healer participation in solution development an important factor in success; study also produced cost data
Dominica/ Cross, McIntyre	CC	Government budget unable to meet costs of all drugs and supplies prescribed at MOH health facilities	Establish capability of Central Medical Stores to successfully operate national revolving drug fund; implement and evaluate consumer payments for drugs and supplies	First, improve central and district pharmaceutical management and information system; then, institute consumer drug payments	Solution partially implemented, but user charges not yet instituted due to feared political reaction. Fund was capitalized; district health staff participate, using their MOH budgetary allocations; central drug procurement and distribution system has been strengthened.	Dominica model being applied in other Eastern Caribbean countries under major AID contract
Dominican Republic/ Udall	RG, PS	MOH wanted to launch nationwide ORT campaign, but did not know how many ORS packets would be required or how to ensure distribution and availability for children under 5.	Design pricing structure and distribution system which ensures that ORS is available and affordable for poor and that pharmacists make sufficient profit from ORS sales	Two-tiered pricing structure and an inventory and distribution management system	See Comments	Solutions not implemented due to lack of support from MOH and poor communication between researchers and MOH
Haiti/ Augustin (AEDC)	RG	Uncertainty about how to tap local resources for sustaining CHW preventive services	Develop ways to motivate CHWs to teach mothers to understand and use preventive services; establish supportive CF mechanisms	Adaptation of traditional rotating credit clubs for mothers who demonstrate competence in child survival interventions	First groups of mothers learned interventions and participated in schemes; portion of funds generated used to pay CHW salaries	Scheme only recently implemented

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STUDY	SUBJECTS ADDRESSED	PROBLEM	OBJECTIVE	PROPOSED SOLUTION	RESULTS	COMMENTS
Honduras/ Hartman	RG, RR	Severe economic crisis of 1980 has limited government's ability to provide Health services.	Identify alternative financing mechanisms based on kinds of health services for which people are able and willing to pay, within equity and quality of care constraints	Service fees, drug charges, labor contributions, community revolving funds	PHC recommendations not implemented due to legal, political, and attitudinal constraints; charges authorized in hospitals, however	Study contributed to improved policy environment for further OR.
India/ Elkins	RG, PS	Limited resources require voluntary agencies in India to find most effective ways of financing, organizing, and managing community-based PHC programs.	Study financial, organizational, and managerial aspects of 8 health cooperatives; describe various solutions that cooperatives had already developed	See Comments	National workshop held to discuss findings with other agencies and voluntary programs; arrangements made to institutionalize information sharing. Policy decisions taken by Institute of Rural Management (Anand) to include training in management of rural health programs in curriculum, place interns in projects.	This was a retrospective study not intended for solution development.
Jamaica/ Desai, Zachariah	CC, RR	Low PHC team productivity in health centers due to: (a) inappropriate manpower allocation; (b) health center schedules not based on demand for services	Improve health center productivity	Microcomputer model to optimize productivity by reallocating clinical personnel, restructuring clinics, and relocating health centers	Application being tested in Cornwall County	Model has shown that personnel costs can be reduced, while at the same time actually increasing number of services delivered and population covered with essential services.

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STUDY	SUBJECTS ADDRESSED	PROBLEM	OBJECTIVE	PROPOSED SOLUTION	RESULTS	COMMENTS
Korea/ Hong	CC	Inadequate preventive and promotive health activities in rural areas; community health practitioners are clinic-based and provide mainly curative care.	Strengthen community understanding and support for preventive and promotive health activities; analyze cost-effectiveness of various strategies for involving non-health community organizations in PHC	Training of CHWs and community leaders in prevention and health education; health education presentations at community meetings	Leaders trained but community interest still low.	Cost data available
Liberia/ Cole I	RG, PS	Health services and drugs relatively inaccessible in rural communities	Establish and finance community-based health services and drug supply sources	Revolving drug funds; several methods for supporting CHWs	Revolving drug funds implemented in study communities and nearby; CHW compensation schemes not implemented	Solutions adopted by several nearby communities not formally involved in study.
Mali/ Traore	RG, RR	Overdependence on external resources for PHC financing	Identify and implement community financing methods for PHC	Villages to finance certain costs associated with delivery of curative services and markup on drugs; government to finance preventive and supervisory activities	Development council of 1 village agreed to finance 1986 budget of village health center; budget includes many financing strategies developed in study.	A National Policy Study
Mexico/ de la Macorra	PS	ORS, though widely available in Mexican pharmacies, is sold mainly in more expensive liquid forms.	Determine if ORS tablets would be acceptable and marketable to public	Developing ORS packets to be dissolved in 8 oz. water	Pharmacists surveyed preferred ORC packets over tablets.	Based on findings, PROFAM chose to produce packets of ORS granules rather than tablets.

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STUDY	SUBJECTS ADDRESSED	PROBLEM	OBJECTIVE	PROPOSED SOLUTION	RESULTS	COMMENTS
Philippines/ Osteria	RG	Economic conditions preclude scale of public sector financial expansion needed to provide health services to rural areas	Mobilize community resources for PHC, including prevention	Community-managed and -financed revolving drug funds; emergency hospitalization fund; "lead mothers" scheme	Five community pharmacies still functioning in the black 9 months after study completion; little support for "lead mother" preventive activities	Community involvement considered essential for project success
Senegal/ Gray	RG, RR	Overdependence on external sources for PHC financing	Recommend measures to wean Sine Saloum project from AID support; examine possible (particularly community) sources of funding for PHC recurrent costs	Recommendations for future OR in areas of supervision, CHW remuneration, drug resupply	USAID/Dakar has requested technical assistance in developing supervision OR agenda.	
Somalia/ Lane	PS	Lack of adequate supplies of basic drugs in rural areas	Develop strategies to improve PHC drug supply in rural areas	Use private sector as well as public to deliver drugs; prepare written "Guide to PHC Drug Use" for villagers; review PHC drug list and limit items	Alternative solutions developed and placed before decisionmakers, asking them to choose and implement	
Swaziland/ Dunn, Dlamini	RG	MOH cannot afford to pay rural health motivators (RHM) more than very small monthly stipend; community unwilling to support RHM preventive services; RHM task specification ambiguous.	Improve scope and quality of RHM services; identify most appropriate way of sustaining them through community financing	Refresher courses (including home-based ORT) for RHMs, so their services are better appreciated by community and generate in-kind (food or labor) payments for RHM	Chief assigned field to RHM & community to prepare land for planting. Community did so, but due to external circumstances, too late for planting. Community will repeat in time for next planting season. Small (n=64) evaluation showed that 95% of respondents knew of ORT and [illegible] new [illegible] ect [illegible] la.	MOH area superior of RHMs trying to expand approach to second chieftianship

CHART 1: PRICOR-SUPPORTED COMMUNITY FINANCING STUDIES:
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STUDY	SUBJECTS ADDRESSED	PROBLEM	OBJECTIVE	PROPOSED SOLUTION	RESULTS	COMMENTS
Thailand/ Orathip	RG	Inadequate PHC financial resources	Identify, test, and replicate cost-effective models of community financing for PHC activities	Combination of (1) revolving fund mechanisms based on existing PHC funds; (2) multipurpose models; and (3) multipurpose models with health cards	Thai government has (1) adopted multipurpose model for National Rural Development Program; (2) encouraged single-purpose funds to diversify; and (3) encouraged establishment of multipurpose funds.	Multipurpose model more cost-effective and sustainable
Zaire/ Baer	RG	Inadequate resources to sustain PHC services	Develop appropriate payment schemes for self-financed health centers that do not adversely affect utilization	Fee-per-episode and per-consultation charging systems compared	6 health centers covered a median of 66.5% of direct Preventive and Curative costs. Effects on utilization mostly reflected staff and community reactions rather than payment scheme	Some implementation problems in fee-per-episode scheme due to lack of cooperation from health center staff; need further research in price-setting

ABBREVIATIONS USED

AID	Agency for International Development
CC	Cost Containment
CF	Community financing
CHW	Community health worker
FSESP	Fundaco Servicos de Saude Publica (Brazil)
MOH	Ministry of Health
OR	Operations research
ORS	Oral rehydration salts
ORT	Oral rehydration therapy
PHC	Primary health care
PROFAM	Groupo Profam (Mexico)
PS	Private Sector
RG	Resource Generation
RHM	Rural health motivator
RR	Resource Reallocation

CHAPTER 2
INFLUENCING THE POLITICAL AND POLICY ENVIRONMENT

Many governments have policies that inhibit community financing or user payments of any kind, while only a few (such as Thailand's and China's) have policies that directly encourage it. Discouraging policies encountered in one or more PRICOR studies included:

- a constitutional requirement that health care be free (Somalia)
- a requirement (formerly in Zaire) that all receipts from user fees revert to the central treasury
- Lack of local control over such expensive inputs as personnel (Haiti)
- Policies, as in Swaziland, that prevent community health workers from performing high demand curative functions.

In addition to formal policies, certain political norms and expectations also affected the potential for community financing. In Honduras, researchers reported a widespread perception among political leaders that the country is too poor for community financing to be practical. Health care providers in Rio de Janeiro, Brazil, reportedly felt that health services should be accessible to all and thus resisted charging fees for them. In countries where senior personnel turn over quickly, people may hesitate to try new ideas or change the status quo.

On the positive side, decentralization policies explicitly encouraged community financing in Zaire and Honduras by forcing local institutions to find their own support or at least allowing them to keep whatever they could get. The dramatic spread of community financing in Thailand largely reflected efforts of the royal government.

Political and official policy environments played a variety of roles in PRICOR-supported studies. Studies in Mali, Somalia, Dominica, Senegal and Honduras, explicitly tried to influence financing policies, looking both at the adequacy of their response to health problems and at the feasibility of change. Other studies attempted to change policy by operationalizing new approaches and demonstrating their political and practical feasibility. Virtually every study produced findings on facilitating factors and constraints that either encouraged or discouraged community financing. Finally, political and policy environments affected the ease with which researchers were able to carry out their work.

STUDIES AIMED AT POLICY CHANGE

Studies in Dominica, Mali, Somalia, Senegal, and Honduras analyzed current financing requirements and achievements and made recommendations for change.

- In Dominica, inadequate drug financing and frequent stockouts led the government to seek PRICOR and Management Sciences for Health assistance to devise a national revolving drug fund.

- In Mali, the Director General of Planning for Health and Social Services identified, costed, and attempted to find viable financing for the most essential PHC interventions. In the first year following the study, one district adopted several of the study's recommendations.

- In Somalia and Honduras, researchers studied private health care expenditures in the hopes of changing government policies. Policy effects are unclear, though the Honduran government did order MOH hospitals to begin covering 30% of their expenses through user fees.

- In Senegal, USAID's desire to find long term recurrent cost financing for the Sine Saloum project, especially for supervision, led to a PRICOR-supported study of current government spending patterns and possible options for change.

Studies concerned with financing policy sought both to provide new information and to suggest specific reforms. Principal investigators believed that policy makers needed information on: (1) Current private expenditures, what they are for, and who makes them; (2) Evidence that user charges are politically acceptable, both to health care providers and to influential leadership and population groups; and (3) Guidance on how to operationalize new financing policies. With a few exceptions, most studies found that user charges were politically acceptable and that some users may prefer to pay official fees if they replace variable and perhaps excessive unofficial fees (Zaire). Users may also be quite willing to pay if new revenue pays for more accessible or higher quality services (Brazil). Most studies also demonstrated the operational feasibility of community financing, as described throughout this paper.

FACILITATING FACTORS AND CONSTRAINTS

While not attempting to change policy factors or the political environment, many researchers found that political considerations affected the range of community financing options that they could propose.

- In Honduras, for example, researchers found that Ministry of Health personnel considered it inappropriate to charge for basic services but that they were willing to permit charges for speciality care. Researchers proposed charges for hospital care.

- In Brazil, community residents were apparently willing to pay for accessible and high quality services, but health providers considered it almost a breach of ethics to charge the poor (even if this meant denying care to those willing to pay). In retrospect, researchers concluded that they could have charged more.

During the 1940s and 1950s in Zaire, the government had a highly centralized policy, requiring that all receipts revert to the central treasury. In the 1970s, some pilot PHC projects were started, mostly by religious organizations, but these survived mainly due to outside support. Finally in 1980, the government authorized state hospitals to retain receipts locally and adopted a laissez-faire policy toward religious institutions. The government officially encouraged prepayment arrangements, but allowed local institutions to find out what worked best. This laissez-faire policy helped researchers by allowing them greater latitude to investigate alternatives.

A significant question for further country-specific research is whether it is more effective to address policy issues head on and to delay community financing until they are resolved, or whether community financing experimentation should start beforehand as a way to demonstrate what can be done. In Benin, Brazil (Lassner), and Bolivia (Gonzalez), researchers and governments may have found it convenient to conduct small scale community financing experiments as a possible prelude to policy change. Studies may also have influenced policy, even if that was not intended: senior Philippine health care managers expressed interest in the revolving drug funds created there, while the Thai government now encourages multipurpose revolving funds because of study findings. Researchers in Mali, Zaire, and India also saw likely national ramifications of their studies.

EFFECTS ON RESEARCH PROCESSES

A number of PRICOR-supported researchers reported that support of high level decisionmakers facilitated their work. The support of the prime minister greatly helped PRICOR/MSH researchers in Dominica, but political concerns dictated that a smoothly functioning procurement and distribution system be in place before fees were introduced. Within the Ministry of Health, changes in the minister and principal secretary delayed critical decisions.

CONCLUSIONS

Participants in a conference of PRICOR researchers concluded that:

- Support of high level decisionmakers is a facilitating factor, possibly an essential factor in the implementation of financing schemes. This is much more difficult to achieve in an unstable political environment where there are many changes in key decisionmakers.

- It is essential to understand the values of the decisionmakers at all levels - policy makers, managers, community members - in addition to existing practices. For example, in Honduras it was acceptable to the Ministry of Health to charge for special services but not for basic care.

- Government policies that allow regional or local managers to try out new ideas encourage community financing, whether decision making is completely decentralized, as in Benin, or there is just an unofficial, laissez faire attitude from the central Ministry of Health, as in Zaire. Depending on centralized, bureaucratic systems greatly slows and restricts the development of community financing.

- Researchers need to recognize the time it takes to develop support among decisionmakers and to develop the financial and accounting systems necessary to sustain financing. Studies which tried to implement incremental phased-in changes, as in Dominica, received support from the central ministry. This allowed time for the development of needed central systems and also allowed for attitudinal changes that often take some time to occur.

- In several countries, including Honduras, Somalia and Brazil, it was the key decisionmakers, not the communities, who were opposed to cost sharing by users. Documentation of the substantial health expenditures households were making and their expressed willingness to pay for services were used in an attempt to change decisionmakers' basic perception of the necessity of free care for all.

- Economic crisis or the fear that external funding will be reduced can stimulate interest in community financing both by governments and by users. Where providers and communities believe that outside funding is certain, it is very difficult to mobilize community resources for health care.

CHAPTER 3
DEMAND FOR HEALTH CARE: COMMUNITY INTERESTS AND RESOURCES

INTRODUCTION

Demand is the relationship between the amount of something that a consumer will purchase and those factors that determine that amount such as income, travel costs, price, and perceived need. Demand is not a number but a relationship. Demand is often confused with need, but they are not the same. Someone may need medical care (because it would improve a particular health condition such as tuberculosis) but not know that they are sick or not believe that a treatment is efficacious and therefore not seek out medical care.

Demand is not directly observable, but utilization is. Utilization is the amount of health care that equates demand and supply. Bartlett identified five categories of factors that affect the demand for health care services: demographic, biologic, cultural, service-related, and economic. Measuring demand is further complicated by the context of the analysis including seasonality, inflation, and external factors affecting utilization such as natural disasters, disruption of services, and education.

None of the PRICOR-supported studies completed complex demand models as the primary purpose of their studies. Rather, descriptive data about service utilization and service preferences were collected in a number of the studies in order to solve a specific operational problem in a community financing system. The results are descriptive and apply to specific community situations.

This chapter discusses ability and willingness to pay viewed prospectively as a policy development and scheme design issue. Chapter 10 again discusses these topics but viewed retrospectively as community financing activities were implemented.

HOW DEMAND WAS STUDIED

PRICOR-supported researchers used the following techniques to study the public's ability and willingness to pay for health care:

- National household expenditure surveys in Honduras, Somalia, and Mali
- Local or district household surveys in Liberia, Brazil/Lassner, and the Philippines

- Surveys of health providers in specific service areas in Brazil/Lassner, Swaziland, and Thailand
- A survey of pharmacists in Mexico
- Observation of families in Honduras and Bolivia/Miller
- Case studies of health care providers in Honduras, Bolivia/Miller and Thailand
- Meetings with an expert group in Brazil/Lassner
- Studies of what people liked and disliked about health care sources in Liberia, India, and Bolivia/Gonzalez
- Direct discussions with community leaders in Benin, Bolivia, Brazil/Lassner, Swaziland, Somalia, Liberia, the Philippines, Mali
- Review of existing reports in Brazil/Baker and Bolivia/Miller.

The PRICOR studies which collected information about demand can be divided into two categories: those intended to influence policy decisions and those measuring community resources for the purpose of developing a particular community financing scheme.

CURRENT HEALTH SPENDING AND UTILIZATION: POLICY STUDIES

Honduras

PRICOR-supported investigators used three data sources in Honduras. First, 25 Honduran families were intensively observed to gather data on illness behavior patterns. One relevant finding was that individuals used multiple sources of care for each illness episode.

Second, a survey team completed 1,017 household interviews in 29 sampling sites in four Health Regions. Approximately 26 percent of the sample population reported having been sick in the past 15 days. Those who did experience an illness episode reported the following:

- Spending per illness episode, mean: $8.28 median: $1.00
- Spending for home treatment, mean: $2.50 median: $0.50
- Spending for private medical care, mean: $34.45 median: $25.00

- Monthly drug spending, mean: $4.50
  median: $1.00

Reported monthly household health spending had a mean of $20.82 for all families and represented 11.4% of total monthly expenses, ranging from 8.5% in urban areas to 12.9% in rural areas. This was the third highest expense after food and clothing. The investigators estimated that private health expenditures consumed close to 11% of the 1983 GNP.

Drug expenditures were 50% of total health care expenditures. Unfortunately, some drug expenditures were used for inappropriate treatments. For example, those with diarrhea paid an average of $3.00 for drugs even though 2 packets of ORS would have cost only $0.50. Drugs prescribed by MOH personnel had to be purchased on the open market because MOH had inadequate supplies, also adding to the cost of treatment.

Ten case studies of clinics, health centers, and hospitals that were charging for services or receiving community support were the third source of demand data. Direct observation and discussions with informed people at the facilities were carried out as well as interviews with community members. Results of this part of the study are discussed under "willingness to pay" below.

Somalia

The purpose of the PRICOR-supported study in Somalia was to analyze the use of modern drugs in rural areas. This was an important public policy concern because all drugs sold in Somalia had to pass through government inspection for quality control, limiting the free flow of drugs into the private sector.

First, problems associated with drug delivery in Somalia were identified in discussions with PHC experts and through direct observation of people in the field. Many people working in Somalia assumed that peoples' lack of disposable income was one of the major factors limiting drug use at the village level. However, on several occasions expatriates were asked to purchase drugs on behalf of village committees, suggesting that villagers might in fact be willing and able to pay for drugs.

Researchers found very low private expenditures for drugs, however, compared to other household expenditures. In the 716 households contacted, the average drug expenditure in the previous 6 months was $0.83 per household. For the 32.4% who purchased drugs, this average was $2.55. Other average expenditures in the comparable 6 month period were $20 for tobacco, $16 for tea, $18 for celebrations, $335 for food. Drugs represented 0.2% of total household expenditures during

the study period while food represented 71.8%. Expenditures for treatment over the six month period averaged $1.63 including both drugs and consultation fee.

The researchers speculated that the very low average expenditures for drugs was a function of the poverty of the region, the high cost of food, and the unavailability of drugs in the rural areas. The importance of the last factor (supply of drugs) was underscored in interviews with drug dispensers.

Mexico

A market research study of ORS was carried out in Mexico by PROFAM. Mexican health agencies have widely encouraged the use of packets of of ORS granules for the treatment of diarrhea. PROFAM was interested in producing, marketing, and distributing an inexpensive, easy-to-use ORS tablet and wanted to know if the public would find it acceptable. Since drugstores are a popular source of ORS products, it was decided that a survey of pharmacists would provide a relatively good measure of supply and demand for ORS.

The survey included 116 private drugstores: 55 in Mexico City, 30 in the hot region, and 31 in the temperate region. The researchers asked pharmacists and other drugstore personnel about the distribution and sales of ORS, their knowledge of the purpose and correct use of ORS, demand for ORS, and their opinions on the presentation of ORS products.

All but 1% of the drug stores reported that they sold ORS. The price of the pre-mixed liquid ranged from $0.73 to $0.94 per 500 ml bottle. Most sales were made to women. Largest quantities were sold in the spring and summer. The products with the highest demand were Pedialyte (75%), Solural (21%), and Electrolite (3%).

The drugstore personnel felt that, in considering the needs of the population, the prices of the ORS products were generally too high. A few pharmacists felt that demand could be increased by adding flavoring to existing ORS products. There was no significant difference in opinion when asked about the suitability of either ORS tablets or granules.

PROFAM decided not to proceed with the production of ORS tablets for two major reason: suitability and cost. The survey showed no particular consumer advantage of the ORS tablets over granule packets, and the tablets also cost slightly more than granule packets to produce.

Mali

A survey of 1,800 family and household heads in two districts was conducted to obtain information about health needs, current and suggested methods of paying for health

care, methods of paying CHWs and TBAs, household economic data, and attitudes towards PHC programs.

Community financing of health care in a Malian village is complicated by the economic structure of the family unit, and by the fact that many farming famimlies are only able to farm at subsistence levels, leaving little or no disposable income for other necessities. The priority expenditures of a typical family unit were food, health, and taxes, in order of magnitude.

Eighty percent of the respondents in the Koro District said that they consume all of what they grow, largely a result of the continuing drought conditions in that part of the country. They are severely limited in their ability to pay for health care. In Kita, on the other hand, farmers grow peanuts as a cash crop, and only 4% live at subsistence levels. Family members usually work collectively, but individual health-related expenditures are most often paid for by the family head (70%). Most of the respondents complained of this system, and expressed interest in a more flexible method which leaves the individuals more free to seek health care.

CURRENT HEALTH SPENDING AND UTILIZATION: COMMUNITY FINANCING DESIGN STUDIES

Brazil/Lassner

In Brazil, surveys of community residents and of CPAIMC health service providers were conducted to collect data on use of health services, on sources of health care for under 5s and women 15-49, and on payment for this care. Community leaders were also interviewed to get their opinions and suggestions regarding community financing.

In the community survey, 93% reported at least one household member was covered by public sector health insurance. Government health care facilities were the major source of care for women and children. Preventive health services were sought for 33% of the children and 46% of the women at their most recent health care visit.

Payment for health care was made for only 6% of the children and 8% of the women, based on most recent visits. Twenty-two percent of women whose most recent visit was for dental care paid for that care, while 17% paid for injections and 7% paid for gynecological care. Most people did not pay for popular child services such as vaccinations, pediatric care, well-child care, and emergency care, as they were avaliable free in public health facilities. Injections and dental care were more likely to be paid for since these services were not always available in public health centers.

Household members also paid for drugs and contraceptives from pharmacies.

In generating alternative schemes, health providers were very resistant to charging for services because they believed that people were not able or willing to pay. Survey results indicated that people were used to certain health care payments and suggested what kinds of services people might agree to pay for at CPAIMC facilities.

Liberia

The PRICOR-supported Liberian study examined ways communities could use to generate funds to finance some or all of their PHC services. Researchers collected data for their study using a household survey of three rural villages and a series of meetings with village leaders.

Seventy percent of households surveyed reported an annual income of less than $200 and 41% reported incomes of less than $100 a year, substantially less than national average of $280. Though these data were not formally incorporated into the development of alternatives, the survey itself proved to be an effective entree into the comunities and generated support for the project.

In each village the town council and other village leaders met to consider four issues: what health care services would be provided, who the health care provider would be, who would participate, and how much the services would cost. Further, the leaders discussed eight alternative financing schemes for generating PHC funds weithin the community. Each of the three study villages constructed a preference matrix and, on each, the same four schemes ranked the highest, although in different order: drug sales, porduction-based prepayment, community and individual labor, and donation and ad hoc assessments.

Benin

All the demand data collected in the Benin study came from meetings with commune leaders and projections of health service utilization based on estimated morbidity patterns. The researchers contacted commune leaders directly in order to identify which services and goods the communities would be willing to pay for.

Leaders agreed that villages would support the costs of drug supplies and VHW remuneration providing the government paid health center salaries and infrastructure costs and foreign donors covered investment costs.

Swaziland

A household survey was conducted to gather information about use of health care, health expenditures, and willingness of communities to support rural health motivators (RHMs). Twenty percent of the respondents said they would be willing to support the RHM financially, while 64% said they would support them with in-kind contributions.

Interviews with 31 RHMs confirmed these findings: not one felt that the community would be willing to support them financially, mainly because they were already receiving a stipend from the government (approximately $20 per month). Half of the RHMs felt that communities would be willing to give them in-kind support.

The researchers concluded that the communities were not willing to pay for the services that the RHMs were currently providing (health education), that they needed to enhance their skills and increase their perceived value, and that in-kind payments were most appropriate.

Philippines

Six participating barangays were studied to determine: perceived health problems in the community; attitudes toward and utilization of available health services, particularly the Barangay Health Workers; current expenditures for health services in the public and private sectors; and stated willingness to pay for additional services not currently available.

The major health problems were perceived to be respiratory and gastro-intestinal illnesses. Annual health expenditures per household were estimated to range from $29 to $43. The unavailability of drugs and poor water supply facilities were perceived as major health-related problems. The majority of households expressed willingness to participate in the community financing of health activities. The purchase of drugs and the operation of a drug depot were projects that community members were most willing to finance.

The study team charted the results of the baseline survey pictorially and presented them to the barangay residents at community assemblies.

Brazil/Baker

The Brazil/Baker study was a retrospective analysis of various aspects of primary health care activities managed by the Fundacao Servicos Especiais de Saude Publica (FSESP) and included an analysis of community expenditures for the development and operation of water systems.

Researchers discovered that small communities were able to pay for both maintenance and operation of water supplies if a suitable financing system was used. In the case of FSESP, the regular payment of water bills by users was achieved through the efficient management of the water system by the municipal authorities and proved to be adequate to cover operating costs. The researchers concluded that expanding water supply coverage depended more on the method and efficiency of billing and collection than on the wealth of the commnity and the amount of charges for water.

Bolivia/Gonzalez

Researchers from the Instituto de Investigaciones Medico Sociales (IIMS) conducted a household survey in the rural areas to determine conditions under which communities would be willing to support a health worker, how much they would pay, and how payments would be made (i.e. in-kind, fee-for-service, annual installments, etc.). Results indicated that most people would be willing to support health workers if they had established working hours and were selected by the community. Smaller communities would be more willing to support a health worker who resided locally and attended only to community members.

Discussions with villagers indicated that, although most of them clearly recognized the need for a local health worker, they were reluctant to commit their own scarce resources until they were assured that the worker would be competent, reliable, selected by the community, and well supplied with medications.

Haiti

Save the Children Canada (AEDC) examined the best ways to motivate CHWs to provide preventive services and encourage mothers to learn about, use, and maintain competence in child survival interventions.

Using fee-for-services was explored, involving the possiblity of raising money to support CHWs in one of two ways: increasing curative care receipts and using the increased revenue to pay for preventive services, or making beneficiaries pay for preventive services. Examination of financial records revealed that receipts from curative care could not begin to pay for curative care expenses let alone subsidize preventive care activities. To determine patients' willingness to pay directly for preventive care, 900 mothers from three study sites were interviewed about their socio-economic status and expenditures for health care. Results showed that mothers paid a considerable amount for curative services but nothing for preventive care. People in rural areas were not in the habit of paying for preventive care. Women perceived curative care as their primary health need,

and CHWs affiliated with private health institutions do not provide curative care.

The possiblity of supporting CHWs through community funds was also explored. Leaders, treasurers, and members of various community groups were interviewed and community records examined when possible to answer the following questions: 1) can communities raise sufficient sums to pay CHWs? and 2) if they could, would they be willing to use the collected funds to pay CHWs. In addition, a quantitative survey of potential beneficiaries of health worker-related services was completed as well as a qualitative survey of selected mothers, group members, and group leaders. The researchers found:

- Communities can get together and raise significant amounts of capital if they believe the purpose is valid.
- Purposes communities considered valid were:
- capital for investment in group income-generation activities;
- credit; and
- insurance for catastrophic events (identified at only one of the three sites).

India/Elkins

Data on health expenditures by community residents and their preferences for services were collected in interviews with health providers, community leaders and residents, focus group discussions with staff and community members, and a review of project records. Ability to pay for even curative services was recognized as an important problem in several projects by residents and project directors. Multi-purpose organizations achieved wide participation by starting with a strongly felt need in the community, even if that need was only indirectly related to health.

Thailand

Researchers reported that in 1983, 18.9% of all health sector expenditures in Thailand were made by the Minstry of Public Health (MOPH), 12.2% by government agencies, and 68.9% by private sources.

ABILITY TO PAY

The findings cited above indicate that study communities had considerable ability to pay for health care, at least in the aggregate. The great differences between means and medians in Honduras, however, indicate considerable maldistribution of resources.

Researchers in Brazil and India asked local residents directly about ability to pay, using two different kinds of questions: 1) Is cost an obstacle for you? and 2) Is cost an obstacle for others? In Adayar, India. the most frequent response to the second question was that others could not afford to pay for the subscription; 85% cited inability to pay as a reason why some did not join. The next most frequent response, that the program did not provide the needed services, was mentioned by only 10%. Also in Adayer, 12 former subscribers to a health care program were asked why they dropped out of the program, and 9 responded that they could not afford to continue. Thus, inability to pay was identified as a significant constraint to service demand for at least some of the local residents in one project in India.

Similar results were reported in Brazil. Nearly three-fourths (71%) of those interviewed in urban Brazil said that charges were not an obstacle for themselves, but 52% said that cost was an obstacle for at least some of their neighbors.

Seasonality was identified as a variable affecting ability to pay in India and Honduras. Investigators in India felt that financing schemes must adjust to variation in income, both seasonal cycles and longer periods of one or more years. Cooperatives that meet recurrent expenses in normal years may have problems in times of financial adversity. For example, one health cooperative in Ambilikai had severe financial difficulties when drought affected the ability of members to make prepayments. Similarly, in Honduras, ability to pay varied during different periods of the year, and investigators saw a need for the MOH to develop limited credit mechanisms.

WILLINGNESS TO PAY

In some PRICOR studies, researchers had to estimate willingness to pay for services that people had not yet experienced. They did this using surveys, community meetings, focus groups, and previous knowledge and experience about local use of similar services. Willingness to pay was easiest to predict for drugs and services that people were already obtaining outside the community. Given improved accessibility and roughly comparable quality, some researchers assumed continued willingness to pay. Brazil/Lassner, for example, concentrated on what people were already paying for (rather than on how much). A subsequent survey found that low demand was partly due to lack of public knowledge about facilities and services that were available.

In the Philippines, surveys were conducted of community leaders, health care practitioners, and program beneficiaries as well as of comunity members. The majority (89%) of household heads expressed their willingness to participate in health financing schemes and had generally positive attitudes

toward participation. PRICOR-supported research in Bolivia found similar attitudes.

In Honduras, the majority of surveyed heads of households (93.5%) reported that they would be willing to pay an average of $0.50 for MOH services. Most (92%) were also willing to pay for medication in MOH facilities, although half said they would do so only if drug supplies were improved. In all 10 institutional case studies, patients reported themselves willing to support and/or pay for health care services, provided they felt the services were of a high quality. The most important factor in the decision to pay was the total charge with the ceiling ranging from $4.00-5.00. A survey was also done to determine the level of satisfaction of the community towards health services received. Willingness to pay was found to be directly linked to how householders perceived the quality of services provided.

In Benin, investigators asked villagers in communal meetings about what health care services they would support. Villagers indicated that they were willing to support CHWs and drug costs. Curative services were chosen as the cornerstone for generating funds as the community displayed a willingness to pay for these. On the other hand, preventive care was delivered free of charge as the community did not seem to spontaneously seek this type of care.

Directors of health care facilities in India expressed concern about the effect of poverty upon willingness to participate in paid health care programs. One director stressed that although poverty was a problem in an objective sense, i.e., that health did compete with other necessities for available funds, part of the problem was subjective. Some community members felt that their poverty justified their getting services free. This attitudinal problem was particularly acute in Kangazha where many services were originally free. Similarly, the majority of community members surveyed in Bolivia/Gonzalez felt that the government should provide health care services free of charge.

To reduce difficulties in predicting demand, many researchers worked closely with community leaders, as noted above. In Haiti, Swaziland, and the Philippines, residents made it clear that they would not pay directly for preventive care. (See Chapter 9 for further discussion of generating resources to support preventive care. Chapter 10 evaluates ability and willingness to pay as experienced by researchers during scheme implementation.)

CONCLUSIONS

A major operational question for many researchers was how much to try to learn about PHC demand and how to go about learning it. There was clearly a difference in this regard

between studies aimed at policy change and studies aimed at the design of specific micro-level financing schemes. The policy-level studies relied on quantitative results which documented health expenditures or use of services. For policy change, they needed to produce convincing statistics. Studies in Honduras, Somalia, and Mexico collected data relevant to policy issues. Data was collected using surveys and expert opinion. In Honduras, using multiple methods of data collection proved to be especially useful in confirming the results to sceptical decision makers.

The micro-level studies used more heuristic techniques for establishing service preferences and negotiating the design and management of the community financing scheme. In the real world, most managers cannot wait a year for the analysis and results of a survey in order to make an operational decision. Large baseline surveys are critically important for establishing patterns of resource consumption in order to shape policy, but they are less useful for design and management decisions on a specific scheme. Qualitative community-level data were generally found necessary for predicting willingness to pay for new health care services.

Working at the community level on the development of financing alternatives, several researchers found that data collected on some of the larger macro questions, such as actual health expenditures, proved less useful than relatively simple questions on kinds of goods and services people are used to paying for and their other specific preferences. For example, in Bolivia and Liberia, researchers used simple preference matrices to identify financing alternatives acceptable to the communities. Though the principal investigator of the Liberia study collected data on expenditures, he did not use the data collected on annual income for operational decisions. His knowledge of the community and their basic preferences seemed to be enough to initiate the financing scheme. In Brazil, the researchers found that the communities preferences and values differed from those of health professionals. This underlined the importance of researchers/managers not assuming that they understand the demand/preference for services without consulting the clients.

Finally, some researchers used pre-design surveys at least partly as entrees to generate community discussion and participation. The process of involving the community in aspects of the study proved to be as critical to the success of the scheme as the findings of the data collection phase in Liberia, Bolivia, Philippines, and Swaziland. Community involvement resulted in greater acceptance of the scheme.

CHAPTER 4
PRIMARY HEALTH CARE COSTS

PRICOR-supported researchers collected cost data for program planning, increasing program efficiency, setting prices, and planning and evaluating cost recovery.

First, cost information was helpful in planning the resource implications of alternative program strategies. This was important especially with regard to the long term viability of the program. For example, in Bolivia/Gonzalez, the investigators identified a strategy to extend PHC services into underserved communities by introducing a lower cost health worker.

A second use of cost information was for planning more efficient use of scarce resources. In Jamaica, a cost index was calculated for health center services and from this a model developed for more efficient allocation of the most expensive resource: personnel.

Cost information was also useful in determining prices. Cost analyses in Benin were used to calculate a single fee that had to cover multiple components of the PHC system.

Finally, cost data were essential in order to plan and evaluate the cost recovery of a specific financing system, defining what costs were to be covered by the financing scheme and at what level. It was an important outcome measure for several studies. In Zaire, health centers were expected to cover 100% of their direct costs. In Benin, the receipts from the health system were to cover all costs except government salaries, electricity, and start-up.

PRICOR-supported investigators used a variety of costing protocols with varying degrees of detail. Methodologies reflected how the cost data were to be used and the sophistication of the information system. In some studies, as in Mali, cost estimates were used instead of hard data because the latter were not available and the results, in any case, were to be used for policy-making rather than for detailed implementation. In Benin and Jamaica, on the other hand, rough estimates would not have been adequate for analyzing cost-recovery and productivity. In both of these countries, very detailed cost analyses were required to evaluate system outputs.

Researchers in Benin, Brazil (Lassner) and Zaire carried out cost analyses of full health services. Other researchers analyzed costs of specific programs: in Brazil/Nations, the use of traditional healers to deliver ORT services; in Dominica, the use of lower cost drug suppliers; in Jamaica, personnel costs for curative care; and in Korea, the use of

formal community groups to enhance PHC service delivery. Retrospective cost analyses were carried out on a water and CHW program in Brazil and for community-based health projects in India. Several other studies collected partial cost data.

METHODS

In Brazil, systems for collecting, tabulating, reporting and monitoring costs needed to be developed. Arrangements were made so that the staff member responsible for cost control at each unit and mini-post made monthly reports of direct, indirect, and total costs.

Researchers in Zaire and Benin valued the resources actually used in providing services, using shadow prices for resources that were donated. Cost data were collected in the following categories: time period (6 months); preventive and curative functions; input line item; geographic location (Zaire across regions, Benin across zones in the same health center service area).

As can be seen in Chart 2, the methodologies for the Zaire and Benin studies were similar: each valued all inputs and applied the same assumptions for amortization. Results are difficult to compare, nevertheless, because PHC services were at different levels of development in the two countries. Investment costs differed because Zaire's was an on-going program while Benin's was new. Recurrent costs were calculated in the same manner, though researchers in Benin collected very detailed data about a small service area, while in Zaire the analysis covered many health zones and was necessarily less detailed. Researchers in Benin allocated indirect costs through a complex functional analysis, while researchers in Zaire simply divided regional office costs by the number of health centers supervised. Zairian researchers interviewed staff to estimate unrecorded resource use, while researchers in Benin did a thorough time and motion study to estimate personnel time needed for various functions. In the case of Benin, PRICOR-supported cost analyses evolved into a routine management information system so that cost monitoring continued after research ended.

FINDINGS

Researchers in Benin, Brazil (Nations), and Zaire analyzed and reported service delivery costs. In addition, several researchers calculated the proportion of costs covered through community financing. Findings on service delivery costs and expenditures are reported here, while findings on cost recovery are reported in Chapter 10.

Costs are often equated with expenditures, though this is only correct if all resources consumed are paid for. Most primary health care projects, however, receive "free"

CHART 2: COSTING METHODOLOGIES USED IN PRICOR-SUPPORTED STUDIES

	DEFINITIONS					
STUDY	TIME PERIODS	COST CATEGORIES	INVESTMENT COSTS	RECURRENT COSTS	INDIRECT COSTS	SOURCE OF DATA
Benin	Every six months between July 1983 and June 1985	Preventive/curative; input line items; geographic locations	All personnel, material, transporation, and infrastructural costs incurred during the development of project services, amortized over 5 years	Community-supported costs: Drugs, VHW remuneration, gasoline and maintenance costs for mobylettes used for supervision and MCH clinics, petrol for the cold chain, the VHW information system, and certain health center functioning costs. Government supported costs: salaries of health center employees (government officials) plus electricity.	Supervision, training, administration/ logistics, information/monitoring, program development	Health center records; time/motion studies; market value estimations
Brazil	One 9-month period	Input line items; by service unit	Not analyzed	Personnel, medicines, supplies, and general expenses such as electricity, maintenance, transportation	Program management and administration, training, and evaluation	Health center records
Zaire	Six-month periods between October 1984 and September 1985	Preventive/curative; input line items; by health centers (10 centers in 5 zones)	Resources with a life expectancy of more than one year; resources consumed in start-up activities; all such costs amortized over 5 years	Resources with a life expectancy of less than one year or those needed to be replaced repeatedly in one year	Zonal office administration (supervision costs were considered direct costs)	Health center records; estimates based on interviews with health center personnel; market value estimations

resources which are never recorded in budgets or expenditure statements. In this case, costs are more than expenditures though expenditures are often the best approximation available for costs. In this chapter, costs will be used to mean actual resources consumed (paid and unpaid) unless otherwise noted.

In Benin, recurrent costs for the period between July 84 and June 85 averaged $3.00 per person per year for a population of 10,000 persons. This figure included all costs incurred in the implementation of PHC for the entire commune, including those for both health center and village level activities. Curative care and logistics together represented almost 25% of total recurrent costs. Personnel alone accounted for 70% of recurrent costs. Researchers estimated that if the Pahou Demonstration Project were replicated in an area with a similar ecology, recurrent costs could be reduced by as much as 50%, because of lower personnel, transport, and infrastructure costs. Baseline surveys and the expense of internships would also be eliminated.

In Zaire, researchers calculated three cost measures for curative care, namely, costs per capita, costs per visit, and costs per episode (defined as all visits needed for a single course of treatment). At the health center level, the greatest operating expenses were for medical supplies, personnel, and transport, in that order. Calculations included costs of associated supervision and mobile team support from the zonal level.

All three cost measures varied enormously from one center to another. Costs per capita in the period October 1984 to September 1985 varied from 2 cents in Tshileo health center to 90 cents in Lukunga. Costs per visit were lowest in Kangoy at 4 cents and highest in Katanda at $3.46. Costs per episode ranged from 27 cents in Kangoy to $7.46 in Katanda. Most calculations involved ten health centers in five health zones scattered throughout the country.

The enormous variations reported from Zaire may have been partly due to data inconsistencies but differential utilization, coverage, and distribution of resources appear to have been more important. Tshileo reported extremely low utilization per capita in addition to low per capita costs; the center is clearly responsible for a larger population than it has the resources to serve. The Kangoy center achieved its extremely low per visit and per episode costs partly because of its high utilization, since this spread fixed costs over many visits. Katanda, on the other hand, reported very low utilization and high fixed costs.

The average health center studied in Zaire incurred costs of 95 cents per episode for health center salaries, zonal supervisor and mobile team salaries for the time spent on field work, all inservice training, administrative and

maintenance supplies, drugs, vaccines, kerosene, minor building repairs, and transport for personnel and materials including supervisors and the mobile team. Medical supplies accounted for nearly half of all costs, though the proportions ranged from a low of 8.8% in one center to a high of 70.1% in another. Expenditures for preventive care (not included in the figures above) accounted for 22 to 34% of health center costs.

Zonal level operating costs other than direct support costs (also not considered above) ranged from $3500 to $5500 per year in four of the five zones studied, even though the number of health centers that the zonal offices supervised ranged from 6 to 47. Certain zonal offices were obviously better help to support subordinate health centers than were others.

In Brazil, PRICOR-supported researchers led by Nations mobilized, trained and supervised 46 lay healers and 4 village health agents to deliver ORT; these healers delivered over 7400 liters of ORT in 12 months. Community residents also constructed from scratch 5 fully equiped "curing rooms" or popular rehydration clinics and upgraded and equipped 13 existing curing rooms. The total program cost for 15 months was only $4027. Start-up costs including those for training, supplies, materials to construct and equip the curing rooms, and transportation were $2960. Training cost $870, while each curing room cost $26 to construct and $43 to equip. Operating expenses for a 15 month period were $1068, including costs for supervision, incentives, salt, sugar, other necessary ORT materials, and travel. Sugar cost an estimated 48 cents per healer per month, enough for 36 liters of ORT.

CHAPTER 5
PROBLEM IDENTIFICATION AND OBJECTIVE SETTING

PRICOR researchers became interested in community financing for a variety of reasons, most of them related to the overall crisis in PHC funding. These were:

- because managers feared excessive dependence on external funding, or wanted to relieve existing dependence;
- because managers needed funds to expand PHC services and goods within already served areas or to extend them to currently unserved areas; and
- because of high CHW attrition rates or failures in drug procurement and distribution systems.

Often the circumstances leading to community financing as a possible solution were complex:

- In Zaire, for example, program managers sought community financing in order to implement a new Ministry of Health decentralization policy. Central government resources were not adequate to permit service extension or new programs.
- In Rio de Janeiro, CPAIMC researchers feared their dependence on foreign funding sources, while in Senegal, health planners sought alternatives to use of USAID funds for supervision and other recurrent costs.
- Economic setbacks in Honduras, and government inability to buy sufficient drugs in Dominica, motivated community financing studies in those two countries. The Dominica study was also an effort to improve drug procurement, inventory control, and distribution.
- The principal investigator in Liberia hoped to help communities take on greater responsibility for PHC.
- Poor CHW morale and high attrition rates in Bolivia and Swaziland led researchers to identify financing shortfalls as key problems requiring solution.

Chart 1 in Chapter 1 briefly lists study problems and objectives as stated by the principal investigators.

SOLUTION OBJECTIVES

Most PRICOR-supported researchers stated their objectives in terms of (a) goods and services to be supported or strengthened; (b) financing, especially revenue generation and cost reduction; (c) degree of community participation and acceptance of responsibility being sought; and (d) quality, accessibility, and utilization of services.

As suggested above, most PRICOR researchers had multi-dimensional goals, among which financing was not always the highest priority. Dr. Gonzalez in Bolivia, for example, sought to reduce high CHW attrition rates and ensure coverage of vital PHC services in rural areas. CPAIMC in Brazil sought to increase service accessibility and use in the urban slums of Rio in addition to reduction of dependence on external funding. Tony Augustin in Haiti wanted to give mothers incentives for learning child survival interventions while at the same time motivating health workers to teach these skills. In Zaire, the study goal was to increase utilization rather than to increase the proportion of costs covered; to do this, program managers replaced arbitrary clinic fees, charged for each visit, with fixed fees, covering complete illness episodes. Dominican health care managers were just as concerned to improve drug procurement and distribution as they were to strengthen financing. In these cases and others, community financing was seen as a means to an end, rather than as an objective in its own right.

Achievement of more broadly stated objectives implicitly required a systematic assessment of factors leading, say, to increased service accessibility or CHW job stability. It also required a more careful statement of financing objectives. In some cases, the volume of resources generated, or even the proportion of costs covered, was less critical than whether the CHWs involved were satisfied. In Swaziland, for example, (had they proceeded this far), researchers would have been most concerned that the combination of morale-boosting and tangible product resulting from contributed field labor was adequate to keep the CHW on the job. Calculation of the purely monetary value of the field work might have been misleading. A similar situation occurred in Bolivia, where communities attempted to generate inkind resources to compensate CHWs; while collection targets were quantified (at $7.00 per family per year), CHW stability was undoubtedly affected by many other factors in addition to payment. Stable, well-functioning revolving drug funds, as in the Philippines, may be considered only partly successful if researchers want them to cover preventive care and they are unable to do so. Chart 1 indicates that PRICOR studies differed in the extent to which objectives were stated in terms of activities to be supported or inputs to be maintained rather than in terms of specified monetary or non-monetary resources.

This chapter, it should be noted, discusses solution objectives, not knowledge objectives. Studies where production of knowledge per se was the main objective are mentioned only in passing.

GOODS AND SERVICES TO BE FINANCED

Researchers stated their objectives either in terms of inputs (drugs, personnel, supply systems) to be paid for or as outputs (MCH services, community health activities, etc.). In Benin, Brazil (Lassner), Honduras, Mali, and Zaire, support was sought for a general basket of PHC goods and services, including drugs, health worker salaries, supervision, and other expenses related to both preventive and curative care. Researchers in Haiti and the Philippines sought community financing specifically for preventive care. (The Haitian study succeeded in this, but the Philippine one did not.) In Senegal the object was new financing for CHW supervision. In terms of inputs, researchers in Bolivia, Swaziland, Liberia, and the Philippines wanted to finance CHW salaries, and the government of Dominica wanted user payments for drugs.

FINANCING OBJECTIVES: RESOURCE GENERATION

Some PRICOR studies sought community sharing of certain cost burdens, while others identified specific goods or services for which full community financing was required. The distinction affected the kinds of cost monitoring systems that had to be set up, the practical feasibility of cross-subsidies within schemes, and the rigor with which community financing targets had to be achieved.

The major example of a cost-sharing effort was the Lassner study in Brazil. Researchers sought to reduce dependence on external funds but not to eliminate it entirely. When decisions were made about schemes to be supported, assessment of cost recovery potential was defered to the solution validation stage because no specific revenue generation targets had been set.

In contrast, revolving drug funds (unless partially subsidized, as planned in Dominica), had to fully cover expenses in order to avoid decapitalization (that is, reduction in the basic drug stock). RDF managers, therefore, had to devise systems to monitor costs (especially drug repurchase costs) so that prices could be set high enough to cover expenses. While willingly extending credit to those temporarily short of cash, managers of most PRICOR-supported revolving funds had to insist on eventual payment because of the practical difficulty of monitoring cross-subsidies (that is, use of surpluses generated in one part of the program to cover excess expenditures in other parts). A likely reason for the success of community-level revolving drug funds in a

number of countries is that costs - provided they are stable - are relatively easy to calculate.

FINANCING OBJECTIVES: COST REDUCTION

Cost reduction, and implementation of cost-effective service delivery models, are essential elements in a comprehensive financing strategy. This is especially true if the resources saved can be devoted to more productive uses, or if cost reduction makes services more affordable. PRICOR studies that sought cost reduction or more efficient use of resources include:

- The Dominican study, where researchers and managers insisted that more timely and cost-effective drug procurement and logistics systems be established before user charges were instituted.
- The Jamaican study and others aimed at staffing patterns and time allocation
- The Korean study, which identified cost-effective means of mobilizing community participation

In addition, many PRICOR-assisted decisionmakers qualitatively considered cost and cost-effectiveness when choosing among program alternatives.

COMMUNITY PARTICIPATION OBJECTIVES

Researchers in Liberia, the Philippines, Benin, and elsewhere were most interested in strengthening the community's role in primary health care and saw locally managed financing as a useful focus and facilitating factor. The degree to which community participation was considered necessary for achievement of the financing objectives of various studies is discussed in Chapter 7.

QUALITY, ACCESSIBILITY, AND UTILIZATION

While service fees and drug charges are generally believed to reduce utilization, the overall effect may be the opposite when new revenues replace previous, inequitably obtained resources, or are used to expand the service mix and number of facilities. Some PRICOR researchers explicitly sought this result. In Liberia, for example, a major study goal was to bring basic drugs to the community and save patients the time and travel costs of going to regional centers. In Zaire, decentralization forced health zones to rely on their own resources for maintaining and improving services. Fixed service fees were promoted as a way to increase service utilization by doing away with the

unpredictable fees sometimes arbitrarily set by clinic personnel. The Dominican study was at least as much concerned to improve drug distribution and reduce stockouts as it was to develop user financing. New fees were also used to make services more accessible in Brazil (Lassner).

CHAPTER 6
DECISIONMAKING FOR COMMUNITY FINANCING

Most PRICOR-supported researchers designed their studies so as to guide decisionmaking, as outlined in Chart 3. (The chart omits a few studies not designed for decisionmaking.) Major design and operational issues faced included:

- Whether or not to institute user charges
- What to charge for?
- Whom to charge?
- What schemes to introduce?
- What prices to set?
- What services to include in the PHC program and how to deliver them?
- Lots of operational details, regarding both financing and service delivery.

A variety of information gathering and analytical techniques were employed to resolve these issues, but most common for community-based systems were such relatively simple methods as preference matrices and consensus-building.

Many PRICOR-supported researchers conducted formal household or service provider surveys. These surveys, though time consuming and costly, helped researchers to:

- gain entree to the community, as in Liberia, even when results were presented very simply, as in the Philippines

- convince skeptical policy-makers (in Honduras) and health care providers (in Brazil/Lassner) that people were already paying significant sums for drugs and services; and

- study the effect of new fee systems on health care utilization, as in Zaire, or coverage, as in Brazil (Lassner).

At least one researcher was unable to fully analyze his laboriously collected data, however, and another remarked informally that focus groups would probably have yielded as much or more information with considerably less effort and delay.

As a prelude to Chapters 8 and 9, Chart 4 shows the kind of decisions that were made regarding resource generation methods and the application of these resources for specific goods and activities.

CHART 3: DECISIONMAKING IN COMMUNITY FINANCING DESIGN STUDIES

STUDY	WHAT KINDS OF DECISIONS WERE MADE?	WHAT INFORMATION WAS GATHERED?	HOW WAS INFORMATION GATHERED?	HOW WERE DECISIONS MADE?	WHO DECIDED?
Benin	Scheme selection and price setting	Opinions and preferences of community leaders; community leaders; costs of main program inputs	Discussions with village health committees and assemblies	Cost and utilization analyses; consensus building techniques	Researchers; health staff; community leadership
Bolivia/ Gonzalez	Scheme selection, price setting, service selection and delivery; lots of operational details, regarding both financing and service delivery	Opinions and preferences of community leaders and intended service users; costs of main program inputs	Formal surveys of households and health care providers; focus groups, nominal group process, village health committee meetings, community assemblies; literature reviews	Consensus building	Health staff; community leadership
Bolivia/ Miller	Scheme selection, service selection and delivery	Opinions and preferences of health care providers, intended service users, and program managers; health care sources, utilization, and expenditures	Formal surveys of households and health care providers	Study terminated before solution development phase	N/A
Brazil/ Lassner	What to charge for, whom to charge, scheme selection, price setting, service selection and delivery; lots of operational details, regarding both financing and service delivery	Opinions and preferences of community leaders, health care providers, intended service users, researchers, and program managers; costs of main program inputs; disease incidence and prevalence; health care sources, utilization and expenditures	Formal surveys of households and health care providers; nominal group process; key informant interviews	Complicated weighted preference matrices	Group of 10, plus providers; researchers used survey results to represent community residents; community leaders could veto scheme

CHART 3: DECISIONMAKING IN COMMUNITY FINANCING DESIGN STUDIES

STUDY	WHAT KINDS OF DECISIONS WERE MADE?	WHAT INFORMATION WAS GATHERED?	HOW WAS INFORMATION GATHERED?	HOW WERE DECISIONS MADE?	WHO DECIDED?
Dominica	Whether or not to institute user charges. Whom to charge? What prices to set? Lots of operational details, regarding both financing and service delivery	Costs of main program inputs; disease incidence and prevalence	Review of health system financial and utilization data; key informant interviews	Quantitative analyses	MSH consultants and MOH counterparts
Dominican Republic/ Udall	What prices to set?	Costs of main program inputs; disease incidence and prevalence	Review of existing survey data	Quantitative (econometric) modeling and analysis	Researchers, largely in isolation (but MOH rejected recommendations)
Haiti/AEDC	Who to charge? Scheme selection, prices setting, service selection and delivery; lots of operational details, regarding both financing and service delivery	Opinions and preferences of community leaders, health care providers, intended service users	Anthropological study; group discussions	Investigator analysis	Researchers
Honduras	Whether or not to institute user charges. What to charge for? Scheme selection and price setting	Health care sources, utilization, and expenditures	Formal surveys of households and health care providers	Investigator analysis	Researchers (but MOH has largely not responded)

CHART 3: DECISIONMAKING IN COMMUNITY FINANCING DESIGN STUDIES

STUDY	WHAT KINDS OF DECISIONS WERE MADE?	WHAT INFORMATION WAS GATHERED?	HOW WAS INFORMATION GATHERED?	HOW WERE DECISIONS MADE?	WHO DECIDED?
Liberia	Whether or not to institute user charges; what to charge for; whom to charge; scheme selection, price setting; lots of operational details, regarding both financing and service delivery	Opinions and preferences of community leaders; health care sources, utilization, and expenditures (data not analyzed)	Formal household survey (not analyzed); village health committee meetings	Preference matrices	Community leadership; community residents (male elders)
Mali	Whether or not to institute user charges; what to charge for; whom to charge; scheme selection; service selection delivery	Health care sources, utilization, and expenditures	Formal surveys of households and health care providers; key informant interviews	Investigator analysis	Researcher (a senior MOH official)
Mexico/ Macorra	What to charge for; scheme selection and price setting	Opinions and preferences of health care providers; costs of main program inputs	Formal surveys of households and health care providers; key informant interviews	Investigator analysis	Researchers
Philippine/ Osteria	Whether or not to institute user charges; what to charge for; whom to charge; scheme selection; price setting; lots of operational details, regarding both financing and service delivery	Opinions and preferences of community leaders, and intended service users	Formal household survey; village health committee meetings, and assemblies	Consensus building techniques	Community leadership and residents

CHART 3: DECISIONMAKING IN COMMUNITY FINANCING DESIGN STUDIES

STUDY	WHAT KINDS OF DECISIONS WERE MADE?	WHAT INFORMATION WAS GATHERED?	HOW WAS INFORMATION GATHERED?	HOW WERE DECISIONS MADE?	WHO DECIDED?
Senegal	Whether or not to institute user charges; what to charge for; scheme selection; service selection and delivery	Opinions and preferences of health care providers and program managers; costs of main program inputs	Key informant interviews	Investigator analysis	Researchers (but MOH ignored recommendations)
Somalia	Whether or not to institute user charges.	Disease incidence and prevalence; health care sources, utilization, and expenditures	Formal surveys of households and health care providers	Investigator analysis	Researchers
Swaziland	Whether or not to institute user charges; what schemes to introduce; service selection and delivery	Opinions and preferences of community leaders, health care providers, intended service users, and program managers	Formal surveys of households and health care providers, village health committee meetings and assemblies; key informant interviews	Consensus building techniques	Researchers, Ministry of Health, traditional community leader
Zaire	What schemes to introduce?	Costs of main program inputs; health care sources and utilization	Formal surveys of households and health care providers	Quantitative analyses; investigator analysis; interaction matrices	Researchers and Ministry of Health

CHART 4: CROSS TABULATION OF SOURCES AND USES OF COMMUNITY FINANCING

FINANCING USES	SOURCES: SERVICE FEES	DRUG SALES	RAFFLES, FESTIVALS, AD HOC ASSESSMENTS	COST SHARING, VOLUNTEER LABOR	REVOLVING FUNDS	COOPERATIVE	SUMMARY
Drugs	Benin, Brazil (Lassner), Zaire	Dominica Liberia Mexico, Philippines, Somalia, Zaire, Thailand			Dominica Liberia, Philippines Thailand	India	Benin, Brazil(Lassner), Zaire, Dominica, Liberia, Mexico Philippines, Somalia, Zaire, Thailand, India
Construction; maintenance			Brazil (Lassner)				Brazil (Lassner)
Supervision	Benin, Zaire					India	Benin, Zaire, India
Curative Services	Benin, Brazil (Lassner) Zaire			Thailand		India, Bolivia (Miller)	Benin, Brazil (Lassner), Zaire, India, Bolivia (Miller), Thailand
Preventive activities	Benin, Brazil (Lassner), Zaire			Thailand	Haiti		Benin, Brazil (Lassner) Zaire, Thailand, Haiti

CHART 4: CROSS TABULATION OF SOURCES AND USES OF COMMUNITY FINANCING

	SOURCES						
FINANCING USES	SERVICE FEES	DRUG SALES	RAFFLES, FESTIVALS, AD HOC ASSESSMENTS	COST SHARING, VOLUNTEER LABOR	REVOLVING FUNDS	COOPERATIVE	SUMMARY
Capitalization (or loan		Dominica Philippines	Liberia,			Philippines	Dominica, Liberia,
CHWS	Benin, Zaire			Bolivia (Gonzalez) Liberia (unsuccessful); Philippines (unsuccessful); Swaziland	Haiti	India	Benin, Zaire, Bolivia (Gonzalez) Liberia, Philippines Swaziland, Haiti, India
Sanitation/ Nutrition		Thailand			Haiti, Philippines		Thailand, Haiti, Philippines
Summary	Benin, Brazil (Lassner), Zaire	Dominica, Liberia, Mexico, Philippines, Somalia, Zaire Thailand	Liberia Philippines	Thailand, Bolivia (Gonzalez) Brazil (Lassner) Liberia Philippines, Swaziland	Dominica, Liberia, Philippines, Thailand, Haiti	India, Bolivia (Miller)	Benin, Brazil(Lassner) Dominica, Liberia, Mexico, Philippines, Somalia, Thailand, Bolivia, Swaziland, Haiti, India, Bolivia (Miller), (Gonzalez)

Box 1: Matching Needs With Resources in Bolivia

Researchers from the Instituto de Investigaciones Medico Sociales (IIMS) studied ways to reduce attrition rates of community health workers, known as Sanitarios Nativos (SNs), in Cochabamba, Bolivia. The objectives of the study were to identify both the conditions under which communities would be willing to support a health worker, and financing schemes that would be feasible within an impovrished, hyperinflationary economy. Investigators worked with community groups and individuals and held open community discussions. Discussions established that villagers were willing to pay health workers in kind provided that the workers were reliable and worked exclusively in their own communities.

After several sessions, investigators proposed that an in-kind payment (in the form of either wheat or potatoes) be collected from each family after the harvest each year. The quota was roughly equivalent to US$ 7.00 per family regardless of the family's land holdings. Since the total revenue from these in-kind payments (US$ 7.00/household/year) would cover less than half the SN's current salary, the researchers concluded that stable, community-supported health workers could be provided only by training and deploying a lower level health promoter at a reduced salary level. This scheme would also allow for the expansion of services into areas where no formal services had previously been provided.

The organization and collection of the quotas relied on two community organizations: the sindicato (a traditional and highly visible organization in rural communities) and the health committee. The health committee, composed of a representative from the sindicato and an elected mother, was directly responsible for the collection, storage and marketing of the in-kind payments. This scheme has already been implemented in seven communities.

CHAPTER 7
MOBILIZING COMMUNITY PARTICIPATION

Most PRICOR-supported researchers faced five community organizational questions: (1) how intensively to involve individual communities in scheme design and management; (2) how to initiate community contacts and gain acceptance; (3) what types of organizations to support or create for financing purposes; (4) what kinds of management training and supervision to give community residents; and (5) what level of effort to devote to community work? Few researchers resolved these questions through formal data collection and decisionmaking, but the success of some studies was almost certainly due in part to effective community work. This in turn may have depended more on local leadership and consensus-building than on technical precision. Whether "research-based" or not, community work was a vital part of the solution development process for many PRICOR-supported comunity financing studies.

HOW INTENSIVELY TO INVOLVE INDIVIDUAL COMMUNITIES

Community financing by definition involves work with individual patients and communities at the peripheral level, even if only for the collection of user fees and drug charges. Earlier chapters have shown that this work required knowledge of the interests and capacities of different population segments, whether organized as self-conscious groups or distributed with little sense of group identity. PRICOR-supported researchers, with a few exceptions, spent considerable time working with individual health care users and their group representatives, and the success of several studies was clearly due to this work.

The basic question here was whether to involve affected communities one by one in an intensive scheme development process, or rather to work only with a sample and then generalize. Intensive community by community work appeared necessary in studies aimed at:

- development of cost sharing schemes, that is, schemes that spread health care costs among all local residents, regardless of health status (as in Bolivia and Swaziland),
- development of new services or facilities with which community residents were previously unfamiliar (as in Benin, Brazil, and Liberia)
- nurturing of community self-reliance as an end in itself (as in Liberia and many of the Indian cooperatives).

In contrast, three types of PRICOR studies gave less attention to community organization or postponed scheme design until later. These included:

- studies in Honduras, Somalia, and Mali, because they were aimed at national policy change rather than at detailed scheme design
- the revolving drug fund study in Dominica because it operated at the national level, and
- fee for service and drug sales schemes in Dominica and Zaire because they were based on individual user payments and were to be managed by health center staff rather than by local residents.

Several of the community financing strategies in Brazil also required little community education or management because they were based on user fees and charges and were to be managed by system personnel rather than by community organizations.

Chart 5 provides additional information on individual studies.

HOW TO INITIATE COMMUNITY CONTACTS

This is an important question for those starting community work, but did not concern many PRICOR-supported researchers because most who did community work had well-established ties with local leaders and institutions before their studies began.

These prior contacts almost certainly colored scheme design and implementation. In Liberia, the principal investigator knew a great deal about local leadership and decision patterns and was himself known and respected; this enabled him to make reasonable judgements without extensive survey data. Rio's slum communities, often suspicious or even hostile to outsiders, were probably more receptive to CPAIMC because of its previous work history in the area. Philippine researchers also had considerable knowledge of local communities, though not of the specific ones in which they were working.

Prior experience of negative outside contacts can cause communities to resist participation, as in parts of Rio de Janeiro where police actions had created suspicion and fear. In Benin, mothers were reluctant to participate in a growth monitoring program because a previous project had provided free food and this one did not.

CHART 5: COMMUNITY PARTICIPATION IN PRICOR-SUPPORTED FINANCING STUDIES

STUDY	FINANCING OBJECTIVE	INITIAL RESEARCHER/ COMMUNITY CONTACTS	ORGANIZATIONS ON WHICH COMMUNITY FINANCING WAS BASED	NATURE OF PARTICIPATION	EXTERNAL MANAGEMENT SUPPORT
Benin	To develop community financing schemes for specific communes	Previous project work in the area (but not in these communities)	Communes	Community leaders and residents were actively involved in scheme design and management	
Bolivia/ (Gonzalez)	To reduce high CHW attrition and increase support within specific communities		Sindicatos and health committees; sindicatos are traditional, represent every household but only include women (ineffectively) if male has died; health committees are new, have only two members, but at least one a woman.	The two groups together had major decisionmaking and management responsibilities. Extensive interaction was needed between staff and residents to design a program that the community could support. Health committee collected and managed assessments (potatoes).	
Bolivia/ Miller	To develop specific cooperative-based health care schemes		Was to have been based on agricultural and marketing cooperatives	Study terminated before schemes could be implemented	
Brazil/ Baker	This was a retrospective study of the financing of CHWs and water supply systems	After schemes were implemented	Fundacao Servicos Especiais de Saude Publica (FSESP)		

CHART 5: COMMUNITY PARTICIPATION IN PRICOR-SUPPORTED FINANCING STUDIES

STUDY	FINANCING OBJECTIVE	INITIAL RESEARCHER/ COMMUNITY CONTACTS	ORGANIZATIONS ON WHICH COMMUNITY FINANCING WAS BASED	NATURE OF PARTICIPATION	EXTERNAL MANAGEMENT SUPPORT
Brazil/ Lassner	To reduce dependence on external funds	Implementing organization had 10 year history of work in the area	Each community had a neighborhood association, but most organizational work was done by CPAIMC	Residents responded to survey questions and paid fees; in a few cases, neighborhood associations organized labor contribution and fund raising activities. Researchers used survey results to represent community interests, but only leaders participated directly (at some stages) in decision-making. A few associations undertook clinic cleaning or payment of utility bills. One sold "carnets". Most associations had a limited implementation role, however. Some neighborhood associations were dominated by unpopular or disreputable leaders.	CPAIMC actively managed both the program and its financing, with only limited role for neighborhood associations
Dominica	To establish a national revolving drug fund that will reduce costs and increase user financing	Communities not involved	Central Ministry of Health, no community groups	None directly	Scheme was entirely run by the Ministry of Health and its district offices; Management Sciences for Health provided extensive design and management assistance

CHART 5: COMMUNITY PARTICIPATION IN PRICOR-SUPPORTED FINANCING STUDIES

STUDY	FINANCING OBJECTIVE	INITIAL RESEARCHER/ COMMUNITY CONTACTS	ORGANIZATIONS ON WHICH COMMUNITY FINANCING WAS BASED	NATURE OF PARTICIPATION	EXTERNAL MANAGEMENT SUPPORT
Haiti/ (AEDC)	To develop financial incentives to motivate (1) health workers to teach child survival skills, and (2) mothers to learn them		Women's credit clubs; though traditional in form, specific clubs were created for health project	Researchers and consultants made major design decisions. Credit clubs decided on their own membership and how much members should contribute each month.	
Honduras	To develop national health care financing policies	Limited community role in this study	N/A	Limited	
India/ (Elkins)	To analyze the successes and failures of 8 coop-based health care projects	After schemes were implemented	Women's clubs, youth groups, milk cooperatives, leather-working cooperatives, church groups, village councils, and students enrolled in evening vocational programs. New organizations, several of them just for health activities, were created in seven of the eight communities. In one study area, village health and development promoters conducted bi-weekly meetings of program users in lieu of creating a formal organization.	Variable	

CHART 5: COMMUNITY PARTICIPATION IN PRICOR-SUPPORTED FINANCING STUDIES

STUDY	FINANCING OBJECTIVE	INITIAL RESEARCHER/ COMMUNITY CONTACTS	ORGANIZATIONS ON WHICH COMMUNITY FINANCING WAS BASED	NATURE OF PARTICIPATION	EXTERNAL MANAGEMENT SUPPORT
Liberia/ (Cole I)	To strengthen the role of 5 specific communities in PHC financing and management	Principal investigator was the district health officer and had been born and raised in the area; these factors clearly expedited design and implementation.	Village health committees	Committee of 10 to 15 male elders developed preference matrices, made many of the design decisions, collected and managed revenue (except in one community), and selected the CHW.	Outside supervision was needed to resolve conflicts between health committees and town councils regarding appropriate use of funds.
Philippines	To develop self-financed PHC activities in 6 barangays (communities)	Researchers did simple household survey and used results as basis of discussion with village assembly	Barangay and purok associations. Core group of existing local leaders and health workers.	Community chose health services and financing means: which drugs, who would manage botikas, prices. Residents participated as botika managers, fund collectors, and lead mothers. Women were well represented in decisionmaking.	Researchers deliberately limited their role to providing impetus, leading workshops and various training sessions, though presence reportedly helped study stay on course. Researchers also audited financial records.
Swaziland	To develop community support for rural health motivators		Community as a whole (especially traditional chief and runner)	Community preferences influenced most aspects of design. Researchers mainly worked with chief who then consulted residents. Chief donated land, community donated labor. Chief was to have managed community labor but was away at the critical time. Community preferences led to some strengthening of CHW skills.	Little needed except to ensure that CHWs had appropriate skills.

CHART 5: COMMUNITY PARTICIPATION IN PRICOR-SUPPORTED FINANCING STUDIES

STUDY	FINANCING OBJECTIVE	INITIAL RESEARCHER/ COMMUNITY CONTACTS	ORGANIZATIONS ON WHICH COMMUNITY FINANCING WAS BASED	NATURE OF PARTICIPATION	EXTERNAL MANAGEMENT SUPPORT
Thailand	To study the strengths and weaknesses of a sample of approximately 18,000 revolving drug, sanitation, and nutrition funds.	Researchers contacted retrospectively. Tambon health officers played a central role in the initiation of most local funds.	Community residents purchased shares in revolving funds, newly created in most cases. Study found that multi-purpose funds were more successful than single purpose ones.	Fund managers and committees handled virtually all aspects of fund management, including price and interest rate setting, approval of loan applications, collection and use of revenue. Share ownership was widespread for drug revolving funds because of low share price and wide need for drugs. Sanitation and nutrition funds had more limited membership.	No management training was given, but tambon health officers were active and made significant contribution to fund management in many cases.
Zaire	To assist decentralized health zones to develop self-financing schemes.	Apparently little if any contact with either the health center staff or the community prior to scheme implementation.	Individual health center staff. Communities were not directly involved.	Both health center staff and community residents had significant role in shaping study results but in a reactive sense only since they were not consulted beforehand.	Virtually none provided.

Most researchers met first with local leaders assumed to represent the community in which they wished to work. In some countries, the form and process of this contact may have been mandated by custom: in Liberia, for example, community affairs are largely controlled by the traditional, all-male, council of elders, and it was essential to meet with it. In Swaziland, permission and preferably active support, had to be obtained from the village chief prior to the holding of a comnmunity assembly.

In Brazil, the original principal investigator developed a first visit protocol indicating what was to be said. The focus was on the study problem, namely, dependance on external funds, and the community's possible willingness to consider self-financing. In the Philippines and Brazil, the first contact secured leadership concurrence for a health care utilization and expenditure survey. In Thailand, district health officers made many of the first official contacts, usually with a group of village leaders.

FINDING OR CREATING A SUITABLE COMMUNITY ORGANIZATION

Schemes intended to be community-managed obviously require a local organizational base, whereas those that are to be managed by health center staff (as in Dominica) may not. For those seeking community management, identification or creation of a suitable organization was an important operational problem.

Two significant issues for some researchers were (1) what sorts of community organizations are suitable for undertaking community financing? and (2) should health activities be based on existing organizations or should new ones be created? Researchers in Bolivia, India, and Thailand studied the first question retrospectively by analyzing existing activities with community financing elements. The Indian analysis of coop-based health care found that organizations differed along several dimensions:

- History: some organizations predated the health activity while others were created especially to do health work.
- Relationship to other local organizations: some implementing organizations were closely related to village councils or other local bodies while others were relatively independent.
- Purpose: some were single purpose while others had multiple purposes.
- Number of hierarchical levels: some organizations had multiple levels, corresponding to levels in the health delivery

system while others operated only at the community level.

- Breadth: some organizations represented both genders and all significant socioeconomic sectors while others had a narrower membership.

In addition, community organizations differed in the depth of their participation in problem analysis, solution development, and implementation.

Existing organizations studied in India included women's clubs, youth groups, milk cooperatives, leather-working cooperatives, church groups, village councils, and students enrolled in evening vocational programs. New organizations, several of them just for health activities, were created in seven of the eight communities. The Jamkhed and Ambilikkai projects created multipurpose women's clubs and youth groups, while the Jaipur Trust planned to develop new, single-purpose, village health committees to be associated with the local milk cooperatives. In the Kangazha project area, village health and development promoters conducted bi-weekly meetings of program users in lieu of creating a formal organization. The Tribhuvandas Foundation created new single purpose health committees based on the established milk cooperative. Looking at the eight projects together, the Indian study concluded that "it is at least easier and faster to start with existing organizations. . . . Several of the projects . . . have achieved remarkable breadth and depth of community participation through new organizations, but they have achieved these levels of participation after long periods of effort."

A concern for some researchers was the domination of existing groups by men and/or other elites. In Bolivia (Gonzalez), managers decided to create new health committees because the traditional sindicatos included only men. Study participants in Swaziland suggested that health assemblies be restricted to women to give them a stronger voice, but it was eventually decided that men must participate as well because of their control over family finances. (Women were encouraged to speak out, however.) Benin decisionmakers also made special efforts to include women. In Rio, some slum communities were dominated by criminal elements, and in the Philippines, barangay and purok association were controlled by socioeconomic elites; researchers in both cases nevertheless decided that health activities had to respond to existing power structures so they did not create new groups.

LEVEL OF EFFORT

Researchers in Benin, Bolivia (Gonzalez), Liberia, the Philippines, and elsewhere made numerous visits and allowed significant time to elapse in order to obtain design

decisions, or at least expressions of interest, from participating communities. These efforts served the dual functions of (1) improving the "fit" between scheme design and community interest and capacity, and (2) educating and motivating residents to support PHC activities later on. Intensive community by community discussions also encouraged local residents to "buy in" to PHC and financing, giving them a sense that results were partly of their own design.

In Benin, researchers held a series of meetings with community leaders to discuss financing alternatives and to establish modes of payment, price levels, VHW remuneration arrangements, and membership of commmunity committees for financial management. These consultations were particularly fruitful because they increased public understanding, hence financial support, for preventive care and supervision. The principal investigator in Liberia made two pre- design visits to participating communities, the first to explain the study and seek cooperation, and the second to obtain nominations for the health committee and for health worker training. During subsequent visits, health committee members constructed preference matrices which were then used for detailed scheme design. Working first through assemblies and then through leadership groups, researchers and residents in the Philippines chose the health services to be financed, the specific drugs to be provided, and the individuals who would manage boticas. CPAIMC staff in Brazil mainly designed financing schemes themselves using survey results, but community leaders were given veto rights.

TRAINING AND TECHNICAL SUPPORT

As researchers had intended, many commmunity groups took an active role in scheme management. Roles performed by one or more groups included:

- consultation on CHW salary increases (Benin)
- monitoring of CHW activities (Benin)
- consulation on service changes (Benin)
- revenue collection and management (Liberia, Philippines, Benin, Bolivia/Gonzalez)
- pressure on community residents to get them to pay overdue clinic fees (Benin), drug charges (Philippines), or assessments
- inventory management and restocking (Thailand, Philippines, Liberia)

- provision of labor for CHW fields (Liberia, Swaziland), or for clinic cleaning and maintenance (Brazil/Lassner)

- payment of utility bills, provision of office and clinical supplies (Brazil/Lassner).

Local committees administering a revolving loan fund for water supply in Brazil (Baker) managed loans, maintained financial records, collected monthly payments from participating families, and delivered these payments to the program office. In the Philippines, community residents managed botica inventories and restocking, collected funds, and served as lead mothers; they did not, however, conduct audits as planned becaused they preferred that the researchers do this.

In Thailand, sanitation funds were managed by local committees, whose members averaged 44 years old and had a modest income. Committee members set share prices and interest rates and in some cases decided who would receive loans. Elected or appointed fund managers were responsible for supervising construction, keeping records, controlling inventory and collecting loans. Similar roles were played by community managers and committees in other types of revolving funds.

Mothers' credit clubs established in Haiti managed their own funds, and determined how much was to be collected and loaned out each month.

Even though community organizations did play active roles, few had the technical capacity or (in some cases) motivation to develop community financing without signicant outside support. In many study areas, help was particularly needed for:

- increasing awareness of primary health care and the community's role in it (called "cultural preparation" in Thailand)

- developing administrative and managerial capacities

- maintaining water supply and other physical systems (Brazil/Baker and Brazil/Lassner)

- supervising the use of funds (Liberia) or auditing (Philippines)

- generally keeping work on course (Philippines).

Examples of outside technical support include:

- training in maintenance of water supply systems in Brazil (Baker)
- training in management of revolving funds (Brazil/Baker)
- a series of training programs and workshops for lead mothers and fund managers in the Philippines.

Training was not provided in Thailand, but investigators found that the most successful communities had had prior experience in managing revolving funds, while communities lacking such experience were notably less successful.

The management roles of researchers was often significant in spite of their best efforts to provide only initial impetus and limited technical support. In Liberia, the principal investigator resolved a dispute between the health committee and the town council about the proposed use of revolving fund monies to pay for a funeral. This sort of use for community funds was traditional in the study area but clearly would have threatened RDF capital. In Bolivia, outside encouragement was needed to ensure that potatoes were collected at harvest time so that CHWs could be paid. Researchers in the Haiti/AEDC study provided a great deal of external motivation and education in order to create the new women's credit groups. Among other things, they conducted 16 3-day seminars in 11 villages with 801 participants. In the Philippines, researchers reported that their continued presence helped to keep scheme activities on course. "Research" activities of this nature may continue to be necessary when study results are replicated elsewhere.

CHAPTER 8
RESOURCE GENERATING METHODS

DRUG SALES

As detailed in Chart 6, PRICOR-funded researchers in 9 countries either documented existing drug utilization and supply systems or assisted PHC managers to devise and pay for new systems. Five of these studies were national in scope, and five focussed on specific local schemes. (The Thailand study appears in both counts because the local schemes that it analyzed existed nationwide.) Studies in Dominica, the Dominican Republic, Liberia, the Philippines, and Thailand specifically sought to design new drug financing methods; in all but the Dominican Republic, these were revolving drug funds (RDFs). This chapter concentrates on RDFs.

A revolving fund is essentially a financing scheme in which, after the initial capital investment, supplies are replenished with funds collected from the sale of the supplies.

Capitalization:

A startup issue for RDF researchers in Thailand, Dominica, Liberia, and the Philippines was how to obtain an initial drug supply or to raise funds with which to purchase it. Means employed included assessments of community residents (Philippines, Liberia and Thailand), sale of shares (Thailand), donations (Liberia), raffles and festivals (Philippines), and loans (Dominica). In Dominica, the national RDF was capitalized by an EC $500,000 (US$187,000) loan from the Social Security fund. External agencies donated initial drug supplies to many of the Indian and Bolivian cooperatives studied by Elkins and Miller. In Thailand, communities supplemented government-donated drug supplies, as described in Box 2; the most successful communities generated ten times as much as the government gave them. The Thai funds also used RDF profits to capitalize further expansion.

Communities completely capitalized the Philippine and Liberian drug funds through combinations of ad hoc assessments, monthly payments, and donations. In Liberia, village groups levied one-time assessments and collected between $59 and $209 each. Between 75 and 90 percent of village households participated. One missionary family donated $300. Using similar means plus raffles and festivals, Philippine communities generated 15 to 57 percent of their capitalization targets, with participation rates ranging from 2 to 88 percent of households. Some funds were forced to lower their ambitions because collection of assessments proved to be difficult.

CHART 6: PRICOR STUDIES THAT DOCUMENTED, OR HELPED TO ESTABLISH, DRUG SALES SYSTEMS

STUDY	OBJECTIVE	SCOPE	WHAT WAS DOCUMENTED?	WHAT WAS SET UP?	CAPITALIZATION	PRICING	SALES MANAGEMENT AND REVENUE COLLECTION	RESULTS
Bolivia/ Miller	To develop coop-based health services	National	The current health activities and financing of 12 cooperatives	Study was terminated before results were implemented	Mostly from external donations	Varied from one coop to another	Variable	
Dominica	To increase drug financing and reduce costs through centralized procurement, improved distribution and user payments	National	Current drug utilization and procurement	National drug procurement and pricing system, with drug costs charged to district health budgets	Loan from social security fund	25% over cost	By health staff; user charges not to be introduced until procurement and distribution systems are fully operational	Dominica model being applied in other Eastern Caribbean countries under major AID contract
Dominican Republic	To establish price structure for ORS	National	ORS need and utilization	Pricing strategy recommended but not implemented	N/A	Two-tier pricing recommended	N/A	Not implemented
Ecuador	To improve CHW performance and stability		Management difficulties in CHW-managed RDFs; costs of RDF-related storage, transportation, salaries and travel allowances	N/A		Based on drug costs alone, excluding storage, transport-ation, and other associated costs	By CHWs	Subsidized associated costs totaled 50% to 100% of drug wholesale costs; deficits subsidized by FODERUMA; it might have been cheaper for FODERUMA to subsidize private sector distribution

CHART 6: PRICOR STUDIES THAT DOCUMENTED, OR HELPED TO ESTABLISH, DRUG SALES SYSTEMS

STUDY	OBJECTIVE	SCOPE	WHAT WAS DOCUMENTED?	WHAT WAS SET UP?	CAPITALIZATION	PRICING	SALES MANAGEMENT AND REVENUE COLLECTION	RESULTS
Liberia	To establish and finance community-based drug sources	5-10 villages	Health care utilization patterns	5-10 RDFs	One-time assessments of community residents, plus donations	25% above wholesale	CHW or committee treasurer	RDFs started in 5 communities but spread to nearby areas; researchers considered that their most important achievement was creation of community awareness and self-confidence
Philippines	To develop CF schemes	5 communities		5 RDFs	Variable (assessments, donations, raffles, festivals)	15-25% markup, based partly on market retail prices	Variable (CHW, lead mother, village captain)	5 RDFs still functioning after one year
Senegal	To identify possible funding sources to cover recurrent costs	Regional	Existing revolving drug funds	N/A	N/A	Variable markup, determined by village health committees	Sold by committee member or health worker	Investigator recommended private sector distribution methods
Somalia	To develop strategies to improve PHC drug supply in rural areas	National	Household drug expenditures and sources of supply	N/A	N/A	N/A	N/A	

CHART 6: PRICOR STUDIES THAT DOCUMENTED, OR HELPED TO ESTABLISH, DRUG SALES SYSTEMS

STUDY	OBJECTIVE	SCOPE	WHAT WAS DOCUMENTED?	WHAT WAS SET UP?	CAPITALIZATION	PRICING	SALES MANAGEMENT AND REVENUE COLLECTION	RESULTS
Thailand	To identify, evaluate, and replicate effective financing alternatives	National; 22 funds studied in depth	Prevalence of RDFs, range of types and functions; factors associated with success and failure	A number of prototype multipurpose revolving funds	MOPH, sale of shares, donations and assessments	30% over wholesale	Variable (CHW, headman, member of RDF management committee)	Numerous profitable funds; profits distributed to shareholders or used for compensation of RDF manager or investment in additional drug supplies; government is encouraging extension into nutrition and sanitation activities

Box 2: Sale of Shares for Capitalization in Thailand.

In Thailand, capital was raised by sale of shares in the revolving fund. Share prices were set by the management committee. In case study funds, prices ranged from 10 to 50 Baht a share, and shares were owned by 30 to 100 percent of village households. Households could own more than one share but an upper limit (for example: of 50 shares per household or 25 percent of all shares) was sometimes set by the committee to prevent a single family's taking over the fund. Poor families unable to purchase shares were sometimes able to buy shares on credit or were provided shares in exchange for labor contributed to construction or improvement of the drug fund's stores. When share ownership was widespread and/or multiple shares were owned by households, the amount of capital raised was impressive. The initial capital raised in each community exceeded the amount provided by the Ministry and in the most successful funds was ten times as much.

Differences in village size, wealth, proportion of households purchasing shares, and share price accounted for some of the inter-village variation in capital raised. The MOPH offered an incentive of an additional 1,000 Baht for any drug fund with share ownership by 80 percent or more of households. Individual reasons for buying shares included wanting to help the village have the benefits of a drug fund (71.5%), and respect for the individuals setting up the fund (11.0%). Both responses were measures of social obligation. A few shareholders also reported low share price as a reason for purchase.

Statistically, villages with the highest percentages of households owning drug fund shares were small, with relatively equitable distribution of land ownership and household income. Their drug funds had low share prices and were managed by persons of relatively modest income. These villages also had fewer funds supporting other activities and making social obligation claims on households.

Pricing:

For funds to "revolve", monies recovered from drug sales must cover the cost of replenishing drug stocks and, in some cases, such operating costs as transportation and administration as well. Most PRICOR-funded researchers priced drugs at a percentage markup over initial wholesale costs: 25%, for example, in the cases of Dominica and Liberia, and 30% in Thailand. Some RDF managers in the Philippines applied a flat markup, while others adjusted prices so as to be near or slightly below private sector prices. Program managers in Benin discovered that their prices for malaria treatment exceeded the private sector's, so they reduced their prices accordingly. Most percentage markups reflected original purchase costs rather than restocking costs; this worked adequately in most countries with two significant exceptions: in Ecuador, prices did not reflect storage, transportation, and other associated costs, estimated to total 50 to 100% of drug wholesale costs; because of the resulting deficits, it might have been cheaper for FODERUMA to subsidize private sector distribution. Problems were reported in Bolivia (Miller) as well because of hyperinflation; at least some funds failed because drug costs rose more rapidly than prices.

None of the revolving funds reported here adopted sliding scales or offered exemptions for certain persons or drugs. The Dominica Ministry of Health briefly considered exempting the indigent, those under 15, those over 65, and those with chronic illnesses, but a brief study showed that the young and the old alone constituted 45% of health center utilization. Researchers in the Dominican Republic recommended a two-tier ORS pricing strategy, but no action was taken.

Activity and Financial Management

Drug Procurement

Two issues were common in drug procurement, namely, which drugs to buy, and where to get them. A related issue was whether to buy drugs by brand name or in generic form. In Dominica, RDF managers selected items from the national drug formulary and sought generic suppliers as a way to reduce costs. In Liberia, drugs were purchased wholesale from the Kolahun Health Cooperative, which in turn obtained them from the Christian Health Association of Liberia; selection was limited to essential generics. Researchers in the Philippines, on the other hand, found that people strongly prefered brand name drugs and attributed part of their success to sale of familiar items; these were purchased from private sector drugstores in the nearest town. Thai RDFs were resupplied by the Government Pharmaceutical Organization which maintained stocks at each provincial health office.

Drug Sales and Inventory Maintenance

Most PRICOR-developed revolving funds, except the one in Dominica, were managed by community residents. In the Philippines each depot had an appointed manager, who was, in different villages, the barangay health worker, a "lead mother", the barangay captain, a council member or a core group member. Managers were responsible for day to day transactions. In Liberia, sale and restocking was the responsibility of the village health worker. In Liberia, four of the funds were managed by the village health worker and one by the village health committee's elected treasurer.

Management of individual RDFs in Thailand was overseen by committees of 10-12 shareholders. Committee members represented leading families and included monks, school teachers, headmen, health and community development volunteers, and "communicators". Successful funds, in addition, tended to have near fulltime managers, serving either without pay or with minor compensation. The Village Health Volunteer was responsible for sales and inventory management, while daily receipts and working capital were sometimes entrusted to a monk. The most common problems were incomplete records and inadequate accounts. The most successful RDFs were managed by persons experienced in other community funds, particularly ones which sold goods on a revolving fund basis. Tambon Health Officers acted as consultants to most of the RDFs, and some funds received management assistance from nearby district hospitals.

Success of RDFs depends in large part on good financial and material management. In Dominica, a computerized system of inventory control was designed and bin cards were used to record disbursements, replacements and the cost of each item. The Central Medical Stores (CMS) maintained drug stocks, while the Ministry of Health accounts office managed financial affairs. This separation of material and financial management required close coordination and a well developed information system.

In the Philippines, fund managers were trained to manage and keep records, but many were still weak even after a year of operation. A formal system was devised for monitoring stocks, but most depot managers simply watched their inventory and restocked when it was low.

Credit

Managers of all five Philippine RDFs offered credit to those unable to pay at a time of need, though one fund limited credit to persons who had paid membership dues. Three of the funds reported that debts were generally repaid within 15-30 days. In one village the village captain sometimes paid for those who were unable to pay back their credit. In another

village, credit purchases ran rampant. Credit occupied 30-50 percent of the sales with an average of one to two months required for collection. In Liberia, researchers decided that it was too difficult to decide who could and could not pay and that relatives must pay if the patient could not.

Supervision and Audit

PRICOR experience suggests that some community or outside oversight is needed both for routine supervision and for auditing. In Liberia, elders in one village wanted to use RDF proceeds to cover funeral costs for a prominent chief. The VHW refused, and a research assistant had to step in to prevent decapitalization. A similar problem appeared in Dominica where interest earned on RDF monies was spent on items that had not been budgeted for. Researchers in Dominica worked with the government to develop procedures for annual closing. In the Philippines, most villages appointed an auditor, but several ended up entrusting this function to the PRICOR researchers.

SERVICE FEES

PRICOR studies in Benin, Brazil, and Zaire designed or refined service fee systems, while the India/Elkins study documented existing practices in 8 cooperatives. Data on service fees are also available from a PRICOR-supported study in Mali. This chapter concentrates on the decisions made in the solution development studies in Benin, Brazil, and Zaire. Chart 7 provides details.

Pricing

What to Charge For?

In each case. researchers/managers had to decide what specific services to charge for and how to "package" them. Fee arrangements varied from one community to another in Brazil. Some clinics charged for selected types of visits (all physician visits, all or annual family planning visits), others for such selected services as pap smears, injections, blood pressure checks, first aid, pregnancy tests, and IUD insertion. Still others charged registration fees. Various combinations of these service fee schemes were implemented - charging for some preventive and curative services while offering others free of charge.

In Benin and parts of Zaire, curative care was charged for as episodes rather than as discrete visits or services. Patients paid a single fee at their first visit for a given condition and then received all related care free of additional charge. In Zaire, five health centers continued existing fee per visit systems and five collected fees per episode; analysts hoped to study effects of payment scheme on

CHART 7: PRICOR STUDIES THAT DOCUMENTED, OR HELPED TO ESTABLISH, FEE FOR SERVICE SYSTEMS

STUDY	REVENUE GENERATION OBJECTIVE	SCOPE	WHAT WAS DOCUMENTED?	WHAT WAS SET UP?	HOW WERE PRICES SET?	WHAT SERVICE UNITS WERE CHARGED FOR?	WHAT DID FEES COVER?	SLIDING SCALES, AND EXEMPTIONS	REVENUE COLLECTION (CREDIT, RECORD-KEEPING)	USE OF FUNDS	RESULTS
Benin	To cover all recurrent health center costs, including those attributable to supervision and logistics	4 communes	Extensive cost and and utilization data	Fee for episode schemes in 4 communes	Detailed cost analysis based on expected drug use and number of visits per episode; see Box 3 for details	Set individually for each major condition and age group	All visits and drug use connected with a single condition	Non-residents, and those who bypassed required referral channels paid four times the normal fee	Cash box transactions supervised by financial management subcommittee of the Commune Health Committee	To pay for drugs, VHW remuneration, personal preventive care, health center maintenance costs, fuel for supervision and mobile MCH team, and village level information system; followup visits	
Brazil/ Lassner	An unspecified degree of cost sharing (rather than full coverage of specified costs)	9 urban slums	Health care utilization patterns, types of service that people are used to paying for; involvement with community organizations	Community financing strategies tailored to individual communities	Intuitive judgements, based on costs, market prices, and users' ability and willingness to pay; reconsidered every 4 months because of inflation	Varied from community to community (set per visit or service rather than per episode)	Variable	Fees adjusted for 0.4% of visits, based on employment status, conditions at home, financial factors	Credit extended if needed; fees for 6.1% of visits never collected	To defray overall CPAIMC costs	All CF schemes together covered 20% of direct costs; inconclusive effect on utilization

CHART 7: PRICOR STUDIES THAT DOCUMENTED, OR HELPED TO ESTABLISH, FEE FOR SERVICE SYSTEMS

STUDY	REVENUE GENERATION OBJECTIVE	SCOPE	WHAT WAS DOCUMENTED?	WHAT WAS SET UP?	HOW WERE PRICES SET?	WHAT SERVICE UNITS WERE CHARGED FOR?	WHAT DID FEES COVER?	SLIDING SCALES, AND EXEMPTIONS	REVENUE COLLECTION (CREDIT, RECORD-KEEPING)	USE OF FUNDS	RESULTS
India/ Elkins	Varied from one coop to another	8 cooperatives	Existing service delivery and financing efforts	N/A	Variable	Variable	Variable	All fees were adjusted for family income	Variable	Variable	
Mali	To develop PHC support mechanisms, especially community-based	2 provinces	Existing service delivery and financing efforts	N/A		Variable			Variable	In one "cercle", revenue covered costs of drugs, petrol, and furniture	
Zaire	Full coverage of specified health center recurrent costs, including those for logistics, supervision, and drugs	10 health centers (5 zones)	Extensive cost and utilization	Fee for episode schemes in 4 centers	No standard method though costs usually considered	In 5 centers, fixed fees per episode; other 5, fee per visit	Episode fees covered all associated visits and drugs; visit fees covered only a single service				Strong community and staff reactions to changed fee systems; mixed effects on utilization and costs

PHC costs and utilization. In Benin, a fee for episode scheme was implemented in health units in four areas. The Zaire and Benin results suggest consumer preference for episode-based fees, provided they are affordable, though disgruntled staff in some Zaire centers obstructed their full implementation. Confounding factors unfortunately prevented an objective comparison of visit and episode fees in Zaire.

Program managers charged for some preventive care in both Zaire and Brazil. Even though preventive interventions were free of charge in Benin, those costs were foreseen and added to the cost of curative care.

How Much to Charge?

In setting fee levels, PRICOR researchers considered: (1) the magnitude of costs that had to be covered; (2) the ability and willingness of users to pay, and, (3) the fee levels of other local health care providers. (The second and third factors were obviously closely related.) As noted in the chart, PRICOR researchers in Benin and Zaire sought to fully cover certain PHC costs, while Brazilian researchers sought cost-sharing only. The former, in other words, needed good cost data on which to base prices, while the latter needed only a general understanding of magnitudes. Only in Benin was a technical method used for price setting.

Prices in Brazil reflected results of a survey of prices charged for similar services in neighboring communities and an analysis of CPAIMC's costs. Researchers and managers agreed that prices should not be lower than actual service costs nor higher than local market prices; that low income families should be able to afford them, both individually and in common combinations; and that prices should be adjusted periodically to reflect increasing costs and the government-mandated minimum wage. Though communities varied in the services charged for, they did adopt uniform prices for those fees that they did collect.

In Zaire, fees were to reflect drug and service delivery costs and the population's economic status. The mode of setting them varied from one health center to another, in some cases giving greatest weight to the community's preferences, in others to the staff's. Disputes about fee levels led to at least one staff resignation. Some per visit fees may have been negotiated by the worker and patient directly.

In Benin, prices were based on drug costs for specific illnesses and age groups, plus a percentage of the recurrent costs of petrol, VHW remuneration, and certain minor items. The percentage mark-up was calculated by estimating the number of cases of the disease and the proportion of personnel time devoted to its treatment. The price of curative care also included a proportion of preventive care costs not directly

charged for. Prices were calculated by the same method for each disease, but varied with patient age since this affected drug utilization. Sophisticated cost and utilization information systems were required for these estimations, but the end result was that most treatment fees were set at approximately three times the cost of the basic drugs that were used. See Box 3 for further details on price calculations in Benin.

Activity and Financial Management

Fee Introduction

In Brazil, new fees were introduced for previously free services, while in Zaire, the most important changes were from fees for service to fees for episode. In Benin, service fees applied to new services in previously unserved areas. Staff and community reactions naturally varied from one place to another.

In Zaire, reactions to the shift in payment scheme were strong and unexpected. Several health personnel preferred the old fee for service system because it gave them some control over price levels. In one health center, the auxiliary nurse was dismissed after showing open hostility; he then set up a private dispensary and drew away most of the center's clients. In another, open conflict arose between members of the village development committee and the auxiliary nurse. One health post was closed for a period of time, and in some posts staff worked less productively or with a lower standard of care. Community members, on the other hand, preferred the fee for episode system because prices were publicized and not subject to bargaining; utilization of the one health center that changed from episode to visit fees dropped significantly because of the public's reaction.

Fee Adjustment

In each of the seven Brazilian communities charging service fees in, allowances were made for those too poor to pay. Free samples of commonly used drugs and contraceptives were retained for distribution to the indigent. A sliding scale was established, and every client unable to pay was asked about conditions at home, employment status, family income and expenses, and financial difficulties. Depending on circumstances, discounts ranged from 20 to 100 percent. During the nine month implementation stage, only 0.4 percent of visits were affected by fee reductions or exemptions. Clients were also allowed to postpone payments if they did not qualify for exemptions; debts were not repaid for 6.5 percent of visits. Analysis showed that actual revenue over the nine months was 10% less than potential revenue without fee exemptions, discounts and credits, a difference that researchers considered insignificant.

Box 3. Factors Considered in Setting Fee Levels in Benin

Costs Included:

VHW renumeration
Equipment depreciation
Gas for the mopeds
VHW and community health center supplies
Electricity and other general operating expenses
Costs of preventive services and health education

Factors Considered in Distributing Costs:

Incidence and treatment of frequently seen illnesses
Percentage of personnel time and travel used in the treatment of each disease
Desire coverage - 100%
Population size - 10,000

Adjustments:

Adjustment for patient age based on likely drug use and number of repeat visits for the same condition
An across-the-board increase of 50% to provide incentive for people to choose a prepayment scheme
Quadrupling of charges for persons residing outside the project area

All eight projects in India adjusted service fees according to the ability of people to pay. Some project hospitals charged up to ten times more for wealthy persons.

In Benin, fees were increased by a factor of four for people who wished to use project services but lived outside the project area. This was done to limit the influx of outsiders and to prevent them from obtaining and selling the project's low cost drugs; it also had a significant effect on project revenue. "Outsider" treatment fees were also applied to project area residents seeking care at the health center without a proper referral; the objectives in these cases were to increase the stature of health workers and encourage people to follow the established hierarchy.

Revenue Collection and Management

In Benin, receipts from the health center and VHWs were placed in a cash box under the control of a financial management sub-committee of the Commune Health Committee; this sub-committee included three community leaders and the health center's head nurse. In Brazil the personal prepayment, personal service fees, and drug sales were managed by the CPAIMC service providers and managers who normally operated the health units and miniposts.

When new charges were instituted for previously free services, problems occurred with collection from some people who either could not or did not want to pay. As mentioned earlier, some programs extended credit to those temporarily unable to pay, but those who did not want to pay presented different problems. In one of the centers in Brazil, the staff at first felt uncomfortable charging patients with whom they had developed a close relationship and to whom they had previously given free services. The research team indirectly supervised by scrutinizing reports from health center staff. In Zaire at the village level, collection of payments sometimes caused problems because villagers were not used to paying for services in the manner that the project had planned. Re-trained village midwives, for example, had to begin charging for childbirth services that they had previously provided at little or no cost. Several "important persons" thought they should not have to pay - that the VHWs should extend them credit - which put the VHW in a difficult position. Community pressure helped ensure payments by elite community residents in Benin.

Recordkeeping

Researchers in Benin developed forms for systematicly recording diagnoses, treatments, and revenues. These proved useful for both financial management and routine project monitoring.

In Brazil, CPAIMC developed a system consisting of client-by-client notation and daily summation of all revenue generated by type of service or commodity. New instruments were designed including a daily service statistics reporting form, a monthly service statistics reporting form, a revenue collection form, a stock control form, a summary of health care visits, a revenue and cost monitoring form, a monthly supervisory report, a contribution "carnet", a blood pressure monitoring chart, and a road-to-health card. The greatest problem encountered during the first two months was the difficulty the auxiliary and technical nurses had in correctly completing the statistical and revenue collection forms, but with help, staff soon learned to fill these forms without difficulty.

After treating a patient in Benin, the village health worker recorded the diagnosis, treatment, and payment received. Drug usage and total revenues were calculated daily and monthly for comparison with drug stocks and expected revenues. Whenever receipts were lower than expected, the missing amount was deducted from the responsible person's salary.

Lack of standard records was identified as a crucial problem in the Zaire study.

Use of Funds

The revenues generated from payments for curative care in Benin were used to pay village health workers and replenish drug supplies. As the study progressed, revenue from curative care was used to finance personal preventive interventions, maintenance costs of the health center, petrol used for supervision and mobile MCH clinics, and the village level information system. In one "cercle" in Mali, service fee revenue was used to pay for drugs, petrol, and clinic furniture.

COSTSHARING SCHEMES

Charging for specific goods and services is not the only means of having community residents contribute to PHC financing. Potential users can also pay for "coverage", that is, eligibility to receive treatment when needed at little or no additional cost. A number of PRICOR-supported researchers documented or developed cost sharing schemes, that is, schemes in which all or most community residents contributed to

financing regardless of personal use levels. These schemes were of several types:

- sale of health cards entitling purchasers to defined benefits as needed (Thailand)
- contributions of community labor, for cultivation of health workers' fields (Swaziland, Liberia) or cleaning and maintenance of health centers (Brazil)
- financing of certain health center costs by community organizations (Brazil)
- flat rate assessments for payment of community health workers' salaries (Bolivia/Gonzalez)
- financing by agricultural or other cooperative (Bolivia/Miller, India).

The diversity of these studies limits comparative analysis, but further details are given in Chart 8 and in three case studies in appendix 2.

CHART 8: PRICOR STUDIES THAT DOCUMENTED, OR HELPED TO ESTABLISH, COST-SHARING SCHEMES

STUDY	REVENUE GENERATION OBJECTIVE	NATURE OF COSTSHARING	RESULTS	COMMENTS
Benin	To finance recurrent direct and support costs	Prepayment scheme proposed but rejected because people did not have confidence that services would be delivered.	Eleven health staff eventually created their own prepayment scheme.	
Bolivia/ Gonzalez	To generate enough income to motivate CHWs to stay on the job	All community residents made a flat annual payment to health workers in the form of potatoes.	Payments were made, and health workers have stayed on the job.	Considerable community work needed to generate payments. Residents required that promoter work in only one community.
Bolivia/ Niller	To establish coop-based health care	Cooperatives with existing health activities were studied with a view to expanded PHC financing.	Effort collapsed because coops could not expand their activities.	See case study in Appendix 2 for details.
Brazil	Cost-sharing	Community labor and supply donations to clean and maintain clinics and pay utility bills; sale of "carnets" to local residents.	Schemes were generally not carried out and, in any case, produced little practical support.	See case study in Appendix 2 for details.
India	Variable	Cooperatives financed health care through sale of milk or other products.	Several highly successful cooperatives were studied.	

CHART 8: PRICOR STUDIES THAT DOCUMENTED, OR HELPED TO ESTABLISH, COST-SHARING SCHEMES

STUDY	REVENUE GENERATION OBJECTIVE	NATURE OF COSTSHARING	RESULTS	COMMENTS
Liberia	To compensate CHW	Communal rice farm and in-kind contributions to compensate health worker	Scheme failed because contributions were generally not made and because health workers did not accept the arrangement.	Methods used for compensating traditional healers did not work well for CHWs. See case study in Appendix 2 for details.
Swaziland	To compensate health worker	Community plowed CHW's fields to supplement government salary.	Plowing delayed by chief's absence but eventually occurred. Field not sown due to delays.	Chief's role in mobilizing community was clearly vital. Health staff in neighboring communities want to replicate the scheme. See case study in Appendix 2 for details.
Thailand	To support basic PHC services.	Residents purchased health cards entitling them to treatment of up to 8 illness episodes and expeditious care at health centers. Exact costs and benefits varied from one community to another.	MOPH now encouraging wide replication.	See case study in Appendix 2 for details.
Zaire	To support decentralized health zones.	Prepayment scheme proposed but rejected.		

CHAPTER 9
INPUTS AND ACTIVITIES FINANCED

This section deals with alternative methods used by PRICOR researchers to (1) provide effective incentives for community health workers, and to pay (2) for preventive/ promotive activities.

COMMUNITY HEALTH WORKERS

A major problem for many PHC programs is how to pay for frontline health personnel, commonly known as community health workers. PRICOR-supported researchers studied alternative monetary and non-monetary methods for attracting qualified CHW candidates and reducing attrition, for motivating effective performance, and for covering the costs of supervision and logistical support. A general finding was that both money and non-material factors such as community prestige and self-respect were needed to motivate CHWs, and that to a certain extent one could be traded off against the other. Studies discussed in this section are briefly described in Chart 9.

Recruitment and Retention

Several rsearchers either reported or helped develop CHW recruitment and retention measures. In Thailand, CHWs could easily be recruited and retained as managers of revolving drug funds because the position was highly respected, community service was a social obligation, and revolving drug funds were structured to give managers financial incentives. In recruiting CHWs, Indian program directors emphasized commitment to social service rather than to personal income; subsequent attrition rates were generally low. Lower caste members were especially drawn to CHW positions by the increased social status they offered. Unpaid "lead mothers" in the Philippines (Osteria) kept at work partly to earn social prestige.

Baker in Brazil attributed strong interest in new CHW positions to high salaries (four times the minimum salary paid to teachers) and the lack of other employment opportunities in rural areas. The salary structure rewarded long service, since increases of five percent were given for each additional five years of service. CHWs with more than 25 years of service were paid 20 percent more than those with less experience.

More commonly, however, PRICOR-supported researchers reported problems in CHW recruitment and retention, either because of low social prestige or inadequate funding. Several of the cooperative-based health programs in India attempted to recruit relatively educated persons but could not because of low pay. In Swaziland, delayed government salary payments and weak community support for preventive care contributed to poor

CHART 9: PRICOR STUDIES THAT DOCUMENTED, OR HELPED TO ESTABLISH, METHODS OF COMPENSATING CHWs

STUDY	TYPE OF WORKER	MATERIAL REWARDS	NON-MATERIAL REWARDS	COMMENTS
Benin	Community health worker	Salary, paid by the community, through service fees	Community prestige; perceived importance of CHWs was increased by quadrupling fees for patients who went to the health center without a CHW referral.	Fees charged only for curative care but covered preventive costs as well.
Bolivia/ Gonzalez	Health promoter	Small salary; residents paid fixed annual assessment in the form of potatoes or wheat.	Attrition was high before study due to inadequate or irregular PVO or MOH salaries. Scope of promoter's functions and coverage had to be reduced so that community residents would be willing and able to pay for them.	
Brazil/Baker	Basic worker responsible for health education, maternal and child health, and communicable diseases	Salary paid by Federal government at four times the minimum wage	Job security	Regularly paid salary with increases for long service; low attrition.
Brazil/Nations	Traditional healer, trained for ORT	Gifts from patients but no regular salaries	Social events with other trainees; increased confidence in healing skills; community love and respect	
Ecuador	CHW with basic promotive and curative skills	Stipends and materials from community organizations and residents		

CHART 9: PRICOR STUDIES THAT DOCUMENTED, OR HELPED TO ESTABLISH, METHODS OF COMPENSATING CHWs

STUDY	TYPE OF WORKER	MATERIAL REWARDS	NON-MATERIAL REWARDS	COMMENTS
Haiti/ AEDC	CHW teaching child survival skills	Cash payments based on number of mothers acquiring a specified set of child survival skills, small salary; funds derived from small membership fees for revolving credit clubs, from the government, and from drug sale profits	Prestige, increased knowledge of health issues, sense of good for the community, personal satisfaction	
Haiti/ Cayemittes	ORT teachers and distributors (traditional birth attendants, ORS vendors, community and religious leaders, teachers and mothers	Training per diem (paid by government), but otherwise none	New knowledge and skills	
Honduras	Four types of volunteer CHWs providing basic curative services and health education, midwivery services, organizational support, and malaria control. Paid CHWs provide various services	Food, salary (some workers only); resources derived from community gardens, government, and drug sales		
India/ Elkins	Various, but most had curative, preventive, and promotive functions	Small salaries, in-kind contributions; resources derived from government, village milk and other cooperatives, clubs, drug sales, donor agencies	Encouragement of initiative, job security, support when there is opposition, recognition for good service, power to influence village committee, job satisfaction	CHW attrition was low in all 8 projects studied

CHART 9: PRICOR STUDIES THAT DOCUMENTED, OR HELPED TO ESTABLISH, METHODS OF COMPENSATING CHWs

STUDY	TYPE OF WORKER	MATERIAL REWARDS	NON-MATERIAL REWARDS	COMMENTS
Korea	Two types: Government-employed CHWs who provided mainly curative care with some preventive/promotive services; Volunteer CHWs who provided health education and minimal curative care and supported paid CHWs	Government salary for some CHWs	"Meaningful and valuable" health education programs	Volunteer CHWs discouraged by lack of community support
Liberia/ Cole I	Mainly curative CHWs, also responsible for health education, birth and death registration, and coordination of immunizations	Labor in CHW fields and in-kind payments were recommended but not carried out		Compensation through labor donation used for traditional healers but was unacceptable to CHWs and community residents. High attrition resulted.
Liberia/ Wall	School children, trained to teach ORT, hygiene, home sanitation, malaria prevention, and referral	None		
Nigeria/ Gray	CHWs responsible for diagnosis and treatment of simple diseases, health education, and immunizations	Small salaries, derived from patient fees managed by village health committee	Advanced training for veteran CHWs leading to higher job classification, better salary, and greater community prestige	High attrition, especially among the most poorly paid workers. Researchers solved a "financial" problem by finding no-cost methods of increasing non-material incentives.
Philippines/ Osteria	Lead mothers, responsible for environmental sanitation, home gardening, drug sales, recordkeeping, fund raising	None	Supervision and encouragement from community leaders and formal health care providers	Attrition was high in communities without strong supervision

CHART 9: PRICOR STUDIES THAT DOCUMENTED, OR HELPED TO ESTABLISH, METHODS OF COMPENSATING CHWs

STUDY	TYPE OF WORKER	MATERIAL REWARDS	NON-MATERIAL REWARDS	COMMENTS
Senegal	Two types: traditional birth attendants (TBAs), and others providing simple curative care	Cash, inkind contributions (millet), labor in CHWs' fields, labor in collective field. Source of material rewards: community, service fees.	Community appreciation	
Swaziland	CHWs (called rural health motivators) with primarily preventive functions; project trained some workers in ORT, immunizations, and growth monitoring	Small government salary; community labor contributions for CHWs' fields		Salary payments were irregular, leading to poor morale. Community did not support preventive/promotive work
Thailand/ Orathip	Revolving fund managers (Village health communicators and community health volunteers)	Fixed wage or percentage of profit from revolving fund; free or discounted drugs and hospital care; first access to scarce pharmaceuticals, preferred rights to borrow revolving fund at little to no interest	Community respect	Workers motivated both by sense of social obligation and by profit. Very little turnover

CHW morale and low retention. In Thailand, recruitment was more difficult for managers of sanitation and nutrition funds than for drug funds because the former were less often profitable and could not be easily structured to provide cash incentives for managers. High CHW turnover was also experienced in Nigeria (Gray), one barangay in the Philippines (Osteria), Liberia (Cole I), and Bolivia (Gonzalez).

In Gongola State, Nigeria, many CHWs left employment within one to three years because of low salaries and lack of advancement opportunity, supervision and community support. Even though all communities paid minimal wages, a survey found that CHWs at the higher end of the pay scale stayed on the job about 50 percent longer than lower paid ones. Fourteen of 29 terminated CHWs had sought further training and were working in higher level health care positions. Unable to increase CHW salaries, program managers offered veteran CHWs additional training as Community Health Aides so that they could qualify for the greater pay and social prestige derived from promotion.

To reduce turnover in Swaziland, researchers, managers, and a local chief organized community labor to plow and sow the CHWs' fields so that CHWs could spend more time on health work. The general reaction to the scheme was positive even though labor contributions were delayed. A similar arrangement in Liberia (Cole I), though based on traditional modes of paying healers, was not acceptable to CHWs and attracted little community support.

In Cochabamba, Bolivia, attrition rates as high as 70 percent were attributed to inadequate or unstable salaries. CHWs also felt that the community was largely unsupportive or unaware of their activities. They saw themselves as divorced from important decision-making organizations and felt that institutional support from a highly visible group of community leaders would increase their credibility with the villages and improve their motivation. PRICOR-supported researchers organized contributions of wheat and potatoes to increase CHW incentives, including perceived community support, and to reduce turnover.

In Korea, both volunteer and paid CHWs were unable to deliver effective preventive services where community support was lacking. PRICOR-supported researchers attempted to use members of informal community organizations as volunteers to supplement government-paid CHWs. The latter trained volunteers to conduct health education, to provide minimal health care, and to support their own activities. The volunteers told researchers that they found the training to be "meaningful and valuable," but subsequent surveys of trainees and community members found that efforts of the volunteer CHWs had been largely unsuccessful and that their role was not recognized in the community. In the Korean case, lack of

community support, rather than inadequate finance, appeared to be the major obstacle to preventive services.

In some cases, careful role definition and task selection were essential for health workers to gain either social prestige or community financing. In Bolivia, villagers were reluctant to support a CHW without assurances that the worker would be competent, reliable and well-supplied with medications. In Swaziland, about half of the CHWs and a third of the community members interviewed told researchers that the tasks performed by CHWs would have to be modified before the community would be willing to support them. In conjunction with the Ministry of Health, researchers determined that immunizations, ORT and growth monitoring should be added to the tasks performed by CHWs. Eight CHWs received additional training to perform these tasks in one community. The response was positive. Six later reported that the number of villagers who came to them for advice on children's health had increased since their training. Community members were then willing to contribute labor for the CHWs' field work.

Role of Volunteers

An important question for PRICOR-supported researchers and for primary health care generally concerns the potential role of volunteers. Alternatives to direct cash incentives were successfully used in Haiti (Cayemittes), Brazil (Nations) and Liberia (Wall). In Haiti (Cayemittes), inability to pay CHWs restricted effective ORT delivery, so community and church leaders, traditional birth attendants (TBAs), teachers, market sellers and others were invited to attend ORT training sessions. TBAs were found to be particularly effective in promoting ORT. Another study (by Augustin) in Haiti, on the other hand, concluded that volunteers could be used for discrete activities of short duration but not for sustained community health work.

A key to successful mobilization of volunteers may be linkage with tasks traditionally performed by school children, healers, and others. In Liberia (Wall), researchers and community leaders developed preventive health modules for adolescents based on such common household activities as cooking, cleaning, washing clothes and carrying water. School children were then trained to teach others about ORT, hygiene, home sanitation, malaria prevention and hospital referral. Study results showed that the children had learned a good deal and were carrying out their lessons. They received no monetary incentives but did gain the respect and appreciation of family and friends. The major program costs were for training which was funded publicly through the regular education budget.

Traditional healers working without formal compensation were found to be effective in ORT programs in Brazil. In many

rural areas, traditional healers were more accessible, affordable and acceptable than other health workers, and a household survey found that a large majority (76.9%) of mothers sought help first from a traditional healer when their children had diarrhea. Almost all worked without cash payment, only 15.8 percent telling surveyors that they should receive any payment. Non-monetary incentives for traditional healers included community love and respect plus nominal gifts from patients. To mobilize these resources, PRICOR-supported researchers worked with the healers to develop ORT training. In the first 12 months afterwards, over 7,400 liters of ORT were delivered at a cost to the program of approximately US$4,000 for training (plus unspecified costs for supervision). Additional non-monetary incentives for participating healers included social events with other trainees and increased confidence in health skills.

A study in the Philippines (Osteria) found that frequent supervision, by health professionals or by local leaders, increased chances that volunteers would continue working. In one barangay where no support was given, 7 of 10 lead mothers recruited for environmental sanitation tasks dropped out, citing lack of time and pressures of farm and other income-related activities. Similar effects occurred in two other barangays, but in three areas where local officials and health personnel closely supervised and supported the lead mothers, significant environmental sanitation improvements occurred.

Program directors interviewed in India stressed the following non-material incentives to compensate CHWs for their relatively low wages:

1. Encouragement of initiative within the project design;

2. Job security to the extent possible;

3. Full support when there is unfair opposition;

4. Special public recognition for good service;

5. Opportunities for further training in health skills, including training programs with attractive features, such as trips;

6. Opportunities to share experiences with coworkers who see self-fulfillment in their service.

7. Community respect.

Staff, program directors and CHWs themselves felt that increased community respect was a major incentive.

Performance Incentives

It is not enough that workers stay on the job if their performance is substandard or emphasizes services of little longterm value. Program effectiveness may also be improved through behavioral incentives to clients.

CHWs in Thailand were motivated to effectively manage revolving drug funds because their salaries depended on the existence and magnitude of profits. Fund managers were generally paid only if the fund was profitable and growing. Payment could take the form of wages, but was more often a share of the profits ranging from 5 to 20 percent. Focus on incentives derived from drug sales may have distracted CHWs from preventive care and community activities in some cases.

In a PRICOR-supported study in Haiti, CHWs were paid on the basis of the number of mothers who acquired a specified set of skills in four child survival areas. Mothers were motivated to learn these skills by the prospect of participation in a credit scheme. Profits from the credit scheme were then used in turn to pay the CHWs. In this manner, CHWs' income and mothers' access to credit were both directly related to the mothers' mastery of child survival skills.

In Benin, persons presenting at the local health unit without a referral from a CHW were charged four times as much as those who had been properly referred. In Thailand, health card holders who obtained a hospital referral from a CHW were able to receive faster attention.

In Thailand, women, especially mothers of malnourished children, were willing to contribute labor or raw materials to nutrition funds in exchange for food service and reduced prices as well as for such non-material incentives as opportunities for socializing and interesting demonstrations.

PREVENTIVE/PROMOTIVE ACTIVITIES

Though weak community demand for preventive/promotive activities was a problem nearly everywhere, researchers developed or reported a number of innovations to cover costs of water and sanitation systems, growth monitoring, nutrition, family planning, and oral rehydration therapy (ORT).

- In Thailand, for example, communities established and managed over 1000 nutrition and sanitation revolving funds. Nutrition funds support growth monitoring and remedial nutrition activities, largely through the voluntary labor of mothers, while sanitation

funds made loans for construction of privies and water storage jars.

- Researchers in Haiti (see Appendix 3) created innovative women's credit clubs that generated funds for CHWs' preventive activities and rewarded mothers for learning child survival skills.

- In Rio de Janeiro, Brazil (Lassner), family planning services and Pap smears, both preventive in nature, were the two largest revenuegenerators.

- Fees for curative services in Benin and Zaire were set high enough to generate surplus revenue for preventive care.

These and other study results are summarized in Chart 10 and in Appendix 3.

CHART 10: PRICOR-SUPPORTED STUDIES THAT DOCUMENTED, OR HELPED TO ESTABLISH, METHODS OF FINANCING PREVENTIVE/PROMOTIVE ACTIVITIES

STUDY	FINANCING OBJECTIVE	PREVENTIVE/PROMOTIVE ACTIVITIES FINANCED	FINANCING METHODS	RESULTS
Benin	To cover costs of both preventive and curative community health services, including supervision and other support systems.		Service fees	Most community and district-level costs were covered.
Brazil/ Baker	To analyze FSESP experience in the community financing of water supply systems and CHWs	Water supply systems	User fees	
Brazil/ Lassner	To develop community cost-sharing mechanisms while increasing service accessibility and use	Family planning and Pap smears	Service fees	Family planning and Pap smears were the two biggest sources of revenue
Brazil/ Nations	To incorporate ORT within self-financed traditional healing activities	ORT	Voluntary labor of traditional healers plus occasional gifts from beneficiaries	Considerable ORT provided; scheme replicated in larger project

CHART 10: PRICOR-SUPPORTED STUDIES THAT DOCUMENTED, OR HELPED TO ESTABLISH, METHODS OF FINANCING PREVENTIVE/PROMOTIVE ACTIVITIES

STUDY	FINANCING OBJECTIVE	PREVENTIVE/PROMOTIVE ACTIVITIES FINANCED	FINANCING METHODS	RESULTS
Dominican Republic	To develop ORS pricing strategy that the poor could afford and that would nevertheless give distributors adequate profit incentives	ORT	Two-tiered pricing strategy	Ministry did not accept recommendations
Haiti	To develop ways to motivate CHWs to teach mothers to understand and use preventive services; to establish supportive financing methods	ORT, growth monitoring, family planning, and immunizations	Elaborate revolving credit scheme that rewarded teaching and learning of child survival skills	Mothers learned interventions and participated in schemes; portion of funds generated used to pay CHW salaries. (See Appendix 3 for additional information)
Philippines/ Osteria	To mobilize community resources for PHC, including preventive activities and services	Environmental sanitation, health education	Volunteer "lead mothers"	Communities were to develop tangible means of supporting "lead mothers", but residents showed little interest in their activities
Swaziland	To improve the scope and quality of CHW services, and to supplement government salaries	ORT	Community to plow and sow the CHWs' fields	Community supported new CHW activities; fields were plowed but somewhat late

CHART 10: PRICOR-SUPPORTED STUDIES THAT DOCUMENTED, OR HELPED TO ESTABLISH, METHODS OF FINANCING PREVENTIVE/PROMOTIVE ACTIVITIES

STUDY	FINANCING OBJECTIVE	PREVENTIVE/PROMOTIVE ACTIVITIES FINANCED	FINANCING METHODS	RESULTS
Thailand/ Orathip	To identify, test, and replicate cost-effective models of community financing	Sanitation and nutrition	Multipurpose revolving funds based on drug sales generated surpluses for nutrition and sanitation. Many communities also capitalized and managed funds devoted specifically to sanitation and nutrition	Government now encourages rapid expansion of multi-purpose funds
Zaire	To develop appropriate payment schemes for self-financed health centers that do not adversely affect utilization	MCH, some immunizations	Service fees, mostly for curative care (with some cross-subsidization)	Little collected on preventive care, but 3 of 10 centers were able to cross-subsidize preventive care from curative fees

CHAPTER 10
EVALUATION

Though successful implementation was the major goal of most researchers, many were concerned as well to estimate the effects of user charges on utilization/coverage and cost recovery.

MAINTAINING AND ENHANCING COMMUNITY SUPPORT

Community groups and individuals asked to contribute for a new service (or for an existing one that was previously free) need incentives for doing so. The most commonly cited incentive was improved accessibility and/or quality of services, often because new services cost users less in time and travel expense than previously available ones. In Rio de Janeiro, women proved willing to pay for a range of services when they were provided within the community, even though they were available without charge at less convenient locations. In the Indian study, 76% of participants cited "services at hand" as one of their reasons for support. Increased accessibility undoubtedly contributed to the success of schemes in Liberia and the Philippines as well.

Results from India, Swaziland, and elsewhere indicate that users' perception of improved quality was a significant factor in motivating community participation. In India, 42% of those surveyed mentioned "good treatment" and 19% "easy communication with staff" as reasons for joining. One project director cited the "humaneness of the health workers expressed through frequent home visits . . . and the personableness and sincerity of the visiting nurse and doctor." The refresher training given to Rural Health Motivators enhanced the public's willingness to pay in Swaziland.

Three other reasons cited for community support in India were availability of supplementary food (in two locations only), liberation/opportunity for self-development (cited by many project directors and staff members), and ease of hospital referral. Improved hospital access undoubtedly facilitated the sale of health cards in Thailand as well.

Household surveys were used to identify obstacles to the participation of residents in community health programs in Brazil and India. Researchers in Brazil concluded that weak participation was largely due to a lack of knowledge about the location of health units, their operating hours, the services available, and their costs. Although all community members surveyed in Prazeres were aware of the local health unit, only 68 percent of those interviewed in Senador Camara had heard of the unit there. Throughout the study area, the majority of respondents did not know about recently introduced services, depending upon the community, 40 to 86 percent did not know that fees were charged for some services.

In the areas served by the Tribhuvandas Foundation and the Adayar Project in India, the overwhelming majority (85 percent) of community members cited inability to pay as a reason for not joining a local prepaid health program. A few respondents had previously participated and dropped out due to lack of funds. In contrast, only 10 percent of those surveyed in Brazil (Lassner), for all communities together, responded that charging fees weas an obstacle to using services.

Other major reasons for non-participation cited in India were that the program did not provide needed services or drugs or that personnel were not available, not competent, or favored one group. Some staff felt that lack of awareness of the program might have inhibited participation because illiteracy was widespread and promotions relied heavily on written material.

Affluence was found to be a barrier to broad participation in India. The affluent did not seek service because they could afford private doctors and did not find the quality of service offerred to be acceptable. Furthermore, community leaders and members of local organizations tended to be from the more affluent classes who did not perceive the program as benefiting them and consequently did not support it. Several community and organizational leaders opposed project objectives, especially in the area of water management. The elites in Tilonia, for example, wanted to prevent lower castes from using wells.

Several methods were considered to overcome these obstacles. Service providers in Brazil recommended that promotional activities emphasize new services, operating hours, and general awareness of service availability. Staff in India preferred house to house visits to promote the program as well as community meetings, and enlistment of the help of local institutions and influential persons.

UTILIZATION/COVERAGE

Researchers in Zaire and Brazil (Lassner) attempted (but with limited success) to study the effect of community financing on service coverage and utilization.

In Zaire, clinic utilization was affected more by local management factors than by either the mode of fee collection (per visit or per episode) or prices. Reactions of community members and service providers to the shift from visit to episode fees were strong and unexpected. Several personnel preferred visit fees because they were generally not fixed and could be "negotiated" with the client. In the Katanda Health Center, the auxilliary nurse was dismissed after showing open hostility to the shift. He subsequently opened a private dispensary in the same service area and drew many patients

away from the SANRU center. An open conflict developed in another center between members of the Village Development Committee and the auxilliary nurse because the latter felt that fees had been set too low.

Communities generally preferred episode fees rather than visit fees because of greater:

- health care continuity (once payment was made, there were fewer financial reasons to interrupt treatment);
- ease in health center administration (since the fee level was known to everyone to facilitate monitoring of receipts)
- reinforcement of community solidarity (since health care prices were equally shared by all users).

Utilization of some services decreased in the one center that shifted from episode to visit fees.

Curative visits per capita varied enormously from one health center to another between October 1984 and September 1985, from a low of 3 visits per year per 100 population in Tshileo and Katanda to a high of 245 visits per 100 persons in Lukunga. (See Table 1.) One reason for this was that people seeking health care were far more likely to go to the SANRU health center in some areas than they were in others. The fifth column of Table 1 shows that the proportion of persons seeking health care who went to the health center during the 1985 two week recall period ranged from 1.4% in Katanda (where the nurse set up a competing private practice) to 83.2% in Lukunga (a small, well-defined, and isolated service area). A second, less interpretable, explanation was that people in some areas reported very infrequent use of any health care provider (only 10 visits per 100 persons per year in Tshileo, for example), while in other areas (Kangoy, for example) visits were up to 35 times more frequent. Results in one area were affected by the large number of followers of an apostolic faith who reported their source of care as "other". Visits per episode of illness also varied greatly, from scarcely more than 1.0 in Lukunga, Muadi Kayembe, and Kaniama to over 6.0 in Kangoy.

Although researchers anticipated increased use of centers charging fixed fees per episode (rather than variable fees per visit), before/after changes were inconsistent and difficult to interpret. No general conclusions can be drawn from the data collected in the two-week recall survey and the review of health center records. However, much of the variation in utilization can be explained when these data are complemented

TABLE 1

Zaire: Health center visits for curative care
October 1984 - September 1985

Health Center	Population	No. of Visits*	Visits per Capita to Health Center	Percent of Conditions Treated at Clinic **	Visits per Capita to All Care Providers ***
1) Kabambaie	6257	2436	0.39	47.1%	0.83
2) Mbau	8403	NA	NA	45.5%	NA
3) Katanda	33455	843	0.03	1.4%	1.80
4) Tshileo	43870	1374	0.03	31.2%	0.10
5) Kindamba	1908	2332	1.22	50.7%	2.41
6) Lukunga	1972	4824	2.45	83.2%	2.94
7) Muadi Kayembe	12924	2489	0.19	18.5%	1.04
8) Kaniama	10337	5823	0.56	15.1%	3.73
9) Kangoy	16941	29086	1.72	48.8%	3.52
10) Keba	13839	7992	0.58	17.1%	3.38
Medians			0.56	38.4%	2.41

* From Health Center records
** Household survey, two week recall data
*** Estimated by combining Health Center and two week recall data

with a qualitative analysis of the context of events and behavior in each zone.

To evaluate utilization in Brazil, researchers used a quasi-experimental design and time-series analysis. Data from the existing CPAIMC micro-computer-based information system were used to identify pre-implementation trends for 13 utilization variables. These were projected into the trial period by fitting a linear regression line to monthly values. The two-tailed T-test was used to compare the monthly number of observed visits for each variable with the number of projected visits. Variable by variable analysis helped determine whether utilization remained stable, decreased or increased following implementation.

In six of eight service sites, the trend in total number of visits remained unaltered, while in two of the sites it decreased significantly. For all variables combined, apart from the total number of visits, significant utilization decreases occurred more often than no change. Significant increases in utilization were few.

Only one significant association was found between an individual financing scheme and changes in use. In all five units where registration and Pap smear fees were collected, the number of initial visits for women declined.

Coverage - defined as the proportions of women aged 15 to 49 and children aged 0 to 4 who received care in the previous six months - was estimated before and after implementation using community surveys. In the four communities where valid comparisons were possible, coverage for women increased in two and declined in the others. For children, coverage rose in all four communities.

COST RECOVERY: REVOLVING DRUG FUNDS

Of the 22 Thai revolving drug funds studied in detail, 19 were profitable and 10 earned profits over 30 percent. Profitable funds were well managed, well stocked, and able to compete successfully with both private and public sector alternatives. Most importantly, some funds had diversified sources of income by selling other goods in addition to drugs and supplies. One fund had a gross profit of 172 percent, of which half went to shareholders, 30 percent to fund capital, and 20 percent to fund managers. This fund had expanded to cover a total of ten villages. In another case, the profit distribution was 20 percent to shareholders, 65 percent to investment, and 15 percent to managers.

Even though social obligation may have motivated initial share purchase, high profits were the main reason for subsequent share purchases and for the dramatic variation in the size of drug funds.

In one village, the initial share purchase at the beginning of 1981 was 219 shares with total shares of 10,950 baht. In January of 1982, shareholders received profit distributions of 43 baht per share - an annual return of 86 percent. In January of 1983 they received 25.49 baht per share - an annual return of 50.8 percent. Since January of 1982, this fund has sold 321 additional shares with a total value of 16,050 baht, more than doubling the initial capital.

Of the 22 funds, only one had decapitalized. Problems occurred in other funds, however, when the tambon health officer was unsupportive, when management committee members lacked commitment and energy, and, most commonly, when health volunteers played a limited role in sales, record-keeping, and inventory control.In the Philippines, all funds enjoyed profits ranging from 17 to 29 percent. Profits were added to capital for purchase of additional drug stocks. In Liberia as well, none of the funds decapitalized during the first year of operation. Dominica's fund had operated successfully for two years at the national level, although user charges had not been instituted.

COST RECOVERY: OTHER

Researchers in Benin, Brazil (Lassner), and Zaire collected data on the proportion of health care costs covered through community financing.

In Benin, researchers sought to cover all essential recurrent costs at both the health center and village levels. Since the government paid salaries and electricity costs, community financing was sought for restocking of drugs and supplies, for VHW remuneration, for the transportation costs incurred in supervision and peripheral MCH clinics, for VHW treatment and home visit forms, for the cold chain, and for health center maintenance. Researchers sought to cover these costs with receipts from curative care delivered at both the health center and village levels.

Receipts collected at the village level in Benin covered 23% of total recurrent costs and were not sufficient to cover even village-level expenses (VHW remuneration, drug costs, and transport for MCH clinics and supervision). The financing scheme was designed, however, so that non-residents using project health centers were charged four times the rate for residents; and by combining these receipts with those from the village, researchers were help to cover both village and health center costs. Initial costs were partially subsidized, and use of curative care was low. As utilization increased, profit margins also rose until income and revenue reached the breakeven point two to three years after project startup.

In Brazil (Lassner), "proportion of total PHC costs covered by the revenue generated" was selected as the principal indicator of performance. Costs of providing care at the units and miniposts were defined as "direct" (all costs for personnel, drugs, and supplies, as well as other general expenses such as water, electricity, maintenance, and transportation); "indirect" (costs related to program management and administration, training, and evaluation); and "total" (sum of direct and indirect).

The mean monthly revenue generated by the schemes varied significantly among the nine communities. The strategy that generated the most revenue involved charging for selected services, selected types of visits, and drugs. The strategy that generated the least revenue involved charging only for selected contraceptives. The most successful units and miniposts were able to cover 20 percent of direct recurrent costs (11 percent of total recurrent costs) during the nine month study period. (See Table 2 for additional details.) The scheme components that generated the most revenue were charges for Pap smears, contraceptives, physician visits, and drugs, in that order. The proportion of total revenue generated by Pap smear fees ranged from 20 to 72 percent. In general, most experimental communities covered a greater proportion of PHC costs than did control communities, partly because experimental communities used a variety of financing means while control communities were limited to fees for registration, Pap smears, and contraceptives.

In Zaire, fees were set in diverse ways and varied from one health center to another. No technical formula for setting prices was agreed upon, yet the six centers with usable revenue data reported that they covered a median of 107.3% of their curative costs, including the costs of zonal supervision and mobile teams. (See Table 3.) Revenues generated from preventive care covered between 0.4% and 10.6% of associated costs only, but three centers generated revenue from curative care in excess of costs permitting cross-subsidization of preventive care. Overall, the six clinics reported median total cost recovery of 66.5%.

While Zaire appears to have been most successful in cost recovery, it is not clear whether this should be attributed to revenue generation or to cost (ie., expenditure) reduction. Clinics in both Brazil and Benin had supplemental funding to ensure certain quality and coverage standards, even though researchers in both instances sought the maximum feasible self-financing. In Zaire, on the other hand, health zones were largely on their own to generate income as best they could from PVOs, external agencies, and users. Most of the shortfall that occurred had to be taken from drugs and services. As noted in Chapter 4, PHC costs per capita and per visit varied enormously in the Zairian centers studied, partly reflecting a very uneven distribution of resources.

TABLE 2 (BRAZIL/LASSNER)
Proportion of Total and Direct PHC Costs Covered by
Revenue Generated from Community Financing Strategies
April-December 1985

PHC Revenue & Costs in US$	Mini-Posts			Women's Health Care Units				MCH/FP Units	
	Senador Camará	Borel	Dendê	Parada de Lucas	Vila Aliança	Vila Kennedy	Barreira do Vasco	Bispo	Prazeres
Total Revenue	478	37	168	249	812	801	1,087	321	200
Total Direct Costs[1]	2,385	2,383	3,745	2,702	4,086	5,116	5,432	5,645	6,414
Total Costs[2]	4,370	4,110	6,390	4,999	7,477	9,318	9,685	9,537	10,888
Proportion of Costs Covered by Revenue[3]									
Direct Costs (%)	20.0	1.6	4.5	9.2	19.9	15.7	20.0	5.7	3.1
Total Costs (%)	10.9	.9	2.6	5.0	10.9	8.6	11.2	3.4	1.8

1 Direct costs include personnel, medicines and supplies and general administrative expenses, such as utilities, rent, maintenance, transportation, food, etc.

2 Total costs include direct costs plus indirect costs.

3 In this and other tables proportions were calculated utilizing revenue and cost data in cruzeiros and may not equal exact proportions calculated in US dollars due to currency conversion and rounding.

TABLE 3

Zaire: Percentage of health center operating costs covered October 1984 - March 1985*

Health Center	Curative	Preventive	Total
1) Kabambaie	197.1%	10.6%	136.6%
2) Mbau	139.8%	1.6%	120.0%
3) Katanda	33.0%	0.4%	7.6%
4) Tshileo	119.3%	4.7%	35.7%
5) Kindamba	NA	NA	NA
6) Lukunga	NA	NA	NA
7) Muadi Kayembe	95.3%	8.3%	63.2%
8) Kaniama	94.1%	2.7%	69.8%
9) Kangoy	NA	NA	NA
10) Keba	NA	NA	NA
Medians	107.3%	3.7%	66.5%

* Cost data are for the time period indicated. Revenue data are for September 1984 - February 1985.

FACILITATING FACTORS AND CONSTRAINTS

Participants in a June 1986 conference of PRICOR-supported researchers identified a number of incidental factors that either facilitated or inhibited the success of their community financing schemes. National policy factors were summarized in Chapter 2, but there were others of a more personal or cultural nature as well. Other facilitating factors included:

- the local origin of the principal investigator, as in Liberia, Bolivia (Gonzalez), and Benin
- a widespread public conviction, as in Mali and Liberia, that outside help for primary health care would not be available and that self-help was essential
- a tradition of loyalty to royal directives, as in Thailand
- a high health services utilization rate to spread fixed costs, as in parts of Zaire
- prior community experience in managing revolving funds, as in parts of Thailand.

Constraints, on the other hand, included:

- the apparent availability of outside funds, as in Brazil (Lassner) and the Philippines
- a history of receiving certain goods and services without charge, as in Benin and Brazil (Lassner)
- prior experience of paying and getting poor results, as in Liberia and Benin
- the periodic scarcity of cash and even inkind resources in Bolivia (Gonzalez), Zaire, and Benin
- weak community management skills in many locations.

Several researchers described major problems in convincing people that primary health care, especially prevention, was good health care and worth paying for. Researchers in a number of sites, including Zaire, Brazil (Lassner), and Benin, encountered difficulties in orienting health center staff to the new fee structures and the need to enforce them impartially.

THE AGENDA FOR THE FUTURE

PRICOR-supported studies successfully resolved a number of PHC financing issues, particularly ones relating to curative care, drugs, and strictly local costs. Progress was reported on devising methods of paying for supervision and preventive/promotive activities and on strengthening CHW compensation and incentives. A great deal, previously discussed only in anecdotes, was learned about the process of establishing self-managed PHC financing schemes within specific communities. The American and developing country researchers that PRICOR supported deserve much of the credit for these successes.

Research should continue in each of these areas, however, especially on:

- how to pay for supervision and other support activities
- how to generate community demand for preventive/promotive activities or to find ways of cross-subsidizing them
- simple price and fee-setting techniques, especially for hyperinflationary conditions.

A great deal of work is also needed on methods of replicating study results, with lower research inputs as population and geographic coverage expand. Operations research was a very useful tool at the micro level and should be equally useful during replication. Clearly, though, many researchers were active in community mobilization, training, and routine management - roles that someone else will have to fill as projects expand. Replication in Thailand, Zaire, Liberia, and Brazil (Lassner and Nations) occurred with relatively little research input, but other settings may require further community by community groundwork and data collection. Future operations research should consider how best to conduct this expansion.

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APPENDIX 1

BRIEF SUMMARIES OF PRICOR-SUPPORTED COMMUNITY FINANCING STUDIES

PRICOR Primary Health Care Operations Research

Study Abstract

COMMUNITY FINANCING OF PHC SERVICES IN THE PAHOU HEALTH DEVELOPMENT PROJECT, BENIN

An operations research study was conducted by the Unitarian Universalist Service Committee in the People's Republic of Benin during 1983-85 to develop a community financing strategy to support the Pahou Health Development Project's primary health care (PHC) system. After considering several viable alternatives, the project managers proposed two financing strategies to the families living in the 15 villages that constitute the communes of Pahou and Avlekete: fee per episode for curative treatments, with prices marked up to cover other costs, and a prepayment insurance-type scheme that would give them free access to PHC services. Even though it had been expected that both options would be selected, the families all chose to pay the fee per episode. Families explained that even though they recognized that they would benefit from a prepayment scheme, they could not afford to make the annual (or even semiannual) payment in advance. Only the 11 members of the health staff chose the prepayment scheme for their families.

With the agreement of the community leaders, the revenue generated from the payment of curative care was used to cover the costs of drug supplies and village health worker (VHW) remuneration. The investment costs were supported by foreign donors with the understanding that the operating costs would be financed by the Beninese government (health center staff salaries and infrastructural costs) and by the communities.

Standing orders guide VHWs and health center staff in diagnosis and treatment and in determining what fee to charge the patient. The treatment fees charged by health centers and VHWs are standard throughout the project. The base treatment charge is the cost of the drugs involved in the treatment plus a percentage to help cover operating costs. This markup was calculated by estimating the number of cases of the disease and thus the proportion of personnel time devoted to the treatment. This calculation was then used to determine the percentage of the operating costs to be added to the drug costs. In addition, a proportion of total preventive care costs (e.g. pre/postnatal care, vaccinations, and home distribution of Oralyte) are included in the price of curative care. The reduction in drug costs as a result of using generic drugs makes it possible to mark up the treatment prices so that they cover other costs (besides drugs and VHW remuneration) and yet remain affordable and acceptable to the population.

People seeking curative care pay for the entire treatment at their first visit, regardless of the number of followup visits. Curative care and preventive interventions are administered free to school children and indigents. Treatment prices have been quadrupled for those people residing outside the project area who wish to use project services. In addition to increasing project revenue, this helps limit the influx of "outsiders" and prevents them from coming to obtain project drugs to resell for a profit elsewhere. The "outsider" treatment prices are also applied at the health center to people living in the project area but whose VHW has not referred

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them to the health center, supporting the VHWs and increasing their credibility by ensuring that people follow the established procedures.

A considerable effort went into managing and sustaining the community financing system. Both the health center staff and the VHWs received training in resource management and logistics. The head nurse of the health center also received inservice training in bookkeeping by an accountant who regularly goes over the health center and VHW accounts of the cash box. Control of cash box transactions (collection of receipts and of incurring expenses) is the responsibility of a sub-committee on financial management of the Commune Health Committee comprised of three community leaders and the health center's head nurse. In addition, biannual evaluations of coverage levels achieved are carried out by the health center staff. These results, discussed with the Commune Health Committee, have led to readjustments in the prices of certain treatments. Supervisors also use the receipts to compare the amount of drugs used and revenues collected with drug stocks and expected revenues. When nurses' or VHWs' receipts are lower than they should be, this amount is deducted from the responsible person's remuneration.

The revenue from this financing system has assured 90-100 percent accessibility to services for the entire population (defined as living within 2 kilometers of service delivery locations) and a VHW attrition rate of less than 7 percent in 3 years. Between July 1983 and June 1985, receipts from community members registered in the project were able to cover 40-50 percent of the following recurrent costs: replenishing of drugs, remuneration of VHWs, petrol for supervision and mobile maternal and child health clinics, maintenance of the health center, and the information system at the village level (VHW treatment forms, home visit forms, pre/postnatal forms). When "outsider" receipts are included, 60-80 percent of these costs were covered. In the second half of 1985, total revenues generated from curative treatments were able to cover all of these expenses.

The cost analysis was based on a series of studies of utilization, personnel time (work-logging), and resource utilization (logistics records). The preliminary results (July 1983 through June 1985) showed an average cost of $4.75/capita per year, including all recurrent costs, annual amortized capital costs, and a yearly portion of costs of startup activities amortized over ten years. These costs represent real project costs, including consultants, extra training for project staff, time for research, and training of student midwives by the health center staff. Estimated recurrent service costs come to $2/capita per year.

In conclusion, to become self-sufficient, a community financing system needs at least 2 years of good management (routine monitoring of coverage and strict accounting). Further, a community financing system operating only at the village level should not expect to cover the costs of drugs, VHW remuneration, and such support services as supervision. The study showed that only 25 percent of project revenues came from village-level treatments (including "outsider" receipts). However, further study might reveal other ways of generating revenues and organizing service delivery to allow self-sufficiency at the village level.

* * *

This study was conducted by the Unitarian Universalist Service Committee (UUSC) from April 1983 to December 1985. Further information is available from the principal investigators, Dr. Eusebe Alihonou, B.P. 1822, Cotonou, Benin, or Ms. Elizabeth Coit, UUSC, 78 Beacon Street, Boston, Massachusetts 02108, or from Ms. Marty Pipp, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

COMMUNITY FINANCING TO REDUCE ATTRITION OF COMMUNITY HEALTH WORKERS AND INCREASE HEALTH SERVICE COVERAGE IN RURAL COMMUNITIES

Researchers from the Instituto de Investigaciones Médico Sociales (IIMS) undertook an operations reseach study to find ways of reducing attrition rates of community health workers, or Sanitarios Nativos (SNs), in Cochabamba, Bolivia. The objectives of the study were to identify both the conditions under which a community would be willing to support a health worker, and feasible financing schemes that would provide stable salaries for the SNs. Preliminary results show that villagers are willing to pay in kind for health worker salaries provided the workers are reliable and work exclusively in their own communities. Since the total revenue from these in-kind payments would cover only about half the SN's current salary, the researchers concluded that stable, community-supported health workers could be provided only by training and deploying a lower level health promoter at a reduced salary level to be determined by the community. This scheme would also allow for the expansion of services into areas where no formal services had previously been provided.

In order to determine how best to manage these in-kind payments, project investigators worked with community groups and individuals and held open community discussions. After several sessions the project investigators were able to propose the following scheme: the quotas (in the form of either wheat or potatoes) will be collected in May after the harvest. The quota is roughly equivalent to US$ 7.00 per family regardless of the family's land holdings. The organization and collection of the quotas rely on two community organizations: the sindicato and the health committee. The sindicato, a traditional and highly visible organization in rural communities, is an ideal collaborating organization because it exists in each community and attendance is obligatory for each family head. Each sindicato director in the study area supports the project and will be responsible for ensuring that each family pays its quota. Furthermore, each sidicato has elected a member to serve on the second collaborating organization for this scheme, the health committee. This group, composed of the representative from the sindicato and an elected mother, will be directly responsible for the collection, storage, and marketing of the in-kind payments. The overall scheme will be supervised by two Bolivian physicians who work with INEDER, a Dutch private voluntary organization (PVO).

The scheme, already implemented in seven communities, involves retraining the existing SN to provide better services and to supervise six promoters located in satellite villages. Promoters differ from the SN in that they are generally older mothers, with little or no education, who will receive half the salary of the SN for the same time worked. The SN's longer training, and his previous year's work experience in the health post, partially explain the pay differential.

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Training and supervision of the promoters is conducted by the research staff and the two Bolivian physicians who supervise the overall scheme. Bimonthly training focuses on specific health topics such as ORT, first aid, or sanitation. The worker is provided with pamphlets that include illustrations to reinforce important points. Supervisors visit once a month and review workers' records and meet with the community organizations responsible for the management of the health workers' salaries.

A signed contract between the Ministry of Health (MOH) and INEDER guarantees continuity of this project's personnel, and institutional support, for at least 3 more years. Dissemination of the project's results has been accomplished through several meetings with the MOH and PVOs working in the Cochabamba area. Two PVOs (IDEPO and Project Tiraque) hope to use the results from the PRICOR study to expand the model.

* * *

This study was conducted from October 1984 through March 1986. Further information is available from the principal investigator, Dr. René González, Director, IIMS, Casilla 4444, Cochabamba, Bolivia, or from Ms. Karen Evalyn Johnson, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

DETERMINING ALTERNATIVE COMMUNITY FINANCING MECHANISMS FOR SUPPORTING PRIMARY HEALTH CARE SERVICES IN BOLIVIA

The Bolivian Mission of the U.S. Agency for International Development conducted a feasibility study in the early 1980's to investigate the potential to develop privately financed Primary Health Care services in the Department of Santa Cruz, Bolivia. In 1984 PRICOR funded the Fundaciçn Integral de Desarrollo (FIDES) of Santa Cruz to design PHC service packages and test alternative financing mechanisms. During the preliminary stages of this project, three regional cooperatives had been identified to jointly administer the project. It was hoped that through these cooperatives, a PHC Delivery System could be established which would provide essential primary health care services to unserved or underserved, high-risk populations in selected rural and marginal urban areas of Santa Cruz, and that these services would be supported entirely by community-generated funds at the end of the project's third year. The coops are particularly suited for this purpose because they are client-oriented, privately administered and are often organized in part to provide limited health services to their members.

Based on the belief that the new PHC services would be administered and financed through these cooperatives, FIDES/PRICOR designed the field study around the idea of cooperative-based PHC for low income households. Data were collected through a variety of studies to describe the environment in which the PHC would operate including: (1) a literature review, (2) key informant interviews in the Montero area, (3) case studies of innovative health care financing approaches in Bolivia, (4) household surveys, (5) an inventory of institutional resources in the Montero area, (6) an analysis of communities in the Mineros and San Julia area, (7) area mapping, (8) family notebooks, (9) longitudinal data collection/analysis, and (10) an analysis of the program environment. FIDES initiated this effort by conducting a household survey of three different populations in the Department of Santa Cruz: peri-urban neighborhoods in the Departmental capital, Santa Cruz; the town of Mineros and its rural dependencies; and the remote rural colonization zone of San Julian.

For several reasons beyond the scope of this report, the PHC services will not be administered through the original three cooperatives. The data presented here, however, are still appropriate for any entity concerned with serious health planning in the Santa Cruz region and should be so considered.

The survey was administered to 545 households in Santa Cruz, 470 households in the Mineros area and 267 in the San Julian area, all households within the coop health projects' target populations. Information gathered included: basic socio-demographic characteristics of the household; a two-week recall of illness episodes; a one-month recall of hospital utilization; fertility data for the last year for all women 15 - 45 years old; data on health care utilization and expenditures during last two weeks; the education and economic status of the household; informants' community participation and health

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attitudes; and types of health services that informants would like to have access to and for which they would be willing to pay.

The results of the household survey in the three locations can be separated into three distinct areas:

What people consider to be the preferred or ideal delivery system
What financing mechanisms people would be willing to support
What are the current health expenditures

The interviewer asked the household respondent (head of household) whom he felt was responsible for providing health services in the community. In each area, over half (51.1-63.5 percent) of the respondents felt that the government should provide health services. In Santa Cruz, 25 percent felt that the community/families should provide services, while that figure was 17 percent in Mineros and only 2.1 percent in San Julian.

In strong contrast to the ideal provider, the responses to the ideal payment mechanism indicated that a majority of households felt it was the family's or the community's responsibility to pay for health services: 51.3 percent in San Julian; 57.6 percent in Mineros; and 61.0 percent in Santa Cruz.

While it is informative to understand the preferred, or ideal, delivery scheme (provider and payment mechanism) in each area, it is perhaps more useful to examine what financing schemes people in these areas are willing to support. In San Julian, the most popular financing mechanisms were crops, annual fees, and installments. In Mineros, they were installments, annual fees and payments-in-kind. In Santa Cruz, long term credit was overwhelmingly the most popular, followed by annual fees and installments. The percentage of respondents unwilling to support any of the schemes was very low in each area: 3 percent in San Julian, 1.5 percent in Mineros, and 1.3 percent in the city of Santa Cruz.

While it seems clear that people in each of the survey areas would be willing to contribute to the financing of health services, it is recommended that a combination of financing strategies be implemented in each of the areas since no one mechanism is supported by a majority of residents. Fee for services and drug sales are two common ways to finance curative services. The strongest rationale in support of fees and drug sales is that it is possible to encourage cost sharing while at the same time reducing potential overutilization. However, these mechanisms may exclude the poorer members of communities who cannot afford to pay, and a graduated scale might be developed in accordance with ability to pay.

However, due to Bolivia's current economic crisis, the inflation rate seriously hinders the continuation of revolving drug funds or set fee-for-services. The authors argue that regardless of the particular combination of financing schemes in each area, all goods and monies should be converted into durable goods immediately. Because of Bolivia's unprecedented inflation rates, this represents a challenge for any community financing plan.

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This study was conducted from April 1984 to August 1985. Further information may be obtained from the principal investigator, Mr. Martin Miller, Fundación Integral de Desarrollo, Casilla 1911, Santa Cruz, Bolivia, or from Dr. Jack Reynolds, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

THE USE OF VISITADORAS AND FINANCING OF COMMUNITY WATER SUPPLY

Researchers from the Fundaçao Serviços Especiais de Saude Publica (FSESP) and Johns Hopkins University conducted a retrospective case study of FSESP in rural Brazil. The FSESP is a public foundation started by AID and the Brazilian Government in 1942. It is linked to the Ministry of Health and provides primary health care and water supply services to over 13 million people (approximately 10 percent of Brazil's population). In particular, the study focused on FSESP's work with community health workers (visitadoras) and community financing of water supplies.

This study presents the findings of many earlier operational studies and the resultant changes. The PRICOR researchers believed that primary health care (PHC) planners and workers all over the world would benefit from the documentation of experiences of a highly successful and enduring program of PHC delivery and backup secondary care.

COMMUNITY HEALTH WORKERS: THE VISITADORAS

In their study of the visitadora (CHW) program, the PRICOR researchers looked at the role, selection, training, supervision, compensation, total costs, quality of care, coverage, and productivity of the visitadoras. The investigators found that the FSESP visitadora program was directed from the central level and was highly organized. Visitadoras perform a variety of PHC tasks in such areas as maternal health, infant and child health, school health, control of communicable diseases, curative health care, and community education. Selection of young women for the job of visitadora was rigorous and highly competitive and a great deal of effort and resources went into their training and supervision. The visitadoras received regular salaries that were four times as much as the standard minimum salary in Brazil. The monetary incentives and job security made the job of visitadora an attractive employment opportunity for young women in rural areas of Brazil.

Using the data from a 1982 expenditures survey of the regional directorates, the study team calculated annual costs of each FSESP health post. Total annual costs per health post, each of which serves an average population of 1,250 people, were estimated at US$ 18,208. The training costs for each visitadora were only 0.5 percent of this total. The combined salaries of the visitadora and a sanitary auxiliary, including their social security benefits, accounted for 70 percent of the total costs of the health post.

The costs of direct supervision from the support unit were estimated to be 1.2 percent of the total annual costs of the health post. All of these costs were covered by FSESP with funds from the Government of Brazil. FSESP authorities recognize that the cost of the high quality health services provided by the

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visitadora could not be paid by the rural communities served and that government subsidization is required to meet the needs of the "poorest of the poor."

While utilizing the service statistics available for visitadoras, the researchers discovered inefficiencies in FSESP's health information system. Although data collected by the visitadoras and their supervisors were sent to the central level and put on a computer, these data were not analyzed, condensed, or appropriately displayed. Therefore, they were of little use for evaluation or supervision. As a result of the research, changes in the information system were proposed to FSESP officials.

COMMUNITY FINANCING OF WATER SUPPLIES

A review of the development of FSESP's system of water supply financing and operation revealed that FSESP has assisted over 1,000 Brazilian communities to install water supply and sewage systems. FSESP has created municipal authorities (SAAEs), with paid employees, to manage the water supply and sewage systems. Where necessary, FSESP provides technical and economic support. This approach has been very successful and many SAAEs have generated surplus cash which has been used to expand the systems.

The methods used to generate capital varied from community to community. The most common methods were subsidies, external financing, community contributions of labor and money, and some combination of these. Most smaller communities' water systems are capitalized through loans from development banks, while loan interest payback, operation, and maintenance costs were met through user charges. Rates for utilization of water and sewage systems were based on the minimum salary in Brazil and thus adjusted for inflation. Rates were set to favor poor users rather than large commercial users.

The PRICOR team discovered that small communities in Brazil are able to pay for both maintenance and operation of water supplies if a suitable financing system is used. In the case of FSESP, the regular payment of water bills by the community was achieved through the efficient management of the water system by the SAAEs and proved to be an adequate financing mechanism for operating costs. The researchers think that expanding water supply coverage depends more on the method and efficiency of billing and collection than on the wealth of the community and the amount of charges for water.

The methods and results of the PRICOR study on community financing of water supplies are being used to evaluate and revise the new national scheme to develop water systems (PLANASA) in Brazil. A survey of the State Water Supply Agencies is being conducted using the same approach used in the PRICOR study. Results of this survey will be compared with those obtained in the PRICOR study.

* * *

This study was conducted from January 1983 to April 1984 by the Johns Hopkins University School of Hygiene and Public Health and the Fundaçao Serviços Especiais de Saude Publica. Further information is available from Dr. Timothy Baker, School of Public Health and Hygiene, the John Hopkins University, 615 North Wolfe Street, Baltimore, Maryland 21205, or from Dr. David Nicholas, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

No. 23, November 1986

COMMUNITY FINANCING OF PRIMARY HEALTH CARE IN RIO DE JANEIRO

An operations research study was undertaken by the Centro de Pesquisas de Assistência Integrada à Mulher e à Criança (CPAIMC) of Brazil, a private nonprofit organization, to identify and test alternative schemes for community financing of primary health care (PHC) at selected CPAIMC health units and miniposts. Ten low-income communities of Rio de Janeiro served by CPAIMC participated in the study. The objective was to identify the PHC community financing strategies (i.e., mixture of several community financing schemes) for CPAIMC units and miniposts that maximize coverage and utilization of services, cover the largest proportion of recurrent costs of service delivery, and decrease CPAIMC's dependence on external financing sources.

To begin, CPAIMC identified four groups to share in decisionmaking regarding the community financing (CF) projects: community residents, community leaders, CPAIMC service providers, and a representative group of CPAIMC managers, supervisors, and researchers called the "Group of Ten." The meeting participants also generated a ranked list of alternative community financing schemes and constraints using Nominal Group and Delphi techniques. From this list the group constructed a preliminary matrix and identified major information gaps.

To fill these gaps, CPAIMC researchers conducted two surveys of 10 low-income Rio de Janerio communities: one of the community and one of CPAIMC health service providers. Community leaders were also interviewed to get their opinions and suggestions regarding community financing of PHC.

The surveys provided useful information on community utilization of and payment for health services. Most households (93 percent) reported that at least one household member is covered by public sector health insurance. Government facilities provided the major source of health care for women age 15 to 49 and childen under 5. Payment for health care was made for only 6 percent of the children and 8 percent of the women, based on most recent visits. Some women did pay for dental care (22 percent), injections (17 percent), and gynecological care (7 percent). Most vaccinations, pediatric care, well-child care, and emergency care, were attained free at public health facilities. Household members also paid for drugs and contraceptives from pharmacies.

Solutions to the PHC financing problem were developed by the relevant decision groups using preference and impact interaction matrices. These matrices were completed by all members of the Group of Ten and by all CPAIMC supervisors and service providers working in nine communities. Consumers were represented by the community survey data from which the research staff made inferences. The Group of Ten incorporated the opinions of community leaders into their matrix entries.

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The final ranking of the financing schemes in each community was determined from tabulation of these matrices. These rankings were used to construct financing strategies (mixtures of several schemes) specific to each community. For example in Vila Alianca, the strategy consisted of payment for selected services and visits, sale of prescribed drugs, collection of registration fees, and contributions of funds and labor by a community organization for the maintenance of a women's health care unit. For schemes involving payment, group debates identified which services, visits, and drugs would be sold and their prices. The community and health care provider surveys provided important input to this decisionmaking process.

Once final details of each strategy were defined, they were reviewed in a meeting between community leaders and Group of Ten representatives. Schemes or elements of schemes not considered acceptable to the leaders following these discussions were deleted. Community leaders were asked to sign written agreements detailing the responsibilities of both CPAIMC and the community in implementing the CF strategy.

The individual community financing strategies were implemented in nine study communities over a period of nine months and then evaluated. The evaluation of each community financing strategy was based on three indicators of success: (1) its ability to generate revenue to cover PHC costs, (2) its effect on service utilization, and (3) its effect on service coverage.

The mean monthly revenue generated by the schemes during the 9-month test varied significantly among the nine communities, ranging from US$ 121 to US$ 4. The three most successful strategies covered approximately 11 percent of total costs (20 percent of direct costs) of PHC service provision. The CF schemes that generated the largest proportion of revenue in all communities combined were payment for selected services and sale of prescribed drugs and contraceptives. The scheme components that generated the most revenue were charges for Pap smears, contraceptive sales, physician visits, and drugs, in that order.

In six of the eight service sites, the trend in total number of visits remained unaltered following implementation of the CF strategies, while in two of the sites it decreased significantly. Only one association appears to exist between individual financing schemes and changes in utilization trends: in all five units where registration and Pap smear fees were charged there was a significant decrease in the number of initial visits for women. The lack of control communities in the evaluation of PHC service coverage precluded any conclusions as to the effect of CF strategy implementation on coverage.

During a final community survey, information was collected from all households regarding their knowledge of CPAIMC services and CF schemes, and their opinions on PHC community financing. Nearly three-fourths of the respondents stated that charging for services does not impede service utilization. Fully 65 percent of the respondents who knew of the CPAIMC service site in their respective communities stated that community residents should help maintain the CPAIMC unit/minipost.

* * *

This study was conducted from July 1983 through March 1986 by the Centro de Pesquisas de Assistência Integrada à Mulher e à Criança (CPAIMC). Further information is available from the principal investigator, Ms. Karen Johnson Lassner, CPAIMC, Avenida Presidente Vargas 2863, 20210 Rio de Janeiro, RJ, Brazil, or from Dr. Wayne Stinson, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

MOBILIZING TRADITIONAL HEALERS TO DELIVER ORT

In northeastern Brazil diarrhea is a major source of morbidity and mortality among infants and small children. In rural areas, traditional healers have long been the first source of medical care for children suffering from diarrhea and other illnesses. The healers are available to the community 24 hours a day and work out of a desire to serve their community, without monetary incentives. A PRICOR study showed that these healers can be effective in preventing and treating dehydration and in reversing mothers' harmful health practices, at a very low cost. The objective of the study, conducted by faculty from the Federal University of Ceara and the University of Virginia, was to determine how best to mobilize and integrate traditional healers into the official health system to clinically manage diarrheal illnesses and to deliver oral rehydration therapy (ORT). The study was conducted in Pacatuba, a rural community of about 7,000 near Fortaleza, the capital of Ceara.

In the problem analysis, the researchers sought to understand the social, cultural, and medical systems in which the traditional healers work. Data was collected from surveys on the knowledge, attitudes, and practices of the community regarding the treatment of diarrhea/dehydration and child morbidity and mortality due to diarrheal diseases. Ethnographic analyses were undertaken of the health care delivery system and utilization patterns, and in-depth interviews were conducted to reconstruct patterns of household response to a diarrhea illness episode.

These analyses revealed some interesting findings on the incidence of diarrhea in the region and the possibility of using traditional healers to deliver ORT. First, the infant mortality rate was high, at almost 150/1,000, with over half the deaths due to diarrhea/dehydration. Mothers widely perceived diarrhea as a "fright disease", or other supernatural malady which requires the intervention of the traditional healer. Seventy-seven percent of mothers - representing all socioeconomic strata - first sought a traditional healer in cases of diarrhea. Knowledge of oral rehydration therapy in the community was high, but lack of service providers resulted in low utilization. Finally, mothers experienced serious problems with the modern health care system, including long waits, rationed appointments, extensive travel, and expensive and improperly prescribed drugs.

During Phase II of the study, the researchers worked with traditional healers to develop a strategy to involve them in the promotion and use of ORT. Group meetings were held during which the traditional healers had their first opportunity to share ideas with one another and participate in the formulation of a strategy for incorporating ORT into their healing rituals. They also participated in choosing an ORT recipe that was most acceptable to the target community. Forty-six popular healers in Pacatuba were trained in how to correctly prepare and administer ORS, and to teach mothers how to give the solution to their children at home.

The healers were provided with the basic equipment needed to prepare ORS, including measuring utensils, containers, and water filters. In several cases the community contributed by helping to build "curing rooms," simple mud and thatch room additions on the healers' homes where they could treat patients. A manual for

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instructing traditional healers was produced with substantial input from the healers, and guidelines were formulated to assess their clinical competency in the identification and treatment of diarrhea and dehydration. Healers were also taught to identify and refer severe cases that do not respond adequately to ORT.

The testing of the strategy began in October 1984, and after 12 months of activity, the impact of the traditional healers' efforts has been dramatic. A comparison of the responses of 204 mothers with children less than 5 years old before the PRICOR study with the responses of 226 mothers after the study showed a highly significant increase in mothers who know about homemade ORS, from 3% to 72% (p less than .001). Over half of the mothers surveyed had used the traditional healers' ORS, with the greatest number among the poorest families. Moreover, the traditional healers' promotion of ORT positively influenced mothers' feeding and medication use behaviours during diarrheal episodes. After the intervention, the number of mothers who believe they should continue breastfeeding during diarrheal episodes increased by 20.5 percentage points (p less than .001) and the number who believe that feeding should continue (not be withheld) increased by 18.0 percentage points (p less than .01). A significant decrease of 25.5 percentage points (p less than .0001) was shown in the number of mothers using expensive, commercially prepared ORS packets. The use of pre-diluted ORS dropped by 11.6 percentage points (p less than .01). The greatest percentage drops in the use of these expensive methods occurred in the poorest neighborhoods, where the traditional healers' homemade solutions enjoyed the greatest increase in popularity. A significant decrease (from 93% to 63%) was also shown in the number of poorest mothers who believe they must give phamaceuticals to a child with diarrhea/dehydration.

Traditional healers have demonstrated that they are capable of preparing safe salt and sugar solutions and are effective at conveying the value of ORT to mothers. The introduction of ORT through traditional healers did not change villagers' medical beliefs about the causes of diarrhea, but rather strengthened the healers' role in the community by the incorporation of ORT skills.

A cost analysis of the intervention showed that the costs of incorporating traditional healers into ORT delivery is quite low since the healers work without salaries and because the community supplied much of the materials needed to construct the curing rooms. The average cost of constructing a curing room was US$ 26.22, and equipping it for ORT, US$ 43.15. The operating expenses for the program, including biweekly supervision, salt, sugar and replacement supplies for preparing ORS, averaged US$ 71.18 per month. The cost of sugar needed per month per healer was only US$ 0.48, suggesting that the costs of providing salt and sugar for the traditional healers could be borne by the community.

Based on the successful experience with traditional healers in Pacatuba, the researchers are planning for the incorporation of traditional healers into a new large-scale child survival project that the Federal University of Ceara is implementing in 33 municipios (counties) in Ceara with funding from Project HOPE and AID.

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This study was conducted from March 1984 to February 1986 jointly by researchers from the Federal University of Ceara, Brazil and the Division of Geographic Medicine in the Department of Medicine of the University of Virginia. Further information is available from the principal investigators, Dr. Marilyn K. Nations, Box 485, School of Medicine, University of Virginia Medical School, Charlottesville, VA 22908, and Dr. Maria Auxiliadora de Souza, Caixa Postal 1674, Aldeota 60.000 Fortaleza, Ceara, Brazil, or from Dr. David Nicholas, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

REVOLVING DRUG FUNDS IN DOMINICA

To increase the availability of essential drugs in its primary health care (PHC) program and at the same time decrease the government costs of supplying those drugs, the Dominica Ministry of Health (MOH) proposed the establishment of a national revolving drug fund (RDF). To aid development of the planned RDF, Management Sciences for Health (MSH) worked with the MOH using operations research to identify key operational problems and issues related to design and implementation of the RDF and to develop and test solutions for these problems.

The study began with a systematic analysis of Dominica's pharmaceutical supply system. This analysis identified the problems that impede effective and efficient operation of the system. A preliminary systems model for the RDF was available from the start of the study and was used as the basis of study planning and all subsequent activities. The model consisted of eight components: finance; management information system (MIS); selection; procurement; warehouse/inventory management; distribution; organizational development; and public knowledge, attitudes, and practices. While operational issues were identified and solutions developed within each component, the issues are interdependent and interacting. It is the composite result--the sum of solution development in the various components--that emerges from this study.

During the course of the study it was decided that the RDF should be implemented in two phases. During Phase One, the districts and independent government health facilities were the clients, purchasing drugs and medical supplies from the central medical stores (CMSs) with funds provided in their budget. During Phase Two, the patients became the clients, reimbursing the RDF through payments at government health facilities for drugs and medical supplies consumed. The MOH, through the CMSs, operated the RDF which was initially capitalized with a $500,000 loan from the Social Security Fund.

The goal of Phase One was to develop and establish the capability of the CMSs to successfully operate the national RDF. The objectives of this phase were: to decrease the unit costs paid for drugs and supplies; to improve CMS inventory and distribution management; to increase the availability of drugs and medical supplies to health districts and independent government health facilities; to increase cost consciousness on the part of the users (defined in Phase One as health districts and independent government health facilities); and to develop the financial management system at the district level necessary to institute consumer payment. The objectives in Phase Two were: to implement and evaluate consumer payment for drugs and supplies at the district and independent government health facility level; and to increase cost consciousness on the part of the consumer.

Phase One has achieved remarkable success. One of the major factors influencing the success of the RDF was the decision to implement it in two phases. This allowed the MOH as well as researchers to focus on central

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managerial systems for both financial and materials management and implementation of the MIS accounting system. The systems development efforts required to introduce consumer charges for drugs on a national level seem, in retrospect, nearly unattainable without the support of these central level management systems. This may be one of the clearest and simplest, yet most important, findings from the study. Introducing this preliminary phase has the effect of stretching out the timeline for all of the management systems development work required for an RDF, allowing the necessary attention to be focused on central systems development rather than dispersed across a wider range of issues.

The results of Phase One identified the following four issues as critical to the implementation of an effective and efficient RDF.

Adequate Capitalization. The level of capitalization required is the product of the monthly usage rate and the length of the pipeline, i.e. time required for flow of drugs from supplier to user and flow of funds from user to supplier. If accurate data are not available at the outset, the information system should be designed to collect the necessary data for continually monitoring both usage and pipeline length, in order to continually refine the capitalization estimate and make the necessary adjustments. Adequate funds for capitalization must be available if the RDF is to succeed.

Assurance of RDF Reimbursement. Because all distribution of drugs and supplies from the RDF must be reimbursed in order for the fund to revolve, two variables - distributions and reimbursements - are important and must be kept in equilibrium. This means that if distributions are to increase, as is happening in Dominica, additional funds must be found to reimburse the RDF.

Coordinated Leadership and Management. Authority and responsibility for RDF assets should be vested in either a single person or in a committee that meets regularly to review financial reports, address operational problems, and make managerial decisions.

Adequate Staff. Initial design of the RDF, and in particular of the MIS accounting system, requires the advice of an expert accountant. RDF maintenance requires all the staff normally required at a CMS to maintain the supply system, plus an RDF accountant. This accountant will maintain the accounting books and will ensure maintenance of other aspects of the MIS that provide information for RDF management; he or she should report to the RDF manager or RDF management committee.

Phase Two has not been implemented, although some Phase Two operational issues in some components have been addressed. District physicians and pharmacists are monitoring the value of the usage of drugs and supplies against their budgetary allocations and are beginning to manage their inventories by monitoring patient usage. The physicians and pharmacists are also beginning to discuss the value of drugs with patients. Usage monitoring and patient education are prerequisites to a successful RDF with consumer drug sales.

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This study was conducted from April 1983 to March 1986 by Management Sciences for Health (MSH) and the Dominica Ministry of Health. Further information is available from Mr. Peter Cross, MSH, 165 Allendale Road, Boston, MA 02130; Dr. Desmond McIntyre, Health Services Coordinator, Ministry of Health, Roseau, Dominica; or Dr. David Nicholas, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

IMPROVING DISTRIBUTION OF ORS IN THE DOMINICAN REPUBLIC

Diarrheal diseases are a leading cause of death among infants in the Dominican Republic, where approximately 550,000 children are under 3 years old. A nationwide government campaign to promote the use of oral rehydration therapy (ORT) was being planned for 1984. The purpose of the PRICOR study was to assist the government to ensure the supply and distribution of oral rehydration salts (ORS) nationally and to determine an appropriate price for the packets. The study was thus concerned with developing solutions to a number of problems in the supply and distribution of ORS.

The study began with an inventory of the available health statistics to determine the incidence of diarrhea. However, the quality of the existing data was not high enough to support sound planning. It was therefore decided to conduct a survey to collect basic data on the incidence of diarrheal diseases and on the degree to which ORT was currently being used. This information was crucial for the development of solutions and to the government in planning a distribution program.

The survey, which examined records of 27 hospitals, 21 regional subcenters, and 91 rural clinics, gathered data on mortality, morbidity, and use of ORT. In the rural areas socioeconomic data and information on health practices was also collected. In the end, the survey data proved unreliable and, therefore, not as useful to the solution development as originally hoped. However, it was the only data available, so some tentative conclusions were drawn for general planning purposes.

A quantitative inventory model was formulated to determine the best way to order, transport, store, and distribute ORS. The application of this model required both information from the government on how it proposed to distribute ORS and data from the incidence and coverage survey. The information from the government was not available, and the model was applied using only the general conclusions drawn from the survey. The resulting recommendations emphasized the importance of developing nongovernmental supply channels and using as many kinds of organizations as possible, including private commercial distribution.

The study team developed a theoretical pricing model to determine the best pricing strategy for ORS. The principal operational problem was to determine a price that was high enough to cover most costs and a small margin for the retailers and yet low enough to be affordable. Due to the unreliable survey data, this model was applied using income and expenditure studies from the

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central bank and time series data on prices and sales of essential medicines. The study assumed a two-tier pricing system. It recommended a price per packet of US$ .08 for the low and moderate-income market and a price of US$ .30 for the high-income market. Approximately 6.5 million packets would be made available each year. This would be enough to provide universal coverage in the D.R. assuming the use of four ORS packets per episode of diarrhea. The private pharmacies would provide about 25 percent of the packets and the government 75 percent.

The design of this study depended heavily on input from the Government of the Dominican Republic. However, since the resources and political support to move ahead in planning the national ORT program were not available, the government was unable to supply the necessary information needed to complete the PRICOR study. Nonetheless, recommendations based on the results of the technical analyses were made to the government in the areas of management information systems, inventory and distribution management, and pricing. These recommendations might serve as a framework of basic ideas and information for developing a complete distribution plan in a future ORT project.

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This study was conducted from December 1983 through April 1985 by the San Juan, Puerto Rico consulting firm of Clapp and Mayne, Inc., in cooperation with the Secretariat of Health and Social Assistance in the Dominican Republic. Further information is available from Dr. Jose A. Herrero, Km. 25, Autopista Duarte, Santo Domingo, Dominican Republic; from the principal investigator, Dr. Alan Udall, Clapp and Mayne, Inc., 1606 Ponce de Leon Avenue, San Juan, P.R. 00909, or from Dr. Jack Reynolds, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

ALTERNATIVE METHODS OF MOTIVATING COMMUNITY HEALTH WORKERS

The Ministry of Health of Haiti has adopted a strategy of primary health care (PHC) to achieve the goal of "Health for all by the Year 2000." The success of this strategy depends largely on the ability to recruit and support government health workers, or non-government community health collaborators, who will provide community-based preventive PHC services. The recurrent cost of financing these peripheral-level workers is too high for either the government or private institutions to absorb. Save the Children Canada (AEDC), in collaboration with institutions associated with the Haitian Association of Voluntary Health Institutions (AOPS), conducted a study during the period 1984 - 1986 to examine the best ways of motivating the CHWs to provide preventive services that would encourage mothers to learn about, use, and maintain their competence in child survival interventions.

Given that subsidies from institutions managing the CHW programs were not an acceptable option, the researchers began by identifying alternative community financing mechanisms. These included: (1) funds from the community (fee-for-service at rally posts, contributions from existing community groups, prepayment for services); (2) volunteers; and (3) revenue-generating activities.

Data were collected in community surveys and intensive case studies to better understand the motivation problem and the feasibility of the proposed alternatives. Results from the surveys, carried out in three rural areas, showed that people are not willing to pay for preventive services. Communities perceive curative care as their primary health need and CHWs in the rural areas do not provide curative care. In fact, people perceive health care as a "service" delivered by an outside agency. While people understand the value of health promotion, they expressed no willingness to finance a health care delivery system. Given these constraints, the researchers and consultants then systematically evaluated the options using a multiple criteria utility assessment.

With regard to community funds, increasing revenues from fee-for-service activities at the rally posts (where health services are delivered from mobile units), was not acceptable to local institutions. This option was eliminated because the doctor-oriented, "curative" focus would detract from the four child survival interventions, and it would not generate enough money to regularly pay the CHWs (as demonstrated in Mirebalais). Local community groups often pool resources for special projects. However, most community groups agreed that although they appreciate the work of the CHWs and would like to encourage it, they did not normally have enough funds or community support to use existing funds to regularly finance a CHW. The prepayment scheme was not feasible because people were not willing to pay for preventive health services.

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The second alternative for providing preventive services was volunteers. Existing volunteer projects were examined and it was found that they shared the common characteristic of being discrete activities of short duration. None were ongoing activities. Volunteers did not seem a likely source of energy for the preventive health work. The third major alternative considered was revenue-generating activities that would produce enough profit to reimburse the CHWs for their work. The major problem with these activities was that they usually did not provide incentives to the CHW to do preventive services.

The solution the group found most likely to motivate the CHWs to do preventive tasks was a combination of the prepaid scheme, the existing community groups, and a revenue-generating activity. It is based on traditional Haitian credit associations called "cengle" or "solde." In these traditional rotating credit schemes, friends contribute a fixed amount of money each month to a general fund and take turns receiving the entire pool. In the proposed health financing scheme, groups of mothers who can demonstrate competence in the four child survival interventions and whose chldren are fully immunized and participating in growth monitoring will be eligible to participate. These women, organized in small groups by their natural friendship networks, each pay an annual fee for her health card (which is used to support the CHW). The group decides the monthly contribution each person must make depending on how much they know that person can pay. The monthly contributions are used by the women as in a traditional cengle. However, the real attraction of the health card is not the cengle but the access that the affinity group then has to low-interest loans from the Bureau de Crédit Agricole (BCA) for income-generating activities. The pooled monthly member contributions are matched by a one-time grant from the institution sponsoring the CHW program. This matching grant is used as capital for the loan, kept at BCA. BCA will lend four times that amount to the group for income-generating activities. A counselor from the BCA will help the affinity groups develop feasible projects and a payback schedule. The affinity group is an essential component of the scheme as its cohesion is the reason people will be motivated to continue paying into the fund.

This project appears to have produced favorable results for a number of reasons. Credit schemes such as these are attractive to rural residents because there is great demand for credit, and private-source interest rates are very high. Because low-interest credit is so desirable, there is an economic incentive for the mothers to learn about the health interventions in order to have access to the pooled funds. As the CHW salary is based on the number of mothers who qualify for the health cards, the financing scheme cleverly links the promotion of preventive health interventions with revenue generation. Some of the groups have developed successful income-generating projects. One group bought a mature mango tree from which they will harvest and sell mangos. Another group bought a goat with their loan and have recently acquired another with their monthly contributions.

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This study was conducted from December 1984 through March 1986 by the Alliance pour l'Enfance et le Développement Communautaire, in collaboration with institutions associated with the Association des Oeuvres Privées de Santé. Further information is available from the principal investigator, Dr. Antoine Augustin, Alliance pour l'Enfance et le Développement Communautaire, 3 Ruelle Duncombe, Port-au-Prince, Haiti, or from Ms. Marty Pipp, PRICOR study monitor (Chevy Chase).

Study Abstract

FINANCIAL ALTERNATIVES TO SUPPORT EXTENSION OF BASIC HEALTH SERVICES IN HONDURAS

Seeking alternative means of financing basic health services, researchers from the Honduran Ministry of Health (MOH) and Management Sciences for Health (MSH) conducted an operations research (OR) study in several regions of Honduras. This study focused on identifying alternatives for financing primary health care services and on assessing the viability of selected alternatives at the community level.

The researchers used three separate methods to determine how primary health care (PHC) services were being financed: (1) intensive observation of a small number of Honduran families; (2) a household survey in four Health Regions; and (3) case studies of existing community-financed health care programs. In addition, interviews were held with community leaders, cooperatives and syndicates, and key government officials to identify the range of alternatives considered feasible.

Observation of Families. A locally-trained observer visited 25 households in urban slums of Tegucigalpa during October and November 1982. Direct observations of these families revealed that they regularly use multiple sources of medical treatment for illness, often at the same time. Observation of specific illness episodes was particularly useful in identifying this phenomenon.

Household Survey. The survey team completed 1,017 household interviews in 29 sampling sites in four Health Regions of Honduras during the first 3 months of 1983. Within these households, 1,648 illnesses were reported for the 15-day recall period and 910 interviews were conducted in households that had experienced illness. Approximately 26.1 percent of the sample population reported having been sick in the past 15 days. Nearly 46 percent of these illness episodes had been treated at home. The mean expense for illness episodes treated at home was approximately US$ 2.50. Most of this amount was for the purchase of medications. Reported monthly household health care expenditures averaged US$ 20.82 (11.4 percent of total reported monthly expenses) and were the third highest category after food and clothing. Ninety-four percent of the respondents reported a willingness to pay for MOH services.

Case Studies. The study team completed 10 case studies of clinics, health centers, or hospitals in Honduras that were either charging for services or receiving active community support. Following data collection, the researchers developed concise analytical descriptions of the financial scheme

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and the effects of community support at each health care facility visited. The results of the case studies generally reinforced what had been learned from the household survey. In all 10 case studies, patients showed a willingness to pay for or otherwise support health care services, provided they thought the services were of high quality.

Alternative financing mechanisms were developed using the information collected through the observation of families, the survey, and the case studies, and from interviews with key personnel in the MOH and other health-related agencies. Two analytical techniques, decision flowcharts and P/N/I force field analysis, were used by a multidisciplinary group to evaluate the financing alternatives. The four alternatives considered most appropriate were: (1) standard fees-for-services (cuotas), (2) payment for medications, (3) community contributions of labor for construction and maintenance of health centers, and (4) rotating drug funds managed by local health committees. These alternative solutions were recommended to the MOH.

This study resulted in the adoption of MOH community financing policies. The data on common illnesses, illness behavior, and expenditures on drugs, gathered for the PRICOR study, convinced decisionmakers in the MOH of the importance of making low-cost, high-quality, essential medications available to all Hondurans. Several mechanisms (some of them proposed by the PRICOR study) are now under study or are ready for field testing. These include a system of "popular" pharmacies; community rotating funds for medications; commercialization of oral rehydration salts (ORS); and expansion of Lab-PANI, a semi-autonomous, government-sponsored pharmaceutical production facility. There has been, however, a considerable gap between the adoption and implementation of these policies to extend the availability of basic drugs. As an indirect result of this study of PHC financing alternatives, the MOH has instituted a policy that encourages hospitals to recover a greater portion of their operating costs. The MOH has directed all hospitals to increase recovery to a minimum of 30 percent of their annual operating costs through fees-for-services from patients. In 1984 hospitals recovered an average of 4.2 percent of their annual operating budgets, a 30 percent increase over 1983.

The operations research technique itself had significant impact on the way the Honduran MOH makes decisions. Because of the satisfaction of key MOH personnel with OR as a decisionmaking tool, a Science and Technology Unit has been created within the MOH to coordinate OR studies. Ongoing OR studies include: a study on the effectiveness of trained vs. untrained TBAs; a feasibility study of the commercialization of ORS; and a comparison of alternatives for expanding hospital services without reducing PHC services.

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This study was conducted from August 1982 through December 1984 by the Ministry of Health of Honduras and Management Sciences for Health (MSH), a nonprofit organization based in Boston, Massachusetts. Further information is available from the principal investigator, Dr. Frederick Hartman, MSH, 165 Allandale Road, Boston, Massachusetts 02130, or from Dr. Jack Reynolds, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

AN OPERATIONS RESEARCH STUDY OF FINANCING, ORGANIZATIONAL, AND MANAGERIAL PROBLEMS OF COMMUNITY HEALTH PROJECTS IN INDIA

To meet the complex demands of grossly underserved rural populations of India, numerous voluntary agencies have started community health projects in the last two decades. In their efforts to work out effective methods and processes of delivering health care, these projects have had to develop solutions to a number of financial, managerial, and organizational problems. This study, conducted by researchers from the Institute of Rural Management, Anand (IRMA) in India, and U.S.-based Management Sciences for Health (MSH), examined eight such voluntary health projects and identified the most important operational problems they have faced, along with solutions and results achieved.

The study focused on financing, community organization, and personnel management problems. To gather information on the eight health projects, the researchers interviewed the directors and randomly-selected staff from the projects as well as community leaders, practitioners, and a sample of community members in villages served by the projects. Focus group discussions were also held with staff and community members. Case studies were conducted by soliciting information from management and by using currently available service statistics of the projects and literature published about or by the projects. After data analysis, the researchers organized a three-day workshop in Anand for representatives of the eight study projects, other voluntary health projects, the Voluntary Health Association of India, and international donor agencies. The purpose of the workshop was to discuss the priority problems and alternative solutions identified through the study, point to unresolved issues, and make recommendations.

Financing. The PRICOR investigators found that three major approaches had been used to finance the health projects. First, all projects raised some funds and in-kind assistance from outside the community for starting up the project. Half of the project directors felt that external resources were absolutely essential at this point. Second, the projects obtained resources for recurring expenses from a variety of local and external sources. Local sources included donations of land, labor, and buildings; fees for drugs and services; and membership and insurance fees. The government was an important source of external funding. Third, the projects pursued a policy of relentless cost containment. To increase efficiency, the eight health projects used various strategies to economize on buildings, transport, and the purchase and use of drugs. Strategies included using existing buildings; allowing project personnel to own and maintain two-wheeled vehicles; and purchasing drugs in bulk at competitive prices.

The single, most difficult financial problem cited by the project directors was how to achieve greater community self-reliance. In particular, how can projects involve community members in contributing toward the cost of preventive health services which are usually disassociated from current health problems and in developing resources for treating incurable diseases? Local organizations proved to be important resource bases.

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Community organization. Based on the experience of the eight health projects, the researchers concluded that starting with previously existing or related community organizations instead of new organizations helped achieve broad coverage more quickly and more easily -- at least over the short run. However, the fast and efficient start achieved through existing organizations did not necessarily result in greater breadth of participation in the long run. There is some evidence that a pre-established organization, if it represents only part of the community, may perpetuate restricted participation.

Overall, multi-purpose organizations demonstrated an advantage in breadth of participation, i.e., high percentages of community members who participated. However, in terms of depth of participation (community involvement in project planning, management, and service delivery), only newly organized multi-purpose organizations achieved greater participation. In previously existing multi-purpose organizations, members tended to assume fewer active roles.

In support of multi-purpose organizations, some respondents explained that their projects had achieved wide participation by starting with a strongly felt need in the community, even if that need was only indirectly related to health. On the other hand, adherents of single-purpose organizations warned of potential bankruptcy of multi-purpose organizations, where failure of a single activity could drag down the entire organization.

Community poverty was a real barrier to the projects in achieving broad community participation, but so was wealth. Not only did poor people refrain from joining health schemes, but affluent community members gravitated to private physicians. Serving the entire spectrum of economic strata therefore required, on the one hand, services such as hospital referral to attract the wealthy, and on the other hand, services such as food supplementation and income generation to attract the poor.

Personnel Management. The researchers concluded that turnover and salaries are likely to be lower and dedication higher among locally trained staff as opposed to professionally trained personnel. The experience from the projects suggested that it would be wise to train local personnel to undertake many tasks which would otherwise be performed by professionals. They also felt that those professional staff who are recruited for health projects should learn the skills of the support staff to lessen social distance and reduce dependence. For example, health workers could be allowed to drive and maintain their own two-wheeled vehicles instead of riding as passengers with drivers of more expensive four-wheeled vehicles.

During the workshop, channels for further dissemination of information were identified and plans made for networking among nongovernmental community health projects. The sponsoring institution, IRMA, will distribute the PRICOR study findings widely so that other voluntary health projects facing similar problems might benefit from solutions that have been effective elsewhere. IRMA is also considering proposals to include training in the management of rural community health programs in its curriculum and to provide opportunities for student internships in the management of volunary health projects.

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This study was conducted from January 1985 through March 1986 by Management Sciences for Health (MSH) in collaboration with the Institute of Rural Management, Anand (IRMA), Gujarat, India. Further information may be obtained in India from Professor D. Nagabrahmam (IRMA), and in the U.S. from the principal investigator, Dr. Henry Elkins, Jr., MSH, 165 Allendale Road, Boston, Massachusetts 02130, or from Dr. Jeanne S. Newman, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

THE STUDY OF PRIMARY HEALTH CARE TEAMS IN JAMAICA

Study researchers investigated productivity problems of primary health care (PHC) teams in Jamaica and developed a resource allocation planning model. Trial computations of the model, run for two districts in the Cornwall Region, have provided projections on demand for service, personnel needs, cost of personnel, and clinic hours and configurations. These computations have shown not only that services and population coverage can be significantly increased but that personnel costs can at the same time be decreased.

PRICOR undertook this study at the request of the Health Management Improvement Project (HMIP) whose objective is to improve the delivery of PHC by improving management within the Ministry of Health (MOH). In Jamaica, preventive and curative services are provided by three types of health centers. These centers range from small, simple centers offering few services, to large, sophisticated centers providing full medical and dental services. The centers are linked by a patient referral system and by staff visits from the larger to the smaller centers.

The Department of Social and Preventive Medicine of the University of the West Indies (UWI) and Price Waterhouse Associates, Management Consultants, Jamaica were identified as the research teams. They, together with PRICOR and HMIP, developed a study protocol and four study objectives: (1) to develop a methodology for measuring the productivity and cost effectiveness of PHC teams; (2) to describe how the various categories of personnel in the health center distribute their working time among certain predefined activities; (3) to determine how productive and cost effective PHC teams are now and how these factors relate to coverage of the population with essential services; and (4) to develop strategies to improve productivity and to work with the MOH to implement selected strategies on a trial basis.

Researchers observed 496 randomly selected workers representative of the various types of staff working in health centers (HCs) throughout the country. These observations, part of a work sampling survey, showed that the nonproductive time of health workers ranged from 26 to 66 percent. Based on similar studies done in the private sector, Price Waterhouse (PW) and the MOH expect that nonproductive time should be kept below 25 percent. The PW team developed a productivity index which was determined by comparing the actual output of a clinic to the expected output given the critical work station time available. Analysis showed wide variations in productivity indices, ranging from 30 to 150 percent. A cost index was also determined by comparing personnel cost units used in serving patients to the personnel cost units

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allocated to scheduled clinics or HCs. The analysis showed an average cost index of 46 for scheduled clinic hours and of 20 percent for HCs. The low cost indices suggested that there is great opportunity to improve the efficiency of the HCs.

Productivity broadly defined is the effective use of resources. The most expensive resource employed in the PHC sector is manpower. Manpower allocated to an HC is tantamount to creating service capacity. Therefore, such capacity should be based on expected demand for services and on time required to deliver a unit of service. A model was developed that improved productivity through manpower allocation and clinic rescheduling. This model helped to optimize productivity by determining the demand for the major services offered at the health center, based either on projections of ideal coverage or past trends; the mix of services the various clinics at a HC should offer; the number of clinic hours that should be programmed in a year for the various clinics to meet demand; the scheduling of the clinics; the number of each type of personnel that should be allocated to a HC; and the assignment of critical personnel (expensive and in limited supply, such as doctors) to geographic clusters of HCs to maximize their use. Thus the model can help PHC managers adjust their system to make optimum use of available resources. The model also allows a sensitivity testing for each of the variables.

The model is now being tested in two pilot districts in the Cornwall region, where the test will be used to determine the best ways to restructure clinics in those districts and to reallocate personnel. Changes in productivity will be closely monitored over a 6-month period. If the test is successful, the plan is to implement the model nationwide as a dynamic planning tool for resource allocation.

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This study was conducted from June 1983 through March 1986 by the Department of Social and Preventive Medicine of the University of the West Indies, and Price Waterhouse Associates, Management Consultants, Jamaica, with the cooperation of the USAID-funded Health Management Improvement Project in Jamaica and the Jamaican Ministry of Health. Further information is available from Ms. Patricia Desai, Department of Social and Preventive Medicine, University of the West Indies, Mona, Kingston 7, Jamaica; from Mr. Bobby Zachariah, Price Waterhouse Associates, Box 372, Kingston, Jamaica; or from Dr. David Nicholas, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

PRIMARY HEALTH CARE PROGRAMS IN KOREAN RURAL COMMUNITIES WITH THE SUPPORT OF EXISTING VILLAGE ORGANIZATIONS

Korean researchers used an operations research approach to address the problems caused by insufficient attention to preventive and promotive health activities in rural areas of the Keyonggi Province of Korea. The objective of their study was to contrast the feasibility and effectiveness of Primary Health Care (PHC) programs that use non-health community organizations as support structures.

The researchers initially went into the study areas (three counties in Keyonggi province) and developed good working relationships with community leaders, community health practitioners (CHPs), and officials of local, provincial, and central government. This was accomplished through multiple visits, meetings, telephone calls, and letters. Channels of communication were established between CHPs, the community people, and referral facilities. This set the stage for working closely with the community.

Baseline data were collected through a household survey, analysis of CHP activity records, and surveys that focused on the characteristics of CHPs, community leaders, and the study villages. Several problems related to the health care system, health care utilization, and leadership capacities of the communities were discovered: (1) The emigration of the younger generation to urban areas caused many hardships for those people left in the rural areas; (2) A high birth rate indicated the need for maternal and child health (MCH) and family planning services; (3) The morbidity rate was high and many people were relying on self-diagnosis and purchase of drugs at pharmacies; (4) CHP activities were mainly concentrated on clinic-based medical care services for minor illnesses; (5) Community leaders had limited knowledge about health care and did not serve as good role models for the community in health matters.

Based on these results and those of earlier studies, the researchers wanted to determine if community organization support of community health practitioners would improve the quality of PHC delivery. They decided to test the effectiveness of informal community organizations vs. formal community organizations in this role. In the study areas where CHPs were to work with community organizations, the following interventions were implemented: 1) further training of CHPs with a focus on outreach activities and preventive/promotive care; 2) establishment of better communication between the CHP and the community through existing community organizations; 3) education of community health leaders (CHLs) about the importance of community participation in PHC; and 4) development and training of community leaders to serve as communicators, health educators, motivators, and health care providers.

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A quasi-experimental research design (two experimental counties and one control county) was used to test the effects of these strategies. Experimental group I (Yang Pyong county) incorporated Bansang-Hoe (formal village organizations) as substructures for PHC services. Experimental group II (Icheon county) incorporated various informal community groups, such as mothers' clubs, 4-H clubs, church groups, agricultural cooperatives, clan meetings, and development committees, as substructures for PHC services. In the control group (An Sung county), CHPs continued to provide PHC services without the assistance of any community organization.

The first project input in the experimental counties was the training of CHPs in field-based activities through 3-day workshops. After their own training, CHPs trained leaders of the community organizations to serve as CHLs. CHLs and CHPs were later trained to fill out monthly checklists of their PHC activities. The research team also developed educational leaflets with health messages for use and distribution by the CHPs and CHLs.

After the CHLs had been active in the experimental counties for several months, the researchers carried out a process evaluation. One-third of all CHLs in Yang Pyong and Icheon were interviewed, as well as a sample of community residents in both counties. In response to the survey, the CHLs said that they had tried to inform the community about the activities of the CHP and tried to inform the CHP about health problems in the community. They also indicated that they had discussed MCH, family planning, chronic health problems, and health hazards with community people when the topics came up in conversation. The CHLs complained, however, that their new role was not recognized by the community. This discouraged the CHLs from performing the health education and information tasks assigned to them. In response to this problem, the CHPs conducted educational sessions for villagers on the CHLs' role and the study team held a two-day workshop for CHPs to bolster their enthusiasm.

After a period of 15 months, the researchers carried out a final evaluation in order to compare the effectiveness and efficiency of the PHC services delivered by CHPs in the three study counties. Each CHP program was evaluated according to: (a) the effectiveness of the program in terms of selected health and health service indices; (b) productivity of CHPs and CHLs in terms of quantity of services; and (c) efficiency in terms of cost incurred per population served. The comparisons were made using three different methods: simple statistical analysis, a computer simulation technique, and a cost effectiveness analysis.

The major conclusion of the study was that PHC services that incorporate formal community organizations are more effective and efficient than both those that incorporate informal organizations and those that do not incorporate any community organizations. All three methods of data analysis confirmed this general result.

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This study was conducted from January 1983 to January 1986 by the Department of Nursing of Seoul National University. Further information is available from the principal investigator, Dr. Yeo Shin Hong, Department of Nursing, College of Medicine, Seoul National University, 28, Yundeun-Dong, Chongno-Ku, Seoul, Korea, or from Dr. Stewart Blumenfeld, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

PLANNING AND EVALUATING COMMUNITY FINANCING IN LIBERIA

Although considerable resources, both public and private, have been devoted to improving primary health care (PHC) services in Liberia, these services often cannot be sustained when external funding is withdrawn. In response to this problem the Liberian Ministry of Health (MOH), in cooperation with the Christian Health Association of Liberia (CHAL), conducted an operations research study from 1984 - 1985 to develop effective ways for communities to generate funds to finance some or all of their PHC services.

The financing schemes had to satisfy certain conditions: (1) they must cost less than the income generated; (2) a high proportion of the target population (children under 5 and pregnant and lactating women) must use the services provided; (3) a large fraction of households must contribute; and 4) the villagers themselves must be able to sustain the financing scheme(s) developed.

Problem analysis began in January 1984 when three villages were selected to participate in the study. A Health Service Utilization Survey was conducted to generate demographic data on these villages. The survey found that households were headed by older men (age 55+), most of whom were farmers with no formal education, and the average household income was considerably less than the national average of $280 per year.

In each village the town council and other village leaders met to consider four issues: what health care services would be provided, who the health care provider would be, who would participate, and how much the services would cost. Each village established a village health committee (VHC) to manage the project and chose a member of that committee to be trained as the community health worker (CHW). A major health care concern of the villagers during these discussions was the availability of drugs. A large revolving drug fund at the Kolahun District Health Center was seen as a resource and possible model for revolving drug funds at the village level.

Community leaders in each of the study villages discussed eight alternative financing schemes for generating PHC funds within the community. Each of the three study villages constructed a preference matrix and, on each, the same four schemes ranked highest, although in different order: (1) drug sales, (2) production-based prepayment, (3) community and individual labor, and (4) donations and ad hoc assessment. During a 12-month field test, the villages were successful in partially financing their PHC services through their chosen

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schemes. Revolving drug funds were established and managed by the VHC, and monthly supervisory visits to each village were made by the principal investigator or the research assistant. Training and logistical support were provided by CHAL and MOH.

Ad hoc assessment and drug sales were highly successful in raising sufficient funds to establish and sustain village-level revolving drug funds. Ad hoc assessment provided seed money of $59.00 to $209.60 in each village, with 75 to 90 percent of the households participating in these assessments. The revolving drug funds have been sustained by means of a 25 percent markup at the village level on drugs obtained from the Kolahun District Revolving Drug scheme. Stocks of drugs have been increased and diversified while drug costs have remained low. Sales revenues per case treated by CHWs range from $0.27 to $0.95.

Production-based prepayment and labor in communal rice fields have not yet provided any direct resources for PHC funds but might be called upon if needed. Some community labor has been provided in the fields of individual CHWs, although the CHWs have indicated they prefer to be paid a salary. The assumption by the investigators and village leaders that CHWs would be supported by the traditional application of community labor, as is the case in the compensation of traditional healers, has been recognized as erroneous.

The project's success and replicability have been amply demonstrated by the 10 villages that now participate in the project. Six of these have revolving drug funds, and in another four, CHWs have been selected and are now being trained; plans for revolving drug funds in these four are underway. Additional funds and support raised through community labor, donation, and farm contract work have been applied to the direct support of PHC. The results for those communities participating in the full scheme include locally available health care providers, drugs, and PHC management. The establishment of the village health committees has also provided the framework for continued efforts to improve PHC. Both CHAL and the MOH have agreed to continue their support for these efforts, and the district medical officer will continue to provide supervision.

Adherence to a systematic operations research approach has enabled this project to move successfully from problem identification, through the development and systematic assessment of alternative solutions, to field implementation. The selection of a solution combining multiple financing schemes has allowed participants to contribute to PHC according to their means and has provided a broader base for project success.

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This study was conducted from January 1984 through October 1985 by the Christian Health Association of Liberia (CHAL). Further information is available from the principal investigator, Dr. Andrew Cole, Christian Health Association of Liberia, P.O. Box 1046, Monrovia, Liberia, or from Dr. Jeanne Newman, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

COMMUNITY FINANCING OF PRIMARY HEALTH CARE IN PERIPHERAL AREAS

The Republic of Mali's formal health infrastructure of hospitals and health centers serves only a small part of the country's inhabitants. Eighty percent of the people live in rural areas and receive only basic primary health care (PHC) services provided by small dispensaries, village health workers, and village pharmacies. The problem of financing PHC delivery in these underserved areas is acute and stems largely from the inability of communities to sustain PHC services once outside funds have been depleted. The Director General for Planning and for Health and Social Services Education therefore undertook an operations research study to find ways for communities to help meet the recurrent costs of maintaining PHC, particularly at the village level.

With the participation of members of the Comité d'Orientation et de Coordination des Etudes et Programmes Socio-sanitaires (COCEPS) of the Ministry of Health (MOH), the research team first identified the PHC services to be provided at the village and "secteur de base" (a group of 5-10 villages) levels. These were, in order of priority:

- Essential drugs;
- Maternal and child care;
- Treatment of acute illnesses and wounds;
- Health education;
- Immunization against the six EPI diseases; and
- Drinking water and basic sanitation.

This group then determined the best strategies for providing the services. These strategies included establishing an initial stock of drugs; training various types of health workers for the villages and "secteurs de base" and establishing a system for their supervision; holding quarterly health education sessions in the villages; establishing a logistics and supply system to provide regular immunizations in the villages; and refurbishing existing water sources and creating and ensuring maintenance of new ones.

The next step was to determine the types of recurrent costs involved in providing the targeted services. These costs included items such as drugs, vaccines, immunization equipment and supplies, salaries, transportation, food, and lodging for health workers and supervisors.

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To collect data for developing a solution to the financing problem, the study team used two questionnaires. One was used to interview local leaders of 60 villages in the areas of Koro and Kita. The other questionnaire was used to interview 1,800 family and household heads in the same villages. Answers to the questionnaires provided information on topics such as health worker remuneration, drug supplies at the village level, family expenditures for health services, and villagers' attitudes toward those services.

In light of the replies to the questionnaires, the study team proposed that PHC services in rural areas be financed as follows:

- Restocking of village pharmacies: payment of a five percent markup over the purchase price or a fixed fee for services.
- Payment of village health workers: in kind at the discretion of the recipients.
- Living expenses of village health workers during retraining: to be paid by the village council.
- Remuneration of "secteur de base" health workers: fixed salary to be paid from a budget supported by fee-for-service payments or through prepayments.
- Living expenses of "secteur de base" health workers during retraining: to be paid by the "arrondissement" (level above "secteur de base") council.
- Lodging for head medical center nurse on supervisory visits: to be paid by the "arrondissement" council.
- Vaccines, lodging, and transportation of vaccinator: to be paid from a budgetary program financed by the vaccination recipients, the recipient villages, and from "arrondissement" resources.
- Maintenance of water source: to be paid by the village council.

The first specific evidence of implementation of these results has been the agreement of the Development Council of Koro to finance the 1986 budget presented by the Chief Medical Officer of the Koro Health Center. This budget includes many of the financing strategies developed in this study. In general, it is hoped that as a result of the study's recommendations, villages will finance certain costs associated with the delivery of curative services, with "arrondissements" and "cercles" assuming financial responsibility for preventive and supervisory activities.

* * *

This study was conducted from June 1984 to March 1986 by the Direction Nationale de la Planification et de la Formation Sanitaire et Sociale of the Ministry of Health of Mali. Further information is available from the principal investigator, Dr. Mamadou Traore, Directeur, Direction Nationale de la Planification, Ministère de la Santé Publique et des Affaires Sociales, Bamako, Mali, or from Dr. David Nicholas, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

A MARKET RESEARCH STUDY OF THE QUANTITATIVE AND QUALITATIVE ASPECTS OF THE MARKETING AND DISTRIBUTION OF ORAL REHYDRATION SALTS IN MEXICO

A market research study of oral rehydration salts (ORS) was carried out in Mexico by Promotora de Planificación Familiar (PROFAM), a Mexican nonprofit organization. Mexican health agencies have widely encouraged the use of packets of ORS granules to combat high infant morbidity and mortality from diarrheal diseases. PROFAM was interested in producing, marketing, and distributing an inexpensive, easy-to-use ORS tablet and wanted to know if the public would find this product acceptable. Since drugstores are a popular source of ORS products, it was decided that a survey of pharmacists would provide a relatively good measure of supply and demand for ORS.

The survey included 116 private drugstores: 55 in Mexico City, 30 in the hot region, and 31 in the temperate region. The researchers asked pharmacists and other drugstore personnel to answer questions regarding the distribution and sales of ORS, their knowledge of the purpose and correct use of ORS, the demand for ORS, and their opinions on the presentation of ORS products.

Distribution and Sales. Analysis of the survey results showed that the majority of the drugstores surveyed (99 percent) sell ORS products, more than half without a prescription. Although the prices are probably too high for many consumers who need ORS products (US$ .73 - .94 per 500 ml bottle), the pre-mixed liquid sells well. The pharmacists report that most sales are made to women.

Knowledge of Purpose and Use. Most of the pharmacists stated correctly that ORS products are used to treat dehydration caused by diarrheal diseases. Many of the pharmacists, however, were not sure of the directions for use. Only one of the ORS supplier companies occasionally provided the pharmacists with information on the purpose and the correct use of their ORS product. The pharmacists reported that pre-mixed liquid ORS products had the highest demand.

Demand and Presentation. The demand for ORS products was seasonal, with the largest quantities being bought in the spring and summer. A few pharmacists felt that demand could be increased by adding flavoring to existing ORS products. Opinions were mixed about the acceptability of an ORS tablet. On the one hand, many of the pharmacists thought that tablets would be easy for the consumer to use and more economical than other ORS products. On the other hand, many pharmacists feared that use of contaminated water to dissolve the

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tablets would be a problem and that the tablets might be difficult to dissolve. When asked to indicate whether ORS tablets or granule packets would be more suitable, 33 percent of the pharmacists chose tablets, 48 percent chose granule packets, and 19 percent had no opinion. The investigators emphasized that these results are the opinions of pharmacy personnel and do not necessarily represent those of consumers.

Based on the study results and subsequent discussions, PROFAM decided not to proceed with the production of ORS tablets. The two major reasons for this decision were suitability and cost. The survey showed no particular consumer advantage of the ORS tablets over granule packets, and the tablets also cost slightly more than granule packets to produce. Instead, PROFAM will produce packets of granules that can be dissolved in an 8-ounce glass of water. The 8-ounce glass is a more convenient container for consumers than the 1-liter vessel required to dissolve existing granule packets. PROFAM was to begin manufacturing the packets as soon as they received Government approval.

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This study was conducted during July 1983 by Promotora de Planificación Familiar (PROFAM), a private, nonprofit Mexican association. Further information is available from Ing. Luis de la Macorra, President, PROFAM, Apartado Postal 34, El Pueblito, 76900 Villa Corregidora, Queretaro, Mexico, or from Dr. David Nicholas, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

ALTERNATIVE STRATEGIES FOR FINANCING PRIMARY HEALTH CARE IN THE PHILIPPINES

With PRICOR assistance, a team from the University of the Philippines in the Visayas (UP-V) conducted a 2-year operations research study in Iloilo Province aimed at developing feasible approaches to mobilizing community resources to help pay for primary health care (PHC) services. The study was part of a larger project (Panay Unified Services for Health-PUSH) carried out by the National Economic Development Authority in the region to improve PHC services on the island of Panay.

The UP-V/PRICOR study had three major objectives: (1) to help the people in each of the study villages (barangays) determine what services they would support; (2) to help them find appropriate means for raising funds and then help them develop and implement effective financial management schemes; and (3) to encourage them to use part of their resources to pay for preventive and promotive services.

Six barangays, selected to represent different economic sectors of the island, participated in the study. In each barangay a baseline survey was carried out to determine what people believed to be the most important health problems in their community. The survey also identified people's perceived needs in terms of health services; their attitudes toward, and utilization of, available local health services, particularly the Barangay Health Workers; their current expenditures for health services in the public and private sectors; and their stated willingness to pay for additional services not available locally through some sort of community financing mechanism. The major health problems were perceived to be respiratory and gastro-intestinal illnesses. Annual health expenditures per household were estimated to range from P200 ($29) to P300 ($43). The unavailability of drugs and poor water supply facilities were perceived as major health-related problems. The majority of households expressed willingness to participate in community financing of health activities. In the six barangays, the purchase of drugs and the operation of a drug depot (botika) were projects that community members were most willing to finance.

Solution development consisted of several steps that involved the barangay residents in community financing projects. First, the study team charted the results of the baseline survey pictorially and presented them to the barangay residents at community assemblies. After learning the results of the baseline survey and discussing them, the communities selected health activities they would fund through a community financing project and the type of financing mechanism they would use. Five barangays chose to finance and run community

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drugstores, botikas sa barangay, and one barangay decided on an emergency hospitalization loan fund. These would be revolving funds in which user payments for drugs (or repayment of loans) are used to replenish stocks (or replenish the loan fund). Most barangays selected a flat rate contribution from households for the initial capitalization of the project, but supplementary fundraising activities, such as taxes on sales of produce and livestock, raffles, and parties, were also included in some of the plans. One month after the community financing schemes were initiated, the researchers held a workshop in each barangay for members of a core group of villagers who had agreed to take responsibility for the project. These workshops were used to plan the community financing project in more detail, to strengthen the management capabilities of the core group, and to teach concepts of primary health care. During this workshop, community women were selected for the jobs of "lead mother." These unpaid volunteers were to assist the barangay residents in implementing preventive and promotive health activities.

Most of the barangays were able to collect an average of 46.1 percent of the targets they had set for fundraising through flat rate contributions. The botikas were managed and run by volunteers from the communities. One person was generally in charge of dispensing drugs, collecting money, and maintaining stocks. Each botika made its own arrangements to buy its initial stock and replenishments. Pricing policy was set by each barangay. Stock turned over at annualized rates ranging from 132 to 913 percent and profit on sales ranged from 16 to 22 percent, despite claims of very small markups. Nine months after the research study had ended, the botikas and the emergency fund were found to be still functioning. Between 83 and 92 percent of barangay residents had contributed to the capitalization of the botikas (99 percent to the loan fund). Utilization of the boticas ranged between 54 and 77 percent of households. The results of the lead mothers program were mixed. Those barangays where lead mothers were active and effective did make clear, however, that potential beneficiaries of health services (lead mothers) can take on roles as preventive and promotive health care motivators if they are given adequate support.

From the success of the botikas sa barangay, it can be concluded that these Filipino villagers valued having a local source of desired drugs sufficiently to pay for this service. They were not, however, willing to pay for preventive and promotive health services, as had been initially hoped by the PRICOR researchers. With considerable outside assistance, the barangay residents did learn how to capitalize, organize, and manage revolving funds. Extensive community participation in designing, financing, and managing the botikas seemed to be a key factor in their performance and sustainability.

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This study was conducted from January 1983 to May 1985 by the University of the Philippines in the Visayas Foundation. Further information is available from the co-principal investigators, Dr. Trinidad S. Osteria, Institute of Southeast Asian Studies, Heng Mui Keng Terrace, Pasir Panjang, Singapore, and Professor Ida M. Siason, University of the Philippines in the Visayas, Iloilo City, Philippines, or from Dr. Stewart Blumenfeld, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

COMMUNITY FINANCING OF PRIMARY HEALTH CARE IN RURAL AREAS OF SENEGAL'S SINE SALOUM REGION

One of the objectives of the second phase of the Sine Saloum Rural Health Project (SS-RHP) in Senegal is to decrease the dependence of the project on USAID funding. Given rigid budget constraints, the Senegal Ministry of Health (MOH) needs to find alternative means of financing the basic health services provided by the project. An operations research study carried out by the Harvard Institute of International Development in 1983 addressed this problem. The objective of the study was to determine whether community financing could adequately support rural primary health care (PHC) in Sine Saloum.

The Sine Saloum Rural Health Project has been in operation since 1977. The project provides PHC services to 880,000 people in five of six departments of the region through a network of self-sustaining "health huts" (village-based health care facilities) in about 600 villages. Villagers are expected to construct the huts, encourage their fellow community members to use the new services, and compensate the village health workers (VHWs) trained by the project. Funds to cover costs are to come from the fees collected for medicine and other services. Ideally, government supervisors visit each village once a month to supervise VHWs and to encourage village health committees in their support of the VHW and of PHC. Phase II of this project was being designed at the time of the PRICOR study.

In order to examine the potential for community financing of PHC, the principal investigator proposed to analyze the economic feasibility of 13 government-initiated PHC activities. These activities were broken down into those that were involved in establishing a local PHC program and those that were involved in operating and maintaining such a program.

Establishment phase activities included: sensitization of villagers, agreement of village leaders to participate in the PHC program, nomination of community members to serve as volunteer health workers (VHWs), preservice training of VHWs, construction of a health hut, and provision of an initial stock of drugs and other medical supplies to the VHWs. The operation and maintenance phase included: patronage of VHWs by the villagers, availability of VHWs to serve the villagers, resupply of drugs and related products, physical maintenance of the health hut, management of project income by community representatives, supervision by government health officials, recording and reporting of service data, and inservice training of VHWs.

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Through a review of existing documentation on PHC interventions in Senegal and interviews of health care providers and decisionmakers at all levels of the health system, the principal investigator described activities relating to supervision, VHW renumeration, and drug distribution. He also attempted to determine whether each activity is essential to the maintenance of rural PHC and, if essential, how it can be financed. He then made the following conclusions regarding the community financing potential of each of these recurrent cost components.

The major supervision costs to the Sine Saloum Project were those associated with supervisors' transportation to the villages (e.g. motorcycle fuel, maintenance, and repair). None of the possible financing sources examined seemed likely to pick up a substantial share of these costs in the near future. The investigator therefore proposed that a less intensive supervision system be established.

In the area of VHW remuneration, an in-depth sociological observation of the existing situation was proposed. The investigator thought that this would be necessary to assess the present level of VHW compensation in Sine Saloum, as well as its variability, its stability, and its adequacy to sustain VHW-based PHC.

The investigator also concluded that the existing network of private commerce in Sine Saloum could handle the distribution of pharmaceuticals at a fraction of the cost incurred by public sector agencies, and with greater reliability and frequency of resupply.

Using these conclusions, the PRICOR investigator developed recommendations for the design of the second phase of the Sine Saloum Rural Health Project. Concerning the extension of the project to the remaining departments of the region, he recommended that a preliminary sociological and anthropological investigation be a prerequisite to the implementation of the program (construction of the health hut) in any village. The purpose of this investigation would be to determine the villagers' perceptions of their health problems; the procedures the villagers are currently following to obtain health care; how much time, effort, and money it cost villagers to obtain health goods and services; and what improvements in health care they expect from the new PHC program. The investigator also recommended developing studies to assess the effects of phasing out onsite supervision and to determine how modified arrangements for drug procurement affect the reliability of supply in those areas where USAID support for the PHC program is gradually being withdrawn.

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This study was conducted from July 1983 through December 1985 by the Harvard Institute of International Development (HIID). Further information is available from the principal investigator, Dr. Clive Gray, HIID, 1737 Cambridge Street, Cambridge, Massachusetts 02138, or from Dr. David Nicholas, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

OPERATIONAL PROCEDURES TO IMPROVE AVAILABILITY OF PHC DRUGS

An operations research study focusing on the use of modern drugs in rural areas of Somalia was carried out by researchers from the Somali National Academy of Arts and Sciences and Medical Service Consultants, Inc. (USA). The study, supported by PRICOR and UNICEF, with the cooperation of the Somali Ministry of Health (MOH) and USAID/Somalia, was conducted in villages in six geographically diverse regions of Somalia.

The research team first discussed the problems of drug delivery in the rural areas of Somalia with officials from the MOH and several international health agencies. These decisionmakers believed that the shortage of drugs in rural areas was a major constraint to implementing the Primary Health Care (PHC) Program in Somalia. Factors that might contribute to breakdowns in drug delivery were identified.

Three country-specific survey documents were designed and pretested to gather facts about (1) patient use of modern drugs at the village level; (2) prescriber practices in dispensing these drugs; and (3) drug stocks actually present at the prescribing facilities.

Thirty rural villages were selected for a household survey that used a multistage cluster sample design. In each village, 24 households were randomly chosen for the survey. The total number of households interviewed was 716. Thirty-two percent of households had purchased drugs in the past 6 months. The 716 households interviewed reported average drug expenditures of 68.64 Somali Shillings (US$ .83) in the past 6 months. A significant portion of Somali villagers seem to be willing and able to make out-of-pocket payments for drugs, based on the fact that they are already doing so.

Some drug users (approximately 7.0 percent of the total sample or 16.7 percent of apparent drug users) reported purchasing drugs from a PHC or MOH clinic (where drugs are supposed to be free). Apparently, some goverment health care facilities were charging for drugs in order to help meet costs. Forty-nine percent of respondents indicated that PHC or other MOH facilities were their first choice when seeking modern medicines. The demand for modern drugs in the rural areas is, however, much greater than the government PHC facilities have been able to meet.

Of 31 different diseases named by dispensers surveyed at clinics, health posts, and drug stores used by villagers, the three most often cited were malaria, diarrhea/dysentery, and bronchitis. This seems to correspond

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approximately with the most common illnesses reported by the households: cough, diarrhea, fever, headache, influenza, malaria, and stomach distress. The most frequently mentioned drugs for the "most common diseases" were penicillin, chloroquine, and aspirin. Drugs reported by households to have been received from PHC or other MOH facilities included chloroquine, aspirin, ORS, ferrous sulfate, cough medicine, ampicillin, and cilfotrim. Of the 47 items recommended by the dispensers as treatments for the "most common diseases," only 12 items would be sufficient to treat the spectrum of illnesses.

The survey data were then organized to focus on the following areas of interest: (1) household profiles; (2) household reports of drug use, cost, and source; (3) practitioner or dispenser reports of most common diseases and the drugs recommended for them; and (4) selected PHC drug items existing at facilities furnishing pharmaceutical services to the target villages.

A summary of the findings from the three surveys was circulated to seven decisionmakers in the MOH, together with a list of strategies to improve the delivery of drugs to the rural areas of Somalia. The MOH decisionmakers were asked to comment on the findings of the study and to rank the alternative strategies in terms of effectiveness and feasibility. Six of the participants cited the following three options as the most feasible: improve the drug distribution system, improve inventory control at the central drug warehouse, and improve dispenser awareness of appropriate drug use. The same six options were ranked from most to least important for improving the availability of drugs to the rural population. Seeking the local production of pharmaceuticals was ranked as most important. Limiting the number of drugs to be handled and improving the distribution system tied for second place.

After examining the findings of the PRICOR study and the strategies suggested by the Somali MOH decisionmakers, the study team developed recommendations for improving drug delivery to the rural areas. The researchers felt that both the public and the private sectors should be used for PHC drug delivery. The study team also recommended the preparation of a written "Guide to PHC Drug Use" that could be used to teach the Somali villagers. A functioning Somali women's organization was identified as a group to work with in developing the education program. It was also recommended that the MOH review the PHC drug list with the goal of limiting the number of items included.

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This study was conducted from April 1985 to December 1985 by the Somali National Academy of Arts and Sciences, and Medical Services Consultants (MSC), Inc. Further information is available from MSC, 1716 Wilson Blvd., Arlington, Virginia 22209, or from Dr. Stewart Blumenfeld, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

DEVELOPMENT OF APPROPRIATE METHODS FOR SUSTAINING RURAL HEALTH MOTIVATORS

The Rural Health Motivator (RHM) is a key primary health care (PHC) element in rural Swaziland. The program, however, suffers from high turnover rates. In conjunction with the Primary Health Unit (PHU) of the Ministry of Health (MOH) and with the support of the PRICOR Project, a team from the Social Science Research Unit (SSRU) of the University of Swaziland undertook an operations research (OR) study to find ways to stabilize the RHMs.

The solution to the problem was identified as having three main components: community participation, stronger supervision, and dependable compensation. RHMs receive a monthly stipend from the Ministry, but it is small and delays in payment are not uncommon. In setting priorities to resolve the problem, the MOH/SSRU team decided, on the basis of previous work with groups of RHMs, that small, irregular compensation was probably the major cause of RHM turnover.

Supplementation by the community was thought to be an appropriate solution because it offered the benefit not only of increasing the RHM's payment for services, but also promoting increased community involvement in assuring availability of PHC. However, the researchers determined that before communities would be willing to pay for RHM services, the skills of the RHM would have to be strengthened. The objectives of the research, therefore, became to define a set of skills within the capabilities of the RHM that were acceptable to the MOH and that the community would consider worthy of compensation, and to develop an appropriate compensation scheme.

Several OR techniques were used in the problem analysis phase of the study to examine the organization of the country's PHC system and to identify constraints, inputs, processes, outputs, and outcomes. A nationwide survey, which elicited information crucial to solution development, focused on four areas: utilization patterns of health care, health expenditure, willingness of communities to support the RHMs, and attitudes of the RHMs themselves toward their work. An interesting finding of the survey was that while 28 percent of the respondents said they would be willing to support the RHM financially, not one of the RHMs interviewed believed the community would be willing to do so, mainly because the RHMs were, in principle, already receiving a salary from the government. Based on comments from the RHMs, experience gained from other projects, discussions with health professionals, and the results of the community survey, the research team developed matrices to determine what RHM activities should be strengthened or introduced. The matrix results, in combination with discussions with MOH officials, determined that immunization, oral rehydration therapy (ORT), and growth monitoring

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should be emphasized. Another matrix helped identify prepayment for services as the most appropriate form of compensation.

Solution testing took the form of a demonstration field test in a single chieftaincy over a period of 6.5 months. The research team initiated the test by conducting community meetings and a 2-day training course for the eight RHMs. The test was carefully monitored through meetings with RHMs and community leaders. A community survey and interviews with RHMs and community leaders were used to evaluate the field test.

The field test evaluation revealed that the PHC skills training for the RHM had served to broaden the community's perception of the role of the RHM in relation to children's health. For example, respondents perceived the RHM to be the primary source of information on ORT, and mothers complied well when the RHM referred their children for immunization. The newly-introduced growth monitoring skills were well received by both the community and the RHMs, and RHMs proved to be proficient and active in performing these skills.

The RHM support scheme the community chose involved the donation of communal land and agricultural labor toward the production of a crop to be given to the RHM, who could then sell the crop for cash. This plan did not quite reach fruition because the area chief, who alone has the power to direct the people to perform civic duties, was absent at the crucial field preparation period due to the coronation of a new king. The field set aside for the RHM was prepared by the community, but the RHM deemed it too late for planting. The chief and the community agreed that the RHM should remain active and that the community would prepare the field again for the next planting season. An adjacent chieftaincy, without any promotion from the research team, has indicated that it would also try the same scheme.

The following three recommendations were made to the MOH as a result of the study. First, RHMs should be trained to perform growth monitoring at the community level. This training should include local-language curriculum materials, careful referral guidelines, proper tools such as scales and growth cards, and adequate supervision and inservice sessions. Second, RHM inservice training should be revised to emphasize immunizations and ORT. Third, the Public Health Unit (PHU) should try to improve community support for RHMs. These efforts should include encouraging communities to devise their own, locally-appropriate forms of RHM compensation, considering ways to make RHM spouses more aware and supportive of RHM activities, and increasing efforts to keep the traditional leaders informed of and involved in PHU and RHM activities in their communities.

The study team emphasizes what is probably a key finding of the study, i.e. that only after community support for RHMs is improved should further efforts to establish community-based in-kind or in-cash contribution schemes be pursued.

* * *

This study was conducted by researchers from the Social Science Research Unit of the University of Swaziland from April 1984 through March 1986. Further information is available from the principal investigators, Ms. Laurie H. Dunn, P.O. Box 4, Malkerns, Swaziland, or Ms. B. Dlamini Vilakati, Ministry of Health, Mbabane, Swaziland, or from Dr. Stewart Blumenfeld, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

COMMUNITY FINANCING OF PHC ACTIVITIES IN NUTRITION, WATER, AND SANITATION

Researchers from the National Economic and Social Development Board (NESDB) conducted a study to identify and test cost-effective models of community financing for primary health care (PHC) activities in nutrition, water, and sanitation.

The Thai Government recognized that nutrition, water, and sanitation activities were crucial to an effective PHC program, but the Ministry of Public Health (MOPH) did not have the funds to pay for these health interventions, nor would the interventions be sucessful without community participation and support. Thus, the purpose of the study was to identify a model or models of community financing of PHC activities in nutrition, water, and sanitation that would best mobilize community resources in support of these activities.

The solution development phase of the study employed three data collection activities. First, the MOPH sent a letter to all 5,000 tambon health officers (tambons are subdistricts consisting of 6 to 10 villages) asking them to identify PHC funds in their jurisdictions. Over 70 percent of the health officers responded and identified over 12,000 funds. Next, more detailed questionnaires were mailed to the health officers asking for specific information about the 12,000 funds: their age and origin, management characteristics, procedures, diversification, and problems; as well as services they provide and households they serve. Completed questionnaires were received providing information on 4,631 funds. Finally, 63 in-depth case studies were carried out in 22 provinces around the country.

The data were analyzed to: (1) distinguish and describe existing viable models of community financing; (2) explain variations in viability and performance; and (3) propose alternative models for testing and implementation. The analysis showed that there are five types of funds:

1. Single-purpose funds (drugs, nutrition, water, and sanitation)
2. Single-purpose subsidized funds
3. Comprehensive PHC funds (support all PHC services)
4. Multipurpose funds (not limited to PHC)
5. Health card funds.

The data also showed that funds vary systematically with the primary health care activity they are set up to finance and the population they serve. For example, drug funds are the oldest, most numerous, most consistently profitable PHC funds in Thailand. They serve more households, have more diversified income sources, show more potential for diversification of services and less regional variation than nutrition or sanitation funds.

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Nutrition funds are the next most widespread, located primarily in the northeast and north. They tend to be found in smaller, poorer villages, have little financial base for profitability or capital appreciation, be heavily dependent on labor contributions of women, and/or are decapitalizing. Ironically, the most profitable of these are often the least active in reducing malnutrition and the least successful by other PHC criteria. Finally, sanitation funds are the least numerous, with half located in the northeast. There are regional variations in working capital, profitability, interest rates, share purchases, and services. They tend to be located in larger and more prosperous villages. The most successful concentrate on providing loans at market interest rates for construction of water-sealed privies.

The research team examined various financing models and compared them against a set of standard criteria, including viability, profitability, services, coverage, and ability to support basic PHC services. They concluded that the best solution to the operational problem is multipurpose funds, for several reasons: (1) income sources are multiple and diverse, risk is spread, and income is likely to be more dependable, profits higher, and capital growth more rapid; (2) purchase of shares by households is encouraged by the real prospect of profit; (3) multipurpose funds conserve on scarce management time and skills--one multipurpose fund requires fewer people and less time to manage than 5-10 single-purpose funds; and (4) higher profits and rapid capital growth enable a multipurpose fund to support nutrition activity, even if it does not make money, and to make loans for sanitation improvements (particularly to low income people).

These results and recommendations were presented to and accepted by the MOPH. The Secretary General of the NESDB presented a summary of the findings and recommendatons to the Thai Cabinet at the request of the Prime Minister. The MOPH has accepted the recommendation that existing PHC funds, particularly drug funds, should be encouraged to diversify and that new multipurpose funds should be established when conditions permit. Starting in 1985, the MOPH began carrying out these recommendations. In the solution validation phase of the study the research team conducted longitudinal testing of the various models of establishing multipurpose funds.

An interesting finding of the study was that the success of community financing was not the ability to put up a certain form or models of financing schemes, but the ability to transmit the concept of community financing to the rural community, who will in turn formulate their own finance scheme that is responsive to their particular needs and settings. The essential elements of such financing schemes are: (1) the pooling of capital and non-capital resources within the community that are rotatable and self-generating; (2) the ability to pool resources from within and without the community; (3) the community has the ultimate decision making power over the administration of the pooled resources; (4) the community has the ultimate decision-making power over the utilization and determination of activities of/for the pooled resources; and (5) the community has a central body or network of central organization to overload the pooled resources.

* * *

This study was conducted from March 1983 through January 1986 by the National Economic and Social Development Board (NESDB) of Thailand. Further information is available from the principal investigator, Ms. Orathip Tanskul, NESDB, Krung Kasem Rd., Bangkok 10100, Thailand, or from Dr. Jack Reynolds, PRICOR study monitor (Chevy Chase).

PRICOR Primary Health Care Operations Research

Study Abstract

TESTING ALTERNATIVE PAYMENT SCHEMES IN HEALTH CENTERS IN ZAIRE

In 1982, the Zaire Government decentralized public health activities and created health zones which were to be largely self-financed. The Basic Rural Health Services Project (SANRU), a collaborative effort of the Government of Zaire, USAID and the Church of Christ in Zaire, was created in 1982 to coordinate this reorganization. One of the tasks of the SANRU project was to identify sustainable PHC community financing schemes.

The study team identified four PHC payment schemes being used in rural areas, namely, (1) fixed fee for episode, regardless of illness; (2) fixed fee for visit, with varying medication fees related to daily dosage and drug cost; (3) fee for episode, varying with severity of illness and cost of drugs; and (4) fixed fee for visit and drugs, but reduced fees for necessary repeat visits. The first two schemes were selected for study because the third and fourth were viewed as variations of the second.

Two principal data collection techniques were used. First, a baseline household survey was carried out at each study site before and after a new scheme had been introduced. Second, a cost analysis of health services was carried out in five health zones supported by the SANRU Project.

In each of five rural health zones, two health centers were chosen to participate in the study. In four of the zones, one center was asked to change to a scheme based on fee per episode of illness. The other center continued to use a payment scheme based on a fixed consultation fee and variable drug fee. In the fifth zone, a health center with a fee per episode scheme changed to fee per consultation while the other continued with the fee per episode. These schemes were observed for one year.

Curative visits per capita varied enormously from one health center to another, from a low of 3 visits per year per 100 population in Katanda and Tshileo to a high of 245 per 100 persons in Lukunga. One reason for this was that the proportion of persons seeking health care who went to the SANRU health center ranged from 1.4 percent in Katanda (where the nurse set up a competing private practice) to 83.2 percent in Lukunga (a small, well-defined, and isolated service area). A second explanation was that people in some areas reported very infrequent use of <u>any</u> health care provider (only 10 visits per 100 persons per year in Tshileo, for example), while in other areas visits were up to 35 times more frequent. Visits per episode of illness varied from scarcely more than 1.0 in Lukunga, Muadi Kayembe and Kaniama to over 6.0 in Kangoy.

Curative care costs per capita, per visit, and per episode also varied enormously. (Costs are reported in US dollars, and are based on an exchange rate of US$ 1 = Z 43.8 from October 1984 - March 1985 and US$ 1 = Z 52 from April 1985-September 1985.). In Tshileo (the area with low utilization), direct operating costs for twelve months were only 2 cents <u>per capita</u>, while in Lukunga they were 90 cents. Costs <u>per visit</u> ranged from 4 cents in Kangoy to $3.46 in Katanda. The latter

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center experienced extremely low utilization so that fixed costs were spread over a relatively small number of visits, while the former had extremely high utilization.

Health center operating costs per episode ranged from 27 cents in Kangoy to $7.46 in Katanda, with a median of 95 cents. At the average center, a patient payment of 95 cents per episode would have covered personnel salaries, zonal supervisor and mobile team salaries for the time they spent on field activities, all inservice training, administrative and maintenance supplies, drugs, vaccines, kerosene, minor building repairs, and transport for personnel and materials including supervisors and the mobile team.

Medical supply costs (mainly for drugs) accounted for nearly half of all curative care costs, ranging from 8.8 percent in Katanda (where fixed personnel costs were high for an underutilized clinic) to a high of 70.1 percent in Kaniama. Most health centers spent 22 to 34 percent of their funds on preventive care.

The operating costs of four of the five zones were $3,500 to $5,500 per year although the number of health centers that they supervised differed significantly from 6 to 47.

The fees that clinics set varied from one health center to another and were set in diverse ways. No technical formula for setting prices was agreed upon, yet the 6 centers with usable revenue data reported that they covered a median of 107.3 percent of their curative costs, including costs of zonal supervision and mobile teams. Preventive revenues covered between 0.4 percent and 10.6 percent of preventive costs, but three health centers collected revenue from curative care in excess of costs permitting cross-subsidization of preventive care. Overall, the six clinics reported median cost recovery of 66.5 percent.

Investigators learned a great deal about the process of introducing or changing community financing schemes and about the effect of this process on clinic operations and community utilization. Fee levels set through the "unscientific" process of community decisionmaking and crude cost calculation proved to be adequate for significant cost recovery, especially for curative care. Clinic management, staff quality and morale, drug supply, and relations with the community as a whole were probably more important influences on utilization in these ten centers than was payment scheme, yet these factors were themselves affected by staff and community reaction to change. Clinic staff in several locations disliked either the payment scheme they were asked to implement or the fee levels that had been set. Utilization declined severely in one center because the nurse quit and established a competing private practice; his successor was subsequently dismissed for malfeasance. The community which was asked to switch from fee per episode to fee per visit objected to what they considered a less desirable system and began making greater use of other providers. During this time period in this country, the way in which a payment scheme was established and managed appeared to affect utilization, cost, and cost recovery, more than did the precise nature of the scheme.

* * *

This study was conducted for SANRU through the African Intermennonite Mission from September 1983 through March 1986. Information is available from the principal investigator, Dr. Lusamba Dikassa or from Dr. Frank Baer, P.O. Box 3555, Kinshasa, Zaire or from Ms. Marty Pipp, PRICOR study monitor (Chevy Chase).

APPENDIX 2. CASE STUDIES OF COSTSHARING SCHEMES

THAILAND

In Thailand, an insurance scheme or "health card fund" operated as a conceptually simple and inventive way of sharing costs for MCH, EPI and other preventive services and of rationalizing referral patterns for treatment of illness. In 18 surveyed villages, health cards were sold at a modest price, affordable by most households. The card entitled households to treatment of up to a fixed number of illness episodes per year - usually eight - and to free MCH and EPI services. There were notable variations in price, coverage, benefits and the use of capital among the programs surveyed. Money collected from the sale of cards was used to make loans to card holders and, at the end of the year, to reimburse service providers.

An analysis of household survey data confirmed that the price of health cards - usually 100-200 Baht (or US$4-8) - was affordable to most households, even those below the poverty line or with heads in low-income occupations. Average monthly expenditures for health care, when either the wife or husband was ill, exceeded the annual price of the card. An estimated one percent of the population, largely rural households in the South, could not afford health cards. Free cards have been made available for such households.

The health card was purchased by most rural households, where available, but sales were sensitive to limitations on coverage, the number of people eligible to use the card, and competition from private sector providers. There were large variations in ceilings and limitations on coverage. One fund imposed no limitations; others imposed ceilings on hospital coverage or the annual patient charges per household. One fund excluded certain diseases from coverage. Some funds covered everyone in the household; while others were limited to specified family members, usually a husband, wife and two children.

The point of first contact for treatment of illness was the health volunteer or the subdistrict health center. Referral to a district or provincial hospital required a letter or slip from providers at a lower level, except in an emergency. With the slip, the card holder was entitled to quick attention in the hospitals honoring the card.

Residents purchased health cards because of:

- their modest price, which reduced the cost of medical care;
- the availability of loans;
- and, reduced waiting time for services.

Funds varied in their use of capital. MOPH guidelines for the first year suggested that funds set aside 40 percent for loans or other community activities that would increase fund capital and 60 percent for provider reimbursement and fund management. The suggested proportions were 20/80, respectively, in the second year and 10/90 in the third. As most funds did not reimburse providers until the end of the year, a fund could loan most or all of its capital on a short-term basis in the interim. Each fund had the discretion to set loan terms and later allocations among providers in consultation with them.

Health card funds were designed to encourage the use of preventive services, increase the use of Tambon health centers, and raise capital to finance health services. However, a significant threat to the viability of health card funds came from inadequate reimbursement of providers and the inability of supply to keep pace with increased demand. The 200 Baht card covered only a fraction of the cost of service delivery. Analysis suggested that the price of the card was too low in 1984. Demand was likely to put heavy pressure on health centers and MOPH hospitals reducing cost recovery in district and provincial hospitals. Models which included higher priced cards and lower or graduated benefits were recommended as viable alternatives. The MOPH subsequently accepted these recommendations altering both price and benefits.

BRAZIL (LASSNER)

Cost sharing selected by community organizations included:

a. contributions of labor and supplies for cleaning and maintenance of health units;

b. contributions of cash to pay health unit utility bills;

c. contributions of expendable office and clinic supplies;

d. recruitment and employment of community members as PHC promoters;

e. payment of CHWs.

Although community leaders were involved in planning, these schemes were often not successfully implemented; community contributions generated the third lowest total revenue of the nine strategies tested. There were limited successes, however. In one community, the neighborhood association was only able to pay the electric bill for the first month of their agreement. Therefore, they successfully introduced a collection box to finance payment of utility bills and cleaning of the health unit. The contribution box, suggested by community merchants and other residents, resulted in a broader-based cost sharing scheme.

Researchers attributed the limited success of these schemes to weak planning and limited community support. Many community groups were poorly organized and had financial difficulties and political problems. Representatives of neighborhood associations often changed, and agreements made by previous representatives were often not upheld. Some leaders did not adequately represent their communities. In addition, details of how organizations were to solicit monetary and labor contributions were never worked out.

SWAZILAND, BOLIVIA AND LIBERIA

In Swaziland, Bolivia and Liberia (Cole I), communities contributed labor to help CHWs in agricultural work. In Swaziland, a plan was developed for villagers to donate labor to produce a crop on communal land. The crop was to be given to the CHW for her own use or sale as compensation. The CHW was to provide seed for the crop. The land was prepared as planned; however, the village chief was away when it was time to plant, and villagers would not plant the field without direction from the chief. This situation vividly illustrates how a single, key individual can be vitally important. Although the crop was not produced the first year of the project, the community agreed to prepare and plant the field the following year.

Investigators in Cochabamba, Bolivia developed a similar scheme to reduce CHW attrition. Through interviews, investigators determined that villagers were willing to pay CHWs in-kind provided that they were reliable and worked exclusively in their own communities. However, the level of in-kind payment which the villagers were willing to contribute (equivalent to US$ 7 a year) would cover less than half the CHW's current salary. Therefore, a lower-level health promoter was trained and deployed at a reduced salary.

Villagers donated an annual quota of wheat or potatoes as an in-kind payment. Contributions were collected, stored and distributed by the sindicato (a traditional and highly visible organization in rural communities) and by the health committee.

In Liberia, villagers decided to contribute part of their personal crops of coffee, cocoa and rice for PHC and to use part of the proceeds of a communal rice farm. In addition, villagers agreed to work on the CHW's field. Many of these plans could not be implemented due to insufficient community support, even though healers were traditionally compensated in this manner.

APPENDIX 3
CASE STUDIES OF PREVENTIVE/PROMOTIVE ACTIVITIES

THAILAND

Design. Researchers in Thailand conducted surveys of revolving funds and detailed case studies of 63. They found that revolving fund loans, ocassionally from revolving drug funds, financed water and sanitation improvements. Single-purpose sanitation funds accounted for 12 percent (538) of 4,631 revolving funds represented in the detailed survey. Loans for water-sealed privies were the least expensive and most frequent activity. Working capital, profitability, interest rates, share purchase prices and services varied, but funds had many common characteristics. Most were less than one year old, and half were in the Northwest.

Sanitation funds tended to be located in more prosperous villages than other revolving funds as sanitation improvements are relatively expensive. All but two of the case study funds were established by the MOPH or outside donor agencies with initial contributions of construction molds, materials and cash. In addition, the MOPH trained village craftsmen in construction of privies, well heads, water jars and rain-water cisterns. Initial capital was supplemented by sale of fund shares to local community members. The percentage of households purchasing shares ranged from 2 to 40 percent. Households too poor to borrow from the fund had little incentive to purchase a share. Many community members who could not afford the shares or did not wish to borrow from it fulfilled a social obligation to support the fund through labor to construct sanitation improvements. Workers received only meals during the construction, and the benefiting household was obligated to contribute labor in future projects.

Half of the 17 sanitation funds which PRICOR studied in depth did not charge interest or have profits. Interest rates for those funds which did charge ranged from 8 to 18 percent compared to prevailing money lender rates of 36 to 60 percent. Only those funds which charged interest close to market rates were highly profitable and showed capital appreciation. In the national survey, the percentage of funds charging interest or with other income sources was nearly identical to the proportion showing a profit.

Management. Sanitation funds were managed by a local committee whose members were 85 percent male and an average of 44 years old with a modest income. Interest rates and share prices were set by the committee, and loans were allocated either by lottery or by committee selection. CHWs were members of 36 to 46 percent of the sanitation fund committees, varying by region.

Managers were elected in 75 percent of the case study sanitation funds with the remainder appointed by MOPH officers. All managers were shareholders and served unlimited terms with almost no turnover. They were responsible for supervision of construction, and for record keeping, inventory control and loan collection. Only 6 to 13 percent of the fund managers were compensated in cash or in-kind, but many were given preference for low or no cost loans for themselves, family or friends.

Issues. Equity must be considered in management of sanitation funds. Community members did not have equal access to loan funds. First, only those who could afford to purchase shares could borrow from the fund. Second, in cases where committees decided who got the loans, preference was given to fund managers, committee members and their family and friends. Those who could afford the fund shares and were selected to borrow from the fund were subsidized by a low or no cost loan.

As half of the funds studied did not experience capital growth, the number of persons who could be served and the type of sanitation projects which could be funded was limited; demand for loans often exceeded supply. Investigators found no or low interest sanitation loans to be inconsistent with rural credit markets in Thailand, and with fund viability and growth.

Based upon an analysis of 14 multipurpose funds and of drug funds which had diversified, researchers recommended that near market rates of interest be charged and that multipurpose funds be established.

HAITI

Design. Incentives were needed in Haiti to motivate CHWs to deliver preventive services. Researchers concluded that communities were unwilling to pay for preventive care directly but would donate cash to obtain access to credit. Based upon this finding, researchers devised and implemented an innovative credit program to raise funds on an on-going basis for recurrent expenses of CHWs and to induce women to learn child survival skills.

Loaning to a group was seen to be less risky than loaning to individuals. Researchers found, however, that women were reluctant to borrow money for commerce or production outside the family as a member of a group because they did not trust each other with common funds. Therefore, the first step in implementing a group credit scheme was to create affinity groups whose members would be willing to borrow as a group.

Mothers with children in severe malnutrition (a major group at health risk) were indentified from health records and invited to attend a special three-day seminar in their village. The seminar covered health as well as other topics of interest to women. Participants were asked to bring two trusted friends to the seminar. The seminars were then organized on a monthly basis, and each newly created group was given the opportunity to invite other friends. Only those trusted by all other members could be invited to join the group. Completed groups had three to seven members. Facilitators supported the group formation process.

As each group became established, members were asked to collect dues to create a group fund. Viable groups able to successfully create a fund and engage in saml1-scale, on-going projects were invited to join a credit scheme by purchasing a health/credit card at a cost of $2 per group member. The credit scheme was linked to preventive care by requiring members to learn a set of child survival skills before they could purchase a card and by directing proceeds of the card sales toward the payment of CHWs. In order to be eligible to buy a card, each member of the group had to demonstrate competency in four child survival interventions (ORT, immunization, growth

monitoring and family planning); their children had to be up-to-date in their vaccinations and had to participate regularly in growth-monitoring sessions.

Arrangements were made with a local agricultural bank to lend each group money at 14 percent interest (pre-paid) providing that a sponsoring PVO put 1/5 the amount of the loan in a bank savings account as a frozen guarantee fund. (Interest rates charged by private credit sources ranged from 60% to 300% a year.) The amount of credit for which each group was eligible was determined by the amount of money in their group fund. The loan was given to the group as a whole. Individuals could then borrow from the group. The repayment period was flexible, ranging from a few months to one year.

Management. Mothers in each affinity group managed their respective funds and fixed the amount of money they were willing to contribute.

Sixty affinity groups have been formed to date and interest in the project is keen. Credit schemes are attractive to rural women in Haiti because there is a great demand for credit, and interest rates for loans from private sources are very high.

Future plans in the credit scheme include establishing procedures to "roll-over" loans to support longer-term commercial enterprises and to advise women about financial management techniques and types of income generating projects likely to be successful.