HEALTH FINANCING AND MANAGEMENT IN BELIZE: AN ASSESSMENT FOR POLICYMAKERS

A Compendium of Technical Notes

Volume I: Summary Diagnosis

Submitted to:

Health Services Division
Office of Health
Bureau for Science and Technology
Agency for International Development

By

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(Revised September 1991)

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Volume V:	Resource Allocation in the Public Health Sector in Belize, by Ruth Levine and Gerard La Forgia
Volume VI:	Pharmaceuticals and Supplies Procurement in Belize, by James Rankin

ABSTRACT

This overview provides a synopses of the six volumes that form a detailed and comprehensive study of health care financing and provisions in Belize. The paper cites the sources contributing to the deterioration of the public health care system and emphatically recommends, at the risk of political turmoil, a governmental shift away from "socialized medicine." Furthermore, this document summarizes the current issues facing Ministry of Health (MOH) policymakers and recommends changes in the health care system as well as the mechanisms for formulating and implementing health sector policy.

BELIZE COMPENDIUM

ABBREVIATIONS

ALOS	Average Length of Stay
BCH	Belize City Hospital
CDR	Crude Death Rate
CGA	Citrus Growers Association
CHI	Comprehensive Health Insurance
CHW	Community Health Worker
CMS	Central Medical Stores
CRDTL	Caribbean Regional Drug Testing Laboratory
CSO	Central Statistics Office
CWHC	Cleopatra White Health Center
DHS	Director of Health Services
DMO	District Medical Officer
EAP	Economically Active Population
EEC	European Economic Community
ECDS	Eastern Caribbean Drug Service
EDP	Essential Drugs Project
FORMED	Fondo Rotario de Medicamentos Esenciales
FPPM	Fiscal Policy Planning and Management
FY	Fiscal Year
GDP	Gross Domestic Product
GNP	Gross National Product
GOB	Government of Belize
HFS	Health Financing and Sustainability Project
HMO	Health Maintenance Organization
ILO	International Labour Office
IMF	International Monetary Fund
IMR	Infant Mortality Rate
IPC	Income per Capita
MIS	Management Information System
MMR	Maternal Mortality Rate
MOF	Ministry of Finance
MOH	Ministry of Health
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SUMMARY DIAGNOSIS

1.0 THE CONTEXT

The public health system in Belize is under stress. A rapidly-growing population, inadequate financial resources, inefficient service organization and delivery, and inequitable access are contributing to the deterioration of the quality and quantity of services provided by the Ministry of Health (MOH). To this array of deficiencies we can add an undeveloped private sector that appears to capture only a portion of the demand for private services, and an unpopular social security system that provides inadequate benefits and insufficient population coverage. Ambiguous policies, unenforced legislation, and ad-hoc policymaking impede the ability of the government of Belize to confront these issues, or develop and implement solutions.

The papers constituting this compendium focus on health care financing and provision in Belize. The papers on cost recovery, resource allocation, and pharmaceutical supply pertain to the public health system. The two remaining papers center on the private medical sector and social security system. Each follows a similar format: analysis of the current situation, presentation of the technical basis for selection of corrective strategies, proposals for policy and program reforms, and recommendations for specific implementation activities. Taken together, the studies seek to contribute to an informed debate on the future of health services in Belize and assist the government in improving health care. More specifically, they aim to provide policymakers with the technical tools to boost resource generation, improve efficiency, and enhance equity.

Many of the most important recommendations in these reports imply political risk. In particular, effective cost recovery in public facilities--a change that is <u>essential</u> to the financial soundness of the Belizean health system--appears to imply a shift away from so-called "socialized medicine." Some government officials may believe that a shift away from the nominal government policy would result in an unpalatable political backlash.

This perspective fails to appreciate the considerable (and growing) countervailing political risk of a health system that is deteriorating in quality, and this is fostering and maintaining serious inequities in access to care. One need only look at private practice in the Belize City Hospital to realize that access is increasingly a privilege, not a right. One need only look at the numbers of Belizeans leaving the country for care to realize the dissatisfaction with the quality and range of government and private services in Belize. And one need only examine the recent financial history of the Ministry of Health (MOH) to realize that this situation will worsen unless action is taken immediately.

As the Government of Belize decides whether to continue stopgap measures to shore up its health system, or to embark on a large-scale reform, it will weigh two political risks: the risk of imposing and enforcing fees and tightening management, versus the risk of a failing health system. This is a difficult calculus. We are hopeful that the information and analysis provided in these reports will lead to an informed decision.

2.0 THE ISSUES

The health care system in Belize will undergo considerable change in the near future. Several major investments are either planned or under consideration. These include: the construction of the new Belize City Hospital (BCH), the extension of specialty services to the districts, and the construction of two district hospitals. At the same time, the MOH is committed to extending primary health care to all areas and ensuring equal access to all citizens according to need and regardless of income, ethnic, and geographic distinction.

Against this background, MOH policymakers face a number of difficult questions:

- As the MOH seeks to expand the supply of services, what type of configuration of facilities, human resources, and services at both the national and district levels is most appropriate for the Belizean context? In other words, what type of health system does Belize seek to have in five or 10 years?

- How can the system foster equity in terms of both the financing and provision of health care?

- How can the system offer incentives to providers to produce services efficiently and to consumers to use them appropriately?

- What type of health system can the country afford? What type(s) of financing method(s) will foster the appropriate mix of efficiency and equity in the production of health services and, at the same time, contain costs?

Clearly, many developed and developing countries are grappling with these same issues. However, the debate in Belize takes on added urgency for three reasons: (1) the absence of policy discussion and planning regarding the development of the health sector, (2) the deteriorating financial situation of the MOH, and (3) the imminent construction of the Belize City Hospital. Moreover, the Ministry of Finance (MOF) is pressuring the MOH to attain greater fiscal discipline in the production of services. The MOF has made it clear that it is unwilling to continue paying for MOH budget overruns and significant increases in MOH budgetary outlays will not be forthcoming. A related issue involves the recent introduction of specialty services in district hospitals. These services currently are provided by foreign physicians who will be replaced by Belizeans after completion of training abroad. As in the case of the Belize City Hospital, the MOH is expanding (or planning to expand) services without accounting for the organizational, management, and resource requirements for operating or sustaining these services.

On a more positive note, great opportunities exist. Top MOH officials recognize these problems and seek to mobilize the economic and political resources needed to formulate strategies and implement change. These officials have provided a high level of support and close collaboration during the assessment phase of which the five studies are a product. It is essential that a similar level of effort and enthusiasm continues into the implementation phase.

3.0 THE CURRENT SITUATION

The studies have identified a number of related problems affecting the financing and provision of health services in Belize. These can be grouped into three main categories: inadequate resources, inefficiencies, and inequities. The following are the salient findings by category. It is important to note that these categories are not mutually exclusive, and interactions occur on many levels.

3.1 Inadequate Resources

- Budgetary Deficits: In fiscal 1989/90, the MOH incurred a BLZ $1.3 million deficit representing 10 percent of budgeted total expenditures (16 percent of budgeted medical care outlays) for that year. Most of the extra outlays went to pay for pharmaceutical and medical supplies for the Belize City Hospital.

- Shortages: Despite the additional expenditures for drugs, stock-outs and shortages have become commonplace in MOH facilities. Belizeans who use MOH services increasingly are forced to purchase prescribed drugs in high-priced private pharmacies. Some non-medical supplies also are becoming scarce. For example, inpatients in Belize City Hospital often need to supply towels and sheets.

- Dependency on International Donors: Most MOH capital expenditures and a significant proportion of outlays for primary health care, preventive, and vector-control programs are financed through international agencies. Experience elsewhere demonstrates that long-term financial support from international agencies is irregular at best. The MOH is unprepared to assume financial responsibility for programs that are currently funded through outside sources.

- Ineffective Cost Recovery: Despite legislation regarding the charging of fees for MOH medical services, cost recovery is nearly non-existent in MOH facilities. Less than two percent of costs are recovered. Low prices (dating from 1967), ineffective means testing, informal exemption criteria, and inadequate billing and collection practices contribute to negligible revenues.

- Lack of Working Capital for Private Medicine: In comparison to Eastern Caribbean countries, the private medical sector in Belize is modest in terms of volume and range of services. It mainly consists of fee-for-service, solo practices in storefront clinics. The private sector loses a significant proportion of private outpatient demand and nearly all inpatient demand to off-shore facilities, particularly in Chetumal, Mexico. The loss of foreign exchange resulting from payments for off-shore medical care is undetermined. Belizeans bypass private services in their country in part because of the absence of integrated facilities that feature diagnostic and other support services. Physician groups that desire to establish such a facility have little access to capital. Another contributing factor is a private insurance market that caters to upper-

level management professionals who seek coverage for care provided outside of Belize.

3.2 Inefficiencies

- Absence of Resource Allocation Policy and Planning: The MOH seeks to realign (and expand) the health care delivery system based on regionalization of services and primary health care. Construction will commence soon on the new Belize City Hospital and the MOH is seeking funding for two new district hospitals. Despite these plans, the MOH has not turned its attention to several key resource allocation questions: What should be the proper mix of ambulatory vs. hospital facilities and preventive vs curative services, or the appropriate distribution of Belize City- vs. district-based services? How resources are distributed among facilities, regions, and services will determine the course of health sector development. Decisions on resource allocation should be based on projections of costs, utilization, demand for services, population composition and growth, and epidemiological characteristics. The complexity and range of services together with productivity and quality factors also influence utilization, demand, and costs.

  Decisions about how resources should be allocated are made in an apparently ad hoc manner within the MOH. Informed decision making is limited by inadequate epidemiological, utilization, productivity, and cost data. Even when this information is available, it is rarely requested or used by MOH officials. There is no group or committee that oversees policymaking or guides planning. Top MOH officials, as well as facility administrators, appear to spend a disproportionate amount of time managing crises or resolving minor problems.

- Wasteful Material Supply and Procurement: Procurement of drugs and medical supplies is in disarray. Recordkeeping regarding purchases, prices, inventories, deliveries, and consumption is deficient, making forecasting of needs and costs impossible. Due to disorganization and lack of controls, the MOH often must make "emergency purchases" on the local market for which premium prices are paid. For example, the price paid for a locally-purchased drug is, on the average, more than double the international or PAHO price (including freight) for the same product.

- Low Productivity: It is often assumed that there is an undersupply of MOH physicians in Belize and extra doctors are needed to meet current and future utilization. This assumption underlies the recent importing of foreign physicians to staff MOH facilities. However, our findings suggest that, due to inefficient medical care organization, physician productivity--especially for specialists--is very low. In contrast, general practitioners who staff health centers appear overwhelmed with patients. However, these physicians report that a number of cases involve patients seeking drugs or a sick-leave certificate but demonstrate no symptoms. Further, they report that a significant portion of cases are simple illnesses that could be managed by nurses.

- Government Subsidization of Private Medical Practice: By allowing specialists to admit private patients to MOH facilities, the government subsidizes private practice through the free provision of hotel, operating room, nursing, diagnostic, and administrative services. Similarly, by paying government-contracted specialists a salary while they practice privately during regular working hours (e.g., performing surgery on and providing treatment to private patients), the government is granting them an income subsidy.

- Overburdening Centralization: Facility administrators and medical officers have little control over hiring practices or the purchase of drugs and medical supplies. These operations are controlled centrally. Since they have meager discretionary funds and limited decision making responsibilities, they have little incentive to increase efficiency or improve quality of care. Few take responsibility for the facility, and most blame the central-level MOH for all facility-based problems.

- Restrictions on the Supply of Private Physicians: Monopolistic physician licensing practices stipulated in current legislation, coupled with widespread admittance of private patients into the Belize City Hospital by government-contracted specialists have retarded the development of private practice in Belize. The licensing of private physicians is artificially restricted, making it difficult for recent medical school graduates to practice privately.

3.3 Inequities

- Stratified Access to MOH Services: On paper, government policy stipulates health is a fundamental right and ensures equal access for equal need, regardless of ability to pay. In practice, access to many MOH services is often delayed (and sometimes denied) due to informal rules that detour and circumscribe entry into the health system. For example, it is common knowledge that the quickest way to gain access to BCH wards is through the specialist's private clinic. Belizeans who are unable to pay the private fee are placed at the end of the queue. Once admitted to the hospital, private patients also are given preferential treatment through greater physician contact. Specialists arbitrarily limit the number of appointment slots available for outpatient visits, resulting in artificially long waiting times. In effect, this practice pushes many patients to their private clinics. The burden of some of these arrangements (e.g., special treatment in the facility) falls heavily on the poor--the very population the government seeks to serve.

- Informal Means Testing: The government has mandated the use of a sliding fee scale for MOH services to adjust prices according to income levels. Fees are waived for those earning less than a specified amount. As practiced in MOH facilities, the means test process may undermine government policy and result in negative equity effects. First, exemptions appear to protect the relatively well-off (e.g., civil servants). Second, the process fails to identify and collect from private patients who, by definition, have demonstrated an ability to pay. Finally, informal rules (e.g., waiving fees for patients with political contacts and for friends

and relatives of health workers) also may protect comparatively well-off urbanites and discriminate against the poor. People who live in urban areas tend to be knowledgeable of these (and other) informal rules and know how to get around paying fees. In contrast, people from rural areas and the indigent, who may not have friends in the right places, tend to pay the bill when it is presented and, thus, are penalized by this system.

- Low Social Security Coverage: Belize's social security system (SSB) covers approximately 60 percent of the labor force (mostly full-time salaried employees) but less than 20 percent of the population. Only medical care for work-related accidents is covered under the SSB scheme for contribution workers. The SSB requires that treatment be provided in MOH facilities and makes an annual lump-sum payment of BLZ $50,000 to the Ministry of Finance for these services. The report included in this volume estimates that the real cost of service provision to social security patients is at least double the annual transfer. In effect, the government is subsidizing medical care for social security patients--a relatively privileged group. Rising revenues and surging reserves, coupled with the low-level of payments and limited range of benefits, have placed the SSB under an unfavorable public eye. Pressure is mounting to improve and broaden the current benefit package, and to extend coverage to additional population groups.

4.0 WHAT CAN BE DONE?

Since the above problems are largely interdependent, solutions require integrated actions. Generating resources, increasing efficiency, and improving equity call for activities that take on two or more problems simultaneously. Solving any single problem requires a multi-faceted approach that only can result from the combined effect of different actions. For example, implementing measures to generate additional resources to improve drug availability without increased efficiency in drug procurement and supply will foreordain failure. Similarly, the effectiveness of any cost recovery scheme (e.g., user fees, insurance, etc.) is contingent upon clearly defined (and enforced) resource allocation and decentralization policies.

Each report in this compendium concludes with a series of recommendations, together with proposed technical assistance activities. These will not be repeated here. Rather, the following discussion aims to highlight several priority areas that incorporate a number of recommendations.

Taken together, the recommendations present an integrated strategy within a three-staged timeframe. Implementing an enforced cost recovery program within a decentralized administrative system constitutes the short-term recommendation. The medium-term strategies consist of improving the efficiency of MOH resource allocation and stimulating the growth of the private sector. As a long-term strategy, the major recommendation is to prepare for of a comprehensive health insurance system. This can include weighing the advantages and disadvantages of schemes in effect elsewhere vis-a-vis the Belizean context.

5.0 SHORT-TERM RECOMMENDATIONS (execute within one year):

- Develop and Implement a Cost Recovery Strategy.

  For example, the MOH can raise revenues from the current level of two percent of costs to 25 percent through the doubling of prices in the current fee schedule. This partial cost recovery strategy would have the advantage of increasing revenues by more than ten-fold, but fees would remain a fraction of private sector prices. Comparatively lower fees can be charged in stand-alone, ambulatory facilities to discourage utilization of more expensive hospital-based services. Improved cost recovery will require improved billing and collection practices, the elimination of informal and formal exemptions, and decentralized decision making (see below).

  Successful implementation of the partial cost recovery strategy will depend on related activities requiring intersectoral cooperation. These include:

  -- Transferring the responsibility for means testing (to target the indigent) to the Ministry of Social Services and Community Development.

  -- Designing a user fee revenue-sharing scheme (and subsidy reduction plan) in which income from fees is distributed among the collecting facility, Ministry of Health, and Ministry of Finance. Any revenue-sharing arrangement should include rules for accounting, auditing, and reporting.

  -- Establishing criteria that prescribe the level of financial participation of Social Security in upgrading MOH facilities.

- Develop and Implement an MOH Decentralization Strategy.

  Devolving allocation decision making and administrative authority to facility managers is an essential precondition to the successful implementation of any cost recovery strategy. Decentralization will provide incentives to facility staff to collect fees, which in turn will provide the resources to invest in quality improvements. The facilities need to see that they will have some control over allocation decisions to embrace a cost recovery scheme. Granting facility-based authority over hiring practices, user fee revenues, and other discretionary funds would facilitate implementation.

  Each facility should be responsible for developing and implementing a quality improvement plan. Similarly, patients must perceive immediate improvements in quality to accept user fees. It is unlikely that people will be willing to pay for the same (low-quality) services that were once provided free of charge.

6.0 MEDIUM-TERM RECOMMENDATIONS (execute within two years):

- Develop and Implement a Resource Allocation Policy that Guides Outlays for Capital Investments, Human Resources, and Supplies.

  Expansion of services implies high costs. Policy decisions should be guided by analyses of the most cost-effective distribution of facilities, equipment, personnel, and services that meet the health needs of the population. Expansion requires answers to three questions: Is the service, facility, equipment, extra personnel, etc., needed? How much does it cost? Can we afford it?

  A good place to start is to draw up a model or configuration of the health service delivery system that defines service provision at different levels as well as the interaction among these levels. This will require knowledge of epidemiological, economic, demographic, and utilization characteristics of the population by region. Without a functional model, it is nearly impossible to plan the range and complexity of service provision, or in turn, estimate recurrent costs, capital costs, or potential revenues resulting from a cost recovery program.

  Another step will involve improving the data collection capability of the Medical Statistics Office. Policymakers need access to utilization, production, and other data. Improving the capability of MOH managers to monitor expenditures and calculate unit costs of services needs critical attention. With this information, the MOH can commence annual programming of resource needs and make cost estimates. Planning resource allocation and operational expenses for the new Belize City Hospital can be the first test case of resource allocation policy and practice.

- Increase Availability of Exclusively Private Services.

  The private medical sector can play an important role in the development of the health sector. Easing requirements for private licensing while limiting the treatment of private patients in the public sector can lead to an expansion of private medicine in Belize. Exploring alternative sources of credit from Social Security or elsewhere can be a component of a pilot project to stimulate private medicine through the upgrading of facilities. Such a project also can include establishing on a demonstration basis referral linkages with "offshore" facilities for expensive or specialized treatment unavailable in Belize. Also, granting tax credits to employers who enroll their employees in health insurance plans could contribute to the development of the private sector.

7.0 LONG-TERM RECOMMENDATIONS (execute within three years):

- Develop a Comprehensive Health Insurance Scheme: The Role of Social Security

  According to top-level government officials, a major objective of government health policy is to achieve equal access to quality medical care for all Belizeans. As a long-term strategy, establishing

comprehensive health insurance for all citizens has the potential to achieve this goal. Different types of schemes exist. One example, a single-payor scheme, has the advantage of providing the financial mechanism to achieve greater cost recovery in MOH facilities and to contribute to the development of private medicine. Disadvantages of such a scheme include moral hazard, non-price rationing of services, and provider resistance.

Making participation compulsory for all citizens -- as compared to optional participation -- could limit adverse selection and enable risk-sharing among the rich and poor. Financing can take different forms: general tax revenues, salary deductions, sales taxes, etc., or some combination thereof. Offering consumer choice of public or private providers could strengthen both the public and private health sectors. By providing coverage for a package of basic health services while limiting providers' freedom of pricing and of determining service volume (for covered benefits), comprehensive health insurance has the potential to contain costs. Costs also can be contained by stimulating competition among providers.

Planning for comprehensive health insurance will require high-level policy discussions with representatives from the following institutions and groups: Ministry of Health, Ministry of Finance, Ministry of Economic Development, Social Security, employer associations, trade unions, and the private medical sector.

Social Security's participation in a comprehensive insurance scheme needs to be defined. It can finance feasibility studies that explore design and financing options, possible effects on financial and labor markets, and start-up costs. Study trips to the Bahamas and other countries that are implementing such schemes may be useful.

However, given the current low levels of efficiency, medical care organization, and management evident in MOH operations, the pursuit of comprehensive health insurance is not feasible in the short or medium term. A fully functional partial cost recovery program coupled with implementation of decentralization and resource allocation policies are crucial prerequisites.

8.0 CONCLUSION: POLICYMAKING AND IMPLEMENTATION

It will be too difficult to go forward with many of the suggested actions presented in this compendium without a more formal and coordinated policy process. To facilitate long-term performance, the priority recommendations presented above will require a policy body with both the technical knowledge and political clout to formulate and execute appropriate strategies and policies. Further, the policy body should be intersectoral. As evident in the individual reports, many proposed activities directed at improving revenues, efficiency, and equity will require the participation of several institutions, including the Ministry of Health, Ministry of Finance, Ministry of Economic Development, Ministry of Social Services and Community Development, Social Security, and the

private sector. Without coordinated policymaking, it is unlikely that important actions (e.g., cost recovery) can be implemented successfully.

Prospects for real change are good. Many government officials realize that immediate and vigorous measures are needed to curb (and possibly reverse) further deterioration of service provision. Implementation of the reforms proposed in this compendium will require some level of consensus among participating government agencies, and an understanding among political leaders as to the underlying rationales and benefits. The individual reports demonstrate the technical and economic feasibility of the proposed changes. This information is valuable for the design and implementation of demonstration projects that will test--among other things--the political feasibility of our principal policy recommendations concerning cost recovery, decentralization, and resource allocation. We are hopeful that political leaders, government officials, health workers, and the public can be convinced of the advantages of policy changes.

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ABSTRACT

This volume examines the current user fee system in Belize. Only two percent of recurrent costs are recovered through fee revenues. Although legally mandated, user fee policy implementation has not been a high priority for the Ministry of Health (MOH); however, budget deficits have sparked interest among MOH officials to explore the full potential of cost recovery through user fees. The authors suggest using simple adaption of the current fee schedule to develop partial and full cost recovery simulations. The HFS team also concludes that autonomy for health facility managers is necessary, as a first step, for the development of a successful cost recovery policy. In addition, the same rates should be charged to all patients, public and private; although, some accommodations should be made for people too poor to pay. Final suggestions include conducting a few large scale experiments for one to two years.

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EXECUTIVE SUMMARY

This report examines the current user fee system in Belize. Approximately two percent of recurrent costs are recovered through fee revenues. Although legally mandated, user fee policy implementation has not been a high Ministry of Health (MOH) priority. However, in response to increasing budget deficits and pressure from government financial authorities to improve efficiency, MOH officials are eager to explore the full potential of cost recovery through user fees.

The poor performance of current user fee policy is attributed to several factors. The fee schedule has not been changed since 1967. The average fee for an inpatient stay in Belize City Hospital represents less than 10 percent of a worker's monthly salary and only four percent of the cost of care. The per diem rate in government hospitals and the price for many radiology exams are less than the price of a meal in a fast food restaurant. The prices are negligible compared to those charged in the private sector and in the country's only mission hospital. Amazingly, nominal prices for some services are lower today than in the 1960s. Means testing is ineffective as a tool to target the poor. The law mandates charging of fees according to five income categories. Most facilities charge a single rate. The means test itself is informal and clerks rarely press a patient to pay a fee. Even private patients, who make relatively large payments to physicians for care provided in public hospitals, generally are not identified by the means test. The faulty means test, coupled with ambiguous exemption mechanisms and lax billing and collection procedures, results in only eight percent of inpatients and three percent of outpatients making any payment in Belize City Hospital.

Simplified adaptions of the current fee schedule are used to develop partial and full cost recovery revenue simulations. Enforcing the current fee schedule would recover 10 percent of costs. This paper provides a tool for choosing among options for the level of cost recovery. For example, doubling current charges and adding nominal fees for outpatient services would recover 25 percent in Belize City Hospital and 40 percent in the districts. As a short-term strategy, a goal of 25-30 percent cost recovery is feasible. Comprehensive health insurance has the potential for achieving full cost recovery, if the latter is deemed a goal by policymakers. However, this option is presently not feasible and a fully-functional partial cost recovery program is a prerequisite. The simulations are conducted in a cumulative way so that policymakers can decide which incremental changes in the fee structure and associated total revenue estimates would work best for the system.

If the government intends to vigorously pursue cost recovery, it must first find a way to leave a substantial share of the collections with the facilities raising the money. We suggest some autonomy for health facility managers is probably a necessary first step to a successful cost recovery policy.

Eliminating private practice in government facilities is not politically practical, and would probably result in lower utilization and reduced revenue. We recommend that the same rates be charged to all patients, public and private. But admissions should be monitored to prevent preferential selection (and treatment) of private patients.

Although fees should be levied on all patients, people who are too poor to pay must be accommodated. The most workable approach is to transfer means testing to the Social Development Department (SDD) of the Ministry of Social Services and Community Development. The SDD has a network of social workers responsible for means testing for the government's welfare program. Recipients receive weekly cash subsidies. Other alternatives include charging reduced fees for similar services in lower-level facilities or during off-peak hours.

Prospects for substantial cost recovery in the health sector are good, based on relatively low fees at many places in the system. We recommend, however, that because of the uncertainty of our estimates and the lack of experience with a vigorous cost recovery program in Belize, a prudent approach would be to run large-scale experiments for one or two years. Hospital services, of course, have the highest potential for gaining most of the initial benefits of recovering costs and should be targeted early on. But there is also considerable potential in lower-level facilities to generate small amounts of revenue that represent a significant proportion of their relatively low costs.

1.0 INTRODUCTION

Through an analysis of the current user fee system in Ministry of Health (MOH) facilities in Belize, this report proposes a series of changes that can result in greater cost recovery. It estimates the potential revenues from user fees under a series of pricing scenarios. The purpose of the analysis and recommendations is to provide a technical basis for future policy discussions on cost recovery options for financing government health services in Belize. Consonant with recommendations in previous Health Financing and Sustainability (HFS) Project reports, as a long-term strategy, the study proposes that a comprehensive health insurance system is the most effective path to full cost recovery. In the interim, short-term, partial cost recovery strategies together with related technical assistance activities aimed at increasing revenues through charging user fees are recommended. These include: raising the current low fee levels, improving billing and fee collection practices, establishing functional means testing, and designing effective revenue-sharing schemes between participating institutions and facilities. Different fee collection strategies, price levels, and revenue retention options can be tested on a demonstration basis in various facilities.

Improving the current user fee system has been recommended in previous A.I.D.-commissioned health sector assessments and cost studies. In a detailed analysis of costs of service delivery, Raymond et al. (1987) proposed that the MOH establish and enforce a flat fee system in both Belize City Hospital (BCH) and district facilities, as a partial cost recovery measure. Norris et al. (1988) recommended the implementation of a new fee schedule based on relative costs of services, but incorporating a sliding scale conforming to patients' ability to pay. The authors also recommended that the fee structure provide disincentives for unnecessary utilization of BCH through charging lower fees for similar services at health centers and district facilities. These recommendations are incorporated into this report. Unlike the previous studies, however, this report scrutinizes the current user fee experience and suggests a feasible set of cost recovery options. For each option, the report specifies prices, estimates revenues, and calculates the percent of recurrent cost recovery for most facility types and a large sample of services provided therein. The report also analyzes the institutional and management requirements to implement and maintain a user fee system.

For this study, the HFS team gathered data on fee schedules, billing and collection practices, revenues, means testing, and uncollected bills in three MOH facilities: BCH, Orange Walk, and Punta Gorda. Where possible, observations of means testing and the fee collection process were made at these facilities to better grasp the mechanics of these operations. For comparative purposes, prices for medical services were collected from a sample of private providers, including a non-profit mission hospital. Utilization data were gathered for the BCH, district hospitals, Belize City health centers, and the Central Laboratory from the Central Statistics Office and facility ledgers. In cases where data were unavailable (such as for drug prescriptions), a two- or three-month sample was taken from facility registers. To add greater precision to revenue estimates, the HFS team gathered public and private prices for a sample of high-volume drugs, radiology exams, and laboratory tests.

Facility and service cost estimates were derived from Raymond et al. (1987), adjusted for salary increases and inflation. The "revenue cash book" of the Accountant General was the source of real user fee receipts by district. These revenues provide a basis for comparison with revenue projections presented in this report. Legislation pertaining to user fee rates, means tests, exemptions, and admission of private patients in public hospitals was obtained through the assistance of the Office of the Prosecutor General and the Supreme Court. Perspectives on current user fee practices and on the feasibility of change were gathered through interviews with nearly 40 facility officials. These included medical officers, administrators, accountants, medical record clerks, and others responsible for overseeing fee collection. The HFS team also discussed cost recovery issues with high-level government officials representing the Ministry of Finance (MOF), Ministry of Economic Development, and the Ministry of Health (MOH).

Section 2 of this report describes how user fees can be beneficial to health system operations. It briefly outlines the levels of care, infrastructure, and financing of the public health system in Belize. Legislation corresponding to user fees is also reviewed. Section 3 analyzes current user fee practices in Belize. Revenues and costs are compared for a number of facilities and services, and reasons for low fee revenues are examined. These include low prices, ineffective means testing, liberal exemptions, and lax billing and collection arrangements. Section 4 discusses different approaches to achieving greater cost recovery in MOH facilities. Simulations of revenues under different rate structures are presented. Options regarding means testing and payment collection, revenue sharing arrangements, and collection costs are also reviewed. Section 5 makes a series of recommendations and outlines technical assistance activities. The final section proposes several applied research activities to incorporate into technical assistance work.

2.0 OVERVIEW

2.1 THE ROLE OF USER FEES

User fees can have several useful functions in a government health system. They can:

- Increase revenue in the health sector;
- Signal patients that they are consuming valuable resources, and discourage overconsumption of services;
- Protect the government from inadvertently subsidizing insurance companies, private physicians, and private patients;
- Indicate to central- and facility-level decision makers the resource needs of different facilities and services;
- Provide the means for better planning by forcing improved accounting of activities and regular information flows on services delivered;

- Profoundly change organizational relationships in centralized systems--where finances flow from the central administration to facilities, user fee revenues create incentives and resources for decentralized decision making;

- Supply an additional policy tool for targeting government subsidies in the health sector to those patients least able to pay; and

- Provide resources to improve the quality of care and patient satisfaction.

For the most part, current charges in the health sector in Belize play none of these roles. They represent a negligible proportion of costs, accounting for less than two percent of MOH outlays for medical services. Prices tend to be so low that they have little or no connection to the cost of providing the services. User fees play virtually no role in strategic planning and budgeting in the health system. For example, they are not used to match patient demand--as measured through user fee revenues--with resource allocation. Nor are they considered by central MOH or facility officials to be tools to achieve policy objectives (such as increasing quality of services, decentralizing managerial authority, instituting a health delivery model based on a primary health care strategy, or targeting subsidies to specific groups, e.g., the indigent and the elderly). In fact, fees appear to have little to do with the regular functioning of the health service system.

From the facility perspective, fees tend to be viewed as unwelcome and imposed from the outside. A bewildering array of laws govern fee schedules, means testing, and exemptions. Since few health officials have knowledge of the legal mandate, charges and exemptions vary across facilities. Further, neither the health facilities nor the MOH keeps revenues from the fees; rather, they are sent to the Treasury via the Ministry of Finance. As a consequence, fees represent an additional administrative burden placed on operating units from which those units derive no apparent benefit. Indeed, billing and collection practices are so lax at most MOH facilities that even those groups who are clearly mandated to pay--such as private patients--rarely make any payment, except to the attending physician.

As suggested above, user charges should be viewed as a policy instrument rather than a policy objective. In addition to generating revenue, under proper legal and institutional conditions, fees have the potential to foster greater efficiency and equity in resource allocation through signaling to the patients the most appropriate and cost-effective level of care, decreasing frivolous utilization, and increasing the quality of care. Through effective means testing, subsidies can be channeled to special groups (e.g., the poor, women, and children) who may, even under a free-care system, use medical services less than would be desired from a health standpoint.

Further, as is the case in many developing countries, curative care consumes a large portion of the government health budget. There is a tendency for urban hospitals and outpatient facilities to draw resources away from public health, preventive, and rural services. These latter services generally are underfunded in Belize or are highly dependent on irregular international funding

(Norris, et al., 1988). A portion of revenues generated from fees charged to users of curative services can be used to finance preventive and public health services as well as services in poorer rural areas.

It must be understood from the outset that personal medical services--services such as an outpatient visit or an inpatient stay--are the only ones that should be considered for fees. Services with a large public health component--communicable disease control is an example--generally are not candidates for user fees. The reason is simple. All citizens benefit from public health services, but the beneficiaries have little incentive to contribute voluntarily to the provision of services because if one person pays for the service, everyone else can receive it for free. Tax-financed provision is the most efficient approach for public goods such as malaria control. There are many types of goods and services that fall into the gray area between these two extremes, such as patient-related preventive services (e.g., immunizations and prenatal care) that are more problematic. Those services provide benefits for which people may gladly pay, but governments may also view them as public health activities that should be provided notwithstanding ability to pay or, in some cases, willingness of the patient to use the service. A rule of thumb for such services is that they might be subsidized. Although research on the demand for patient-related preventive health services has yet to quantify the relationship, it is generally accepted that patients are more price sensitive to these services than to curative care, and governments are quite willing to subsidize them.

2.2 THE PUBLIC HEALTH SYSTEM IN BELIZE

The MOH administers government health services in Belize. The health system consists of four levels of care: national or referral hospital, district hospital, urban health center, and rural health center and post. This paper focuses on hospitals and urban health centers. In 1990, these facilities represented over three-quarters of the MOH's BLZ $13.2 million budget.[1] Most of these outlays went to the provision of personal medical services.

Belize City Hospital (BCH) is a 180-bed facility serving the Belize District, and is the referral hospital for the rest of the country. The BCH is Belize's principal inpatient facility, but is also the site for outpatient general medicine, dental, and specialty clinics. Specialty services include: pathology, obstetrics, gynecology, pediatrics, internal medicine, ophthalmology, and general surgery. The BCH bed occupancy rate in 1989 was 63 percent. Responsibility for laboratory services is shared between the BCH and the Central Laboratory. The Central Laboratory, located in Belize City, is a referral facility for the district hospitals. Belize City is also served by two stand-alone health centers providing a combination of public health and general medical care.

Six district hospitals are located in the five interior districts. Inpatient services are generally limited to maternal cases and, to a lesser

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[1]Exchange rate: $2 BLZ = $1 US. All money figuers are in BLZ dollars unless otherwise noted.

extent, simple surgery. District hospitals have from 30 to 50 beds and have utilization rates of less than 50 percent. Each facility also contains a health center that provides curative and some preventive care. Limited pharmacy, laboratory, and radiology services are available at district hospitals.

For completeness, the health system also operates 24 rural health centers that provide preventive and first aid services. In other rural areas, 180 trained community health workers provide first aid and treatment for diarrhea and malaria in remote rural areas. Most are chosen by the community and work from their homes. The government has recently constructed 17 rural health posts that are staffed by community health workers.

The MOH is financed through general revenue transfers from the Ministry of Finance. Budgets are set at the central level, but BCH and district officials are responsible for all expenditures. Be that as it may, these officials have little control over hiring practices, salary levels, or the purchase of drugs and medical supplies. For the most part, these functions are controlled centrally or through the BCH. District officials have even less participation in allocation decision making. For example, the BCH accountant manages fuel and vehicle maintenance costs for health facilities in the entire country.

MOH expenditures represent about 11 percent of the government's operating budget. Since the late 1980s, the MOH has been unable to stay within budget limits. MOH officials acknowledge that in 1990 the MOH faced a BLZ $1.2 million deficit. By mid-year, the MOH has already spent its budget allocation for drugs and supplies for fiscal 1990-91. This has prompted officials at the MOF to attempt to impose greater "fiscal discipline" on the MOH. One measure under discussion involves transferring responsibility for drug procurement, inventory, and distribution to the MOF. Both MOH and MOF officials are searching for alternative financing mechanisms that ensure adequate access and service provision and, at the same time, stimulate greater efficiency in facility operations. As part of the efficiency imperative, the MOH's Five-Year Plan (1990-1994) calls for greater autonomy at the district and facility levels. Whether decentralization will mean the "deconcentration" of authority and allocation decision making to facility medical officers is not discussed in that plan.

2.3 USER FEES: THE LEGAL FRAMEWORK

Since 1958, the Government of Belize has enacted a series of laws regulating the charging of fees in government facilities. Exhibit 1 outlines the chronology and principal features of this legislation. The laws stipulate an unambiguous policy toward user fees, granting government facilities the authority to charge for most inpatient and outpatient services. The current fee schedule dates to Law No. 31 of 1967 that specifies prices for <u>all</u> services according to

a sliding income scale.[2] This law establishes five income categories for means testing of patients' ability to pay. A patient classified in Category V, corresponding to the lowest income bracket, receives free services, while a Category I patient pays the highest rate. In 1975, Law No. 6 eliminated charges for outpatient general medicine visits. Patients with private insurance are required to pay the top rates (Law No. 21 of 1973).

Several laws attempt to control prices for private medical services, but it appears they were never enforced. Significantly, specialists are permitted to perform surgery on private patients in MOH facilities as long as suitable private facilities are unavailable (No. 2 of 1977). This statute also sets the specialist fees (for surgical services) and requires that they pay rent to the facility if outpatient consultations are provided to private patients. Physicians who admit private patients are made responsible for ensuring that these patients pay fees due the facility for accommodations, drugs, tests, etc. Private surgical patients also are required to pay an additional fee for use of the operating theater.[3]

Government administrative regulations dating from 1964 exempt certain categories of civil servants from paying fees. In general, non-professional government employees, e.g., office and blue-collar workers, are exempted from fees under the Government Workers' Rules (Article 15). Female workers are also entitled to free maternity care (Article 29). Professional employees, who may include public officers, department heads, and foremen, are not exempted from fees. Although the previously-mentioned laws, enacted in the late 1960s and 1970s, clearly mandate that charges be levied on all users according to income category, government workers continue to receive free care at MOH facilities. Finally, health officials claim that school children are exempt from paying fees for some outpatient services, but HFS could find no supporting regulatory or legal documentation.

The original 1958 statute requires that all revenues generated through user fees are payable to the government's Consolidated Fund. Article 114 of the Belize Constitution also mandates that revenues raised by the government be paid into the Fund. The article allows for exceptions, however, through the establishment of special purpose "public funds" through legislation. Currently, several government agencies retain their revenues earned through special taxes and user

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[2]Health officials with many years of experience recall that, during the 1950s and 1960s, fees were actually higher than charges registered in the 1967 law. Also, they were collected from all patients. At that time, however, prices were set by facility medical officers.

[3]Although not explicitly stated in the law, the itemization of physician fees and additional charges for private inpatients, coupled with the requirement that they pay for drugs, suggests that they should be placed in the highest income category when computing the institutional bill. According to the fee schedule, drugs are provided free to inpatients who classify in the three lowest income categories (III, IV, V). Category II patients pay a flat rate while Category I patients pay cost.

fees, including the Tourist Board and some national parks, and the new airport authority in Belize City.

EXHIBIT 1
LAWS REGULATING USER FEES AND PRIVATE PRACTICE IN MOH FACILITIES

LAW	YEAR	DESCRIPTION
No. 20 Ch.79	1958	Establishes user fees in government hospitals for inpatient and outpatient services. Assigns responsibility to facility medical officer for rate setting.
No. 31	1967	Sets fees for specific services by income category of patient. Creates five income categories. Sets drug fees (cost plus 15 percent) and x-ray fees (single fee). Sets bed-day fee for patients in private rooms. Forbids private practice in government facilities and during normal working hours for government-contracted physicians. Sets physician fees for private practice.
No. 40	1967	Requires that physicians who provide emergency treatment to a private patient during normal working hours keep a written record of the treatment.
No. 21	1973	Stipulates that any patient whose treatment is covered by insurance or by his employer be classified in Category I (the highest income category).
No. 29	1973	Specifies a new set of charges for x-ray exams that correspond to income categories.
No. 6	1975	Eliminates charges for outpatient visits.
No. 2	1977	Physicians are granted permission to practice privately in government facilities as long as services provided are unavailable in private facilities. Specifies that physicians who use government facilities for private consultations must pay rent. Establishes fees for private inpatients and makes physicians responsible for ensuring patient payment of fees to the government facility.

3.0 THE CURRENT SITUATION

3.1 REVENUES

Revenues from user fees currently represent a fraction of the costs of service provision in MOH facilities. Exhibit 2 compares revenues with estimated expenditures--recurrent and total--for BCH, district hospitals, and two health centers in Belize City. BCH, representing nearly two-thirds of the MOH budget, recovers only 2.1 percent of recurrent costs. User fee revenues represent between one and seven percent of recurrent costs at district hospitals. Fees are not collected at stand-alone health centers in urban and rural areas.

EXHIBIT 2
USER FEE REVENUES, RECURRENT COSTS, AND TOTAL COSTS, 1989
DISTRICT HOSPITALS, BELIZE CITY HOSPITAL, BELIZE CITY HEALTH CENTERS

				PERCENT COST RECOVERY	
DISTRICT HOSPITALS	**REVENUES**	**RECURRENT COSTS[a]**	**TOTAL COSTS[b]**	**RECURRENT**	**TOTAL**
COROZAL	$19,081	$391,500	$493,096	4.9%	3.9%
ORANGE WALK	$28,799	$422,283	$536,850	6.8%	5.4%
SAN IGNACIO	$7,105	$416,130	$520,612	1.7%	1.4%
DANGRIGA	$9,172	$442,051	$527,791	2.1%	1.7%
PUNTA GORDA	$4,121	$390,002	$491,598	1.1%	0.8%
BELMOPAN	$15,066	$559,479	$661,075	2.7%	2.3%
SUBTOTAL	$83,343	$2,621,443	$3,231,022	3.2%	2.6%
BELIZE CITY HOSPITAL AND CENTRAL LABORATORY					
BCH lab and Central Lab[e]	$13,176	$370,891	$599,726	3.6%	2.2%
BCH Radiology[f]	$5,972	$222,639	$315,985	2.7%	1.9%
BCH - inpatient[g]	$56,421	$4,514,886	$5,222,012	1.2%	1.1%
BCH - outpatient[g]	$56,421	$1,071,128	$1,173,091	5.3%	4.8%
SUBTOTAL	$131,990	$6,179,544	$7,310,815	2.1%	1.8%
BELIZE CITY HEALTH CENTERS					
M. ROBERTS/C. WHITE[c d]	$0	$166,517	$166,517	0.0%	0.0%
TOTAL	**$215,333**	**$8,967,504**	**$10,708,354**	**2.4%**	**2.0%**

(a) Represent costs for personnel, drugs, supplies, dietary, vehicle, and national support.
Based on 1985 cost estimates, adjusted by 27% for salaries and 8.3% for all other costs.
(b) Includes capital costs.
(c) Fees not collected at health centers.
(d) Based on estimates of personnel and drug costs. Capital costs were unavailable.
(e) Revenues estimated based on six-month sample.
(f) Revenues estimated based on two-month sample.
(g) Excludes revenues from laboratory and radiology. Distribution based on two-month sample of revenues, March-April).

Source: Raymond et al., 1987.
Revenue Cash Book, Treasury Dept.

According to the Treasury Department, a total of BLZ $215,333 was collected from user fees in MOH facilities in 1989, representing less than two percent of the MOH's operating budget.[4] Moreover, while MOH expenditures increased by 33 percent between 1985 and 1989 (from BLZ $10 to $13.3 million), fee revenues rose by less than two percent (from BLZ $212,220 to $215,333) over the same period. As evidenced in Exhibit 3, collections as a share of recurrent expenditures at Belizean facilities compare poorly with fee revenues at comparable institutions in poorer countries. In the countries listed in the table, fee revenues at the regional and facility levels represent a much larger share of expenditures than is the case in Belize. In sum, user fee revenues have little impact on overall MOH financing of health services and appear insignificant in relation to the financial needs of the facilities. The following five sections detail the reasons for low user fee revenues. The themes include prices, means testing, exemptions, private patients, and billings and collections. We turn first to an examination of current fee schedules.

EXHIBIT 3
PERCENTAGE OF RECURRENT HEALTH EXPENDITURES RECOVERED BY USER FEES BY FACILITY TYPE AND LEVEL OF ADMINISTRATION
(selected countries)

COUNTRY	YEAR	FACILITY OR LEVEL OF ADMINISTRATION	PERCENT RECOVERED
China	1981	County Hospital, Yexian County	74
Colombia	1980	Regional Level (all facilities)	34
Ethiopia	1983	Regional Hospitals Rural Hospitals	18 21
Togo	1979	Lome University Hospital	24
Thailand	1979	Bangkok Hospitals Regional Hospitals District Hospitals	12 42 22
Zimbabwe	1979	Parirenyatna Hospital	28
Jamaica	1985/86	St. Ann's Bay Reg. Hospital	9
Dominican Rep.	1989	National Laboratory	42

Source: Jamaica: Lewis, 1990
Dominican Republic: La Forgia, 1989
All other countries: Griffin, 1989

3.2 LOW PRICES: THE FEE SCHEDULE

The fee schedule currently in use dates from 1967. Exhibit 4 compares prices for a sample of high-volume services provided by government, church mission, and private providers. Annex Exhibits 1, 2, and 3 compare government, mission, and private prices for a selection of high-volume prescription drugs, laboratory tests, and x-ray exams. Because prices have not been adjusted since 1967, they represent a fraction of private sector and church mission charges for

[4]The cost estimates presented in Exhibit 2 are based on 1985 unit costs adjusted for salary increases and inflation. Actual costs in 1989 were probably higher due to higher-than-inflation increases in the price of drugs and supplies since 1985. Also, over this period the volume of drugs and supplies purchased by the MOH expanded by an undetermined amount.

comparable services. Facility personnel with many years of experience report that, in the early 1960s, fees were charged for prescription drugs ($1.00 to $2.00) and for outpatient and emergency visits ($0.50). These services are now provided free. By way of comparison, charges for several costly medical services are less than prices for many common household goods. For example, the prices of a bottle of beer ($1.75), a pound of laundry soap ($1.50), a meal at a fast-food restaurant ($4.00), or a pound of chicken ($2.10) are greater than the fees charged for an inpatient bed day ($2), most laboratory tests ($0-1), an outpatient visit ($0) a dental visit ($1), or a filled drug prescription ($0) at government facilities. Charges for most radiology exams at BCH are less than the price of a bottle of local rum. Further, it is interesting to note that, in 1975, a bottle of Coca-Cola and an MOH outpatient physician visit cost $0.50; a prescription in the public sector cost $1.00 to $2.00. Currently, the price of the soft drink is $0.75, while an outpatient visit and prescription drugs at any MOH facility are free.

EXHIBIT 4
PRICE COMPARISONS FOR A SAMPLE OF SERVICES: GOVERNMENT, CHURCH MISSION, AND PRIVATE PROVIDERS (IN BLZ$)

SERVICE		TYPICAL GOVERNMENT CHARGE[a]	CHURCH MISSION	PRIVATE SECTOR
INPATIENT	per diem	$2.50	$25	$95
	normal birth	$25	$130	$300-600
	caesarian section	$50	NP	$400-800
	appendectomy	$65	NP	$400-500
	cataracts	$65	NP	$400-800
OUTPATIENT	GP visit	$0	$7	$25
	specialist visit	$5	NP	$35
	dental visit	$1	NP	$20
DIAGNOSTIC TESTS	"routine" blood and urine[b]	$0-4[c]	$5-15	$4-8
	x-ray: extremities[d]	$4-6	$10-24	$25

Notes: BLZ $1 = US $.50
NP means service is not provided.
(a) Refers to charges to patients who are classified in "income category II" through an informal means test. Most patients are charged the "Category II" rate.
(b) FBC, ESR, blood sugar, BUN, cholesterol, bilirubin, SGO-T, GGP-T, uric acid.
(c) Tests for non-private outpatients are free. Inpatients pay approximately $1 per test at BCH.
(d) Foot, ankle, hand, wrist, finger, and elbow.

Prices for equivalent services vary among facilities. For example, outpatient specialist visits at Orange Walk Hospital are free, while they cost $5.00 at Belize City Hospital. Tooth extractions at Orange Walk cost $2.00 compared to $1.00 at Belize City and Punta Gorda Hospitals. In BCH, inpatients are charged a flat daily fee for medicines, while in Punta Gorda medicines are provided free of charge. Prices for laboratory exams also vary among facilities.

All inpatients at BCH are charged a flat fee for laboratory exams, while no fee is charged except for private inpatients at Orange Walk and Punta Gorda Hospitals. As suggested by Exhibits 2 and 4, prices do not reflect costs. A simple exercise will demonstrate just how low fees are when compared to costs. Adjusting Raymond's et al. (1987) 1985 cost estimates for inflation, HFS estimates that, in 1989, an inpatient stay in Belize City, Punta Gorda, and

Orange Walk Hospitals cost BLZ $904, $380, and $197 respectively. Yet, based on a sample of collected and uncollected bills in each facility, the average total bill presented to inpatients was $40, $8, and $20, respectively. (As discussed in a later section, most inpatients do not make any payment). With this in mind, we can estimate percent cost recovery under optimal conditions. Assuming, for example, that BCH collected an average charge of $40 from all inpatients, it would recover only 4.4 percent of costs. From a different standpoint, the government is essentially providing catastrophic insurance by covering almost the entire cost of a stay. If the government's contribution is viewed as insurance, the patient's payment of $40 on a $904 inpatient bill at the BCH is in effect an insignificant (4.4 percent) copayment.

3.3 LOW CHARGES: APPLICATION OF THE SLIDING FEE SCALE

The means test is a fairly ineffective tool to ascertain a patient's ability to pay. In theory, fees are charged according to five income categories. The highest category (I) is based on a weekly salary of $100 or more, while the lowest category (V) is based on a weekly salary of $15 or less. In practice, most patients are charged Category II rates.

These categories are listed in Exhibit 5 together with the corresponding charges for a sample of services. If the fees were considered affordable to most households in 1967, those same fees are even more affordable today. The income categories for the most part are meaningless in terms of current income levels. Most Belizean families with at least one working member make more than $100 per week and thus should be charged Category I rates, according to this schedule. Yet Category II charges (for patients earning between $50 and $100 per week) are the de facto rates charged to almost everyone. Moreover, the fee schedule is loosely applied in MOH facilities. Flat fees corresponding to the highest income classification (Category I) are charged for all x-ray exams and laboratory tests, yet, for most other services, lower (Category II) prices are charged. As previously mentioned, prescription drugs are provided free, yet the official fee schedule calls for charges of $1 for Category II and full cost for Category I patients.

EXHIBIT 5
A COMPARISON OF FEES BY INCOME CATEGORY
(BLZ $)

SERVICE	CATEGORY I $100+/week	CATEGORY II $50-99/week	CATEGORY III $25-50/week	CATEGORY IV $15-25/week	CATEGORY V <$15/week
Specialist clinic	$10	$5	$2	$1	$0
Dental clinic	$3	$2	$1	$0	$0
Inpatient per diem	$5	$2	$1	$.50	$0
Maternity	$40	$25	$15	$5	$0
Major surgery	$50-150	$25-65	$10-40	$5	$0

$2 BLZ = $1 US

Source: Law No. 31 of 1967

Why is this so? The HFS team observed the means test applied to several patients in three hospitals, and looked at the income statements on medical

records for a small sample of specialist clinic patients at Belize City Hospital. As performed by medical records officers, the means test consisted of asking the patient for a simple declaration of weekly income. In BCH and the district hospitals, as observed by the HFS team, the clerks classify nearly all patients in Category II with few questions asked. Verification of a patient's income is based on an honor system and the clerk's memory. Records containing income data are irregularly kept, and infrequently updated. There is no attempt to independently confirm household earnings. Rarely do clerks challenge a patient's declaration of income. Housewives and retired persons might respond that income is zero, even though they live in a household with substantial disposable income. Although medical records clerks might probe for a more accurate statement of household (as opposed to personal) income, this is not done consistently. Experienced medical records clerks apparently discount the income statement almost entirely and put patients in Category II so that they at least are charged something.

The clerks who are responsible for applying the means test are uncomfortable with their gatekeeper role, resist pressuring the patients, and view the entire process as a burden. Since the test is at best informal, they can be placed in a vulnerable position. Denying services to an individual can result in accusations of favoritism or discrimination. According to one clerk, "I don't want to hear my name on the radio or see it in a headline for refusing services to someone [purportedly] without money."

3.4 FEW PATIENTS ARE CHARGED: THE EXEMPTIONS

Who is completely exempted from paying fees? According to the means test, only Category V patients--the indigent--are totally exempt from fees. In the past, the procedure for such patients was to ask them to present an identification card or letter from the government's Social Development Department (SDD), or they are referred to the Social Development Department (Ministry of Social Services and Community Development) for certification.[5] This policy was abandoned several years ago. In practice, when patients declare that they are unable to pay anything, clerks tend to avoid this cumbersome procedure by making the decision themselves, usually in favor of the patient.

As mentioned in a previous discussion, several other categories of patients are exempted from fees, including non-professional government employees and school children, although practices vary. Government workers receive free services in Belize City Hospital, but they are charged for inpatient medicines in Orange Walk. All school-age children receive free outpatient specialist care in Orange Walk. In Belize City Hospital, however, they must pay for specialist care, but they can be exempted from dental fees if they bring a letter from the school principal confirming their status as bona fide students. In Punta Gorda, dental fees must be paid by all patients, including $15 for fillings and $5 for prophylaxis. These latter fees are not part of the official fee schedule. Also,

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[5]Means testing, as performed at the Social Development Department, is discussed in a later section.

in Punta Gorda, it appears that all inpatients receive bills regardless of occupational status. In all facilities, fees often are waived for relatives and friends of facility staff, and these people are often able to jump the queue, a practice observed by the HFS team.

Under the current system, people who know the informal rules of the game--that if they leave the hospital without paying no one will collect from them subsequently--are also exempted. Medical officers and clerks in the sample facilities concur that most patients could afford to pay significantly higher fees. One clerk cogently summarized the problem: "The people know the system. They know that no one will pressure them to pay, so they come to the hospital without money . . . most would pay if they had to." Patients who are not formally exempt from paying or who are unfamiliar with the informal rules--such as rural residents and the very poor--are most likely to follow the formal procedures and are penalized by the system. It is entirely possible that the combination of the formal and informal rules governing the sliding fee scale, exemptions, and enforcement results in negative equity effects. (See box on equity, next page.)

3.4.1 Few Patients are Charged: Private Patients

Specialists who staff Belize City Hospital are permitted to admit private patients and charge a fee. This is a highly politicized issue and few Ministry of Health officials or hospital staff are willing to discuss it openly. Physicians charge fees for procedures that are similar to the private sector charges listed in Exhibit 4. For example, private BCH inpatients pay a surgeon $400-800 for a surgical procedure or a gynecologist $300-600 for a normal delivery. We have already seen that the average payment by a BCH inpatient is only $40, representing less than five percent of the costs of accommodations, drugs, supplies, and tests.[6] In effect, the MOH is subsidizing private medical practice in the BCH.

According to the law, the admitting physicians are obligated to ensure that private patients pay fees due the hospital. But most physicians maintain their own appointment books and surgical records and do not make known the number of private admissions. Sources within the hospital estimate that between one-third and one-half of surgical and maternity cases are private. Some hospital staff report that private patients are given preferential treatment by physicians--usually in terms of greater physician contact and rapid admittance into the hospital. Government patients receive less physician care and are placed on waiting lists.

As in the case of classifying patients in income categories, it is nearly impossible to identify a private patient unless the patient identifies himself or herself. Both the patients and their physicians have little incentive to do so. If patients acknowledge their private status, they are charged higher Category I rates, a higher fee schedule for laboratory tests, and a flat $50 fee for the operating theater. But they are not charged for the procedure. If, however, by virtue of their silence, private patients are classified as Category

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[6]As described in the following section, most pay nothing at all.

II patients, paying even full cost for surgical procedures as if they were regular "government patients," would probably result in a lower total bill, assuming it is ever collected.

Why do physicians resist declaring their private patients? One reason involves the physician's legal responsibility to guarantee that private patients pay for all hospital services. As revealed below, this is a difficult task. Another reason pertains to physicians' perception of a patient's ability to pay both physician fees and higher hospital charges. If upon discharge a patient has to make additional payments to the hospital, he or she may not be able to afford the total physician fee. In a sense, the physicians' private earnings may be dependent on the free or near free provision of hotel, nursing, and ancillary services in BCH. Furthermore, acknowledging the true volume of private patients would allow the government to monitor the proportion of its staff physicians' time spent on public work relative to private practice. Keeping the government ignorant of true time allocation patterns serves physicians' interests if they are spending a disproportionate amount of time in private practice.

THE QUESTION OF EQUITY: WHO BENEFITS FROM PUBLIC SUBSIDIES

The combination of formal and informal exemptions and admissions of private patients results in negative equity effects. Civil servants and other government employees are well off when compared to other Belizeans with irregular incomes, yet their care is free. People who live in urban areas tend to be well aware of the informal rules and know how to use them to get around paying fees. In contrast, people from rural areas and those who do not have friends in the right places tend to pay a bill when it is presented and thus are penalized by this system. True indigents in Belize tend to be the elderly, according to experienced employees in Belize City Hospital, so possibly the only effective means test is the age-related one of exempting pre-school and school-age children from paying for some services and, informally, the aged who say they cannot pay.

The preferential treatment of private patients in BCH probably results in less and lower-quality care for government patients. One interviewee noted an older patient from a rural district who arrived at Belize City Hospital on two occasions for scheduled procedures and was told each time that the procedure would have to be rescheduled because the specialist was unavailable. It would not take long for patients to learn how to avoid such a delay: visit the physician in his private clinic. Private patients receive more personal care from their physicians, while government patients receive more attention from nurses. Sometimes there is no bed space for emergency surgical cases because of the high volume of private patients. Private patients also consume scarce public resources (such as drugs, supplies, and physician time) without paying, to the detriment of public patients, who are least able to pay. When the hospital runs out of drugs and supplies (such as syringes, intravenous solutions, and giving sets), patients or their families are forced to purchase these items in private pharmacies. Inevitably, the burden of these arrangements falls heavily on the very population that the government seeks to serve in MOH facilities: persons who can least afford private practitioners. The winners are private patients and their physicians. Despite the former's demonstrated ability to pay specialist fees, the government subsidizes the provision of all other services. By paying physicians a salary while they practice privately, the government also subsidizes physician income.

3.5 FEW PATIENTS PAY: BILLING AND FEE COLLECTION

As suggested earlier, MOH facilities have a difficult time distinguishing among the different categories of patients in order to present bills. These include private patients (who should pay full charges), civil servants (who should receive free services), and all others who should, according to existing rules, be charged rates commensurate with income levels. This situation is compounded by a billing system that functions only during normal governmental office hours. In Belize City, Punta Gorda, and Orange Walk Hospitals, according to a sample of records tabulated by the HFS team, a relatively small proportion of patients are billed. Exhibit 6 demonstrates that only 27 percent of BCH inpatients receive a bill. The corresponding figures for Punta Gorda and Orange

Walk hospitals are 109 percent[7] and 50 percent. Patients who are discharged from a ward or use the emergency room after regular working hours rarely receive a bill. In Orange Walk, no inpatient is billed unless he or she requests one at discharge or returns to the hospital at a later date. Remarkably, about half the patients in Orange Walk do attempt to make a payment.

Considerably fewer patients are billed for outpatient services, due in part to the legally mandated free provision of general medicine services (Law No. 6 of 1975). Exhibit 6 shows that, under current rules, only 20 percent and four percent of outpatients should have been billed at BCH and Punta Gorda Hospitals, usually for dental and specialist visits.

In addition to a lax billing process, the fee collection system appears equally deficient. Based on samples of paid and unpaid bills, Exhibit 6 shows that in Belize City and Punta Gorda Hospitals less than one-third of inpatients who received a bill paid it. As mentioned, only those patients who desire to make a payment receive a bill in Orange Walk Hospital. If we consider all inpatients, more striking is the estimate that only eight percent make any payment at Belize City Hospital, while 30 percent and 50 percent of Punta Gorda and Orange Walk inpatients pay fees.

Turning to outpatient services, payments were collected from 16 percent and 32 percent, respectively, of Belize City and Punta Gorda patients for dental and specialist services. These are the only outpatient services requiring fees (from most adult patients). From a more global perspective, exemptions, legally mandated free services, and lax billing and collection systems combine to make it a rare event for a facility to receive a fee from an outpatient: three percent of Belize City outpatients do so, compared to only one percent in Punta Gorda.

Most patients and their families arrive at the hospital without money because they are either unaware of the fee system or they understand that even if they receive a bill, they will not be obliged to pay it. As noted earlier, clerks have little leverage to force patients to pay and can only suggest that the patients pay something. The Belize City Hospital employs a bailiff to collect unpaid bills, but little or no effort is actually expended by him to follow up on unpaid bills. Hospital medical officers and administrators have little incentive to enforce the regulations since they are legally prohibited from retaining the revenues, which are deposited in the government's Consolidated Fund. Medical records officers attempt to collect from former inpatients when they return to the specialist clinic for a post-surgical visit. However, based on the team's observations in the specialist clinic, former inpatients were provided the service despite unpaid hospital bills. Medical staff obviously are inclined to provide needed services whether or not past due bills are paid. Further, this process fails to capture private inpatients who visit physicians in their private clinics and use the public system only for inpatient care or other free services (such as x-rays through the casualty department or subsidized tests at the Central Laboratory).

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[7]Includes bills written for patients discharged in December 1989 and all of 1990.

EXHIBIT 6 USER FEE BILLINGS AND PAYMENTS, 1990 BELIZE CITY, PUNTA GORDA, AND ORANGE WALK HOSPITALS			
	BCH[a]	PUNTA GORDA[b]	ORANGE WALK[c]
INPATIENT			
Total number of discharges	1050	1227	487
Total number of bills	287	1348[d]	245
Total number of payments	85	374	245
Total amount billed	$11,405	$11,158	$4,991
Total amount paid	$3,011	$4,106	$4,991
Average amount of bill	$39.74	$8.28	$20.37
Average amount of payment	$35.42	$10.98	$20.37
Percent of inpatients billed	27.3%	109.9%[d]	50.3%
Percent of billings collected	29.6%	27.7%	100.0%
Percent of inpatients making any payment	8.1%	30.5%	50.3%
OUTPATIENT			
Estimated total outpatients[e]	10,607	18,670	6,908
Estimated no. of outpatients who should			
have been billed under current rules	2,115	690	NA
Estimated number of patients who paid	328	221	NA
Estimated amount billed[f]	$48,469	$1,380	NA
Total amount paid	$7,509	$441	$1,714
Estimated percent outpatients billed	19.9%	3.7%	-
Estimated percent billings collected	15.5%	32.0%	-
Est. percent outpat. making any payment	3.1%	1.2%	-

(a) Two-month sample, March-April, 1990
(b) Twelve-month sample, 1990
(c) Three-month sample, July-September, 1990
(d) Includes bills for persons discharged in December, 1989
(e) During sample period.
(f) Punta Gorda: dental services ($2 fee)
BCH: specialty ($5 fee) and dental services ($1 fee)

4.0 WHAT CAN BE DONE?

4.1 SIMULATED REVENUE EFFECTS OF CHANGES IN FEE STRUCTURE

This section describes four different simulations of revenues. These simulations present examples of possible pricing options depending on the level of cost recovery desired. The simulations should be seen as reference points. Policymakers are encouraged to test different pricing scenarios and projections.

Two simulations involve partial cost recovery rate structures. The remaining are full recovery schemes. Exhibits 8 through 11 present the price structure, estimated revenue, and percent cost recovery for selected high-volume services for the different simulations. Exhibit 12 compares the price structure for each simulation as a percent of the lowest private sector prices. For

reference, the name, objective, and assumptions corresponding to each simulation are outlined in Exhibit 7.

4.1.1 A Brief Overview

For this exercise to provide precise estimates of the revenue potential of the various alternatives, it would be necessary to characterize how the number of visits, prescriptions, length of stay, and mix of providers would change as prices vary. It would be difficult to develop those parameters for any country, but for Belize it has been impossible because there is no knowledge of demand

EXHIBIT 7
CHARACTERISTICS AND ASSUMPTIONS OF SIMULATIONS

SIMULATION	PURPOSE	ASSUMPTIONS	EXHIBITS
Baseline	Partial Cost Recovery (current rate structure)	10% pay Category I rates 70% pay Category II rates Provide free care to 20%	7-BCH/ Central Lab 8-Districts
Incremental	Partial Cost Recovery (modified rate structure)	Increase Category II rates Add outpatient fees Provide free care to 20% Lose 10% utilization	7-BCH/ Central Lab 8-Districts
National Health Insurance	Full Cost Recovery	Approximate avg. cost pricing 100% pay	9-BCH/ Central Lab 10-Districts
Cost-based User Fee System	Full Cost Recovery	Approximate avg. cost pricing Provide free care to 20% lose 10% utilization	9-BCH/ Central Lab 10-Districts

behavior in the system, and prices have not been changed for many years. The only way to handle this problem is to run the simulations under different assumptions. The simulations are based on 1989 utilization data collected from the Central Statistics Office and the facilities themselves. Exhibit 7 describes the changes that take place from simulation to simulation.

In the case of the first partial cost recovery simulation, called the baseline simulation, we have assumed no loss of utilization. The prices are so low, it is reasonable to assume that little change in patient utilization will occur if the government charges the fees already on the books. For larger price changes, as is the case of the second partial cost recovery simulation, called the incremental simulation, a loss in utilization is likely. Here, we assume a 10 percent reduction in use. A 10 percent reduction is also assumed for the second full cost recovery simulation, called the cost-based user fee system simulation. However, it is important to note that this may not hold for "necessary" services such as non-elective surgical inpatient stays. Nevertheless, the 10 percent reduction may be too small over the long run as both patients and the private sector adjust to the price changes. For example, raising the price of x-rays will probably have little immediate effect on the quantity of exams

demanded, but there may be a long-run effect. That is, as the price rise sparks greater private sector participation in this market, demand for MOH radiology services may ebb. Putting a fee on prescriptions will probably have a significant effect on the quantity of drugs used. If prices are raised in only one part of the system, such as in hospital outpatient facilities, patients are more likely to use other parts of it, such as health centers. However, if prices simultaneously are raised everywhere, a redistribution of demand is less likely to take place.

In sum, we are highlighting two things: (1) how patients react to prices is extremely important to the validity of the revenue projections, and (2) our arbitrary assumptions may be close to or wide of the mark, but are likely to be more accurate in the short term.

By definition, all patients would be covered under a comprehensive health insurance scheme. The scheme will pay the full price for each patient. Consequently, we assume no reduction in utilization (100 percent pay) under this simulation. Finally, for all simulations involving user fees (e.g., excluding comprehensive health insurance) we assume that 20 percent of patients will receive free care through some type of means testing that targets those who are unable to pay.

Exhibits 8 through 11 contain the results of the simulations and follow a similar format. The first column lists the services. The second column contains the 1989 utilization rates for such services, and estimated costs (in shaded areas). The other columns display the prices, projected revenues, and estimated percent cost recovery for a particular simulation. A policymaker can choose a target share of costs to be recovered by fees and see the approximate adjustments in prices required to achieve it, or a feasible set of adjustments can be chosen and the adjusted percent of expenditures recovered from fees can be read from the table. Since utilization data are included, additional sets of prices can be applied to individual services, generating corresponding sets of revenues. Following the cost break-downs generated by Raymond et al. (1987), the simulations are disaggregated for inpatient, outpatient, and diagnostic services at the BCH/Central Laboratory only.[8] Global projections are presented for the district facilities.

4.1.2 Results: Partial Cost Recovery

Exhibits 8 and 9 show the results of the two partial cost recovery simulations, baseline and incremental, for BCH/Central Laboratory and district hospitals. The first simulation assumes that the government enforces the current rate structure as stipulated in the law, and eliminates exemptions for special groups (e.g., civil servants). Under the previously-described assumptions (70 percent pay Category II rates, 10 percent pay Category I rates, and 20 percent are provided free care), the MOH could recover 10 percent of costs, a nearly five-fold increase in revenues (from $131,990 to $611,943). It is interesting to

[8]Since the Central Laboratory performs a large number of tests for the BCH laboratory, utilization, cost, and revenue projections are combined.

note that under the current fee structure, over half of recurrent costs for laboratory tests could be recovered, and revenues would be four times greater than in outpatient departments.

Doubling most Category II inpatient fees, quadrupling the Category II bed-day rate, and adding outpatient charges, as in the case of the incremental simulation, would raise revenues by another 150 percent to $1.5 million, or 12 times current collections. Interestingly, the simple doubling of lab fees may turn a slight profit in terms of operating expenses, suggesting the possibility for cross-subsidization of other, more costly services.

EXHIBIT 8
PRICES AND REVENUES UNDER TWO PARTIAL COST RECOVERY SIMULATIONS[1]
BELIZE CITY HOSPITAL AND CENTRAL LABORATORY, 1989

		BASELINE (current rate structure, enforced) (70% Cat.II, 10% Cat.I, 20% free)			INCREMENTAL (modified rate structure) (20% free, lose 10%)	
SERVICE	PATIENTS, TESTS, AND MEDICINES (1989)	PRICE Cat. II PATIENTS	PRICE Cat. I PATIENTS	ESTIMATED REVENUES	SINGLE PRICE	ESTIMATED REVENUES
INPATIENT						
Discharges	8,121					
Patient Days	41,682	$2.50	$5.00	$93,785	$10.00	$300,110
Surgery						
-Major operations	967	$65.00	$100.00	$53,669	$130.00	$90,511
-Minor operations	1,348	$25.00	$40.00	$28,982	$50.00	$48,528
Maternity cases	2,363	$25.00	$40.00	$50,805	$50.00	$85,068
Medicines	125,046[a]	$2/day[b]	$3/day[b]	$70,859	$3/drug/day	$270,099
Medical Supplies	41,682[c]	$0.00	$0.00	$0	$3/day	$90,033
Inpatient - Subtotal				$298,099		$884,350
Cost/Percent Recovery	$4,514,886[d]			6.6%		19.6%
OUTPATIENT						
Outpatient visits	19,149	$0.00	$0.00	$0	$2.00	$27,575
Specialist visits	10,491	$5.00	$10.00	$47,210	$10.00	$75,535
Casualty visits	28,132	$0.00	$0.00	$0	$2.00	$40,510
Dental visits	5,670	$2.00	$3.00	$9,639	$4.00	$16,330
Injections	11,876	$0.00	$0.00	$0	$1.50	$12,826
Prescriptions	18,946	$0.00	$0.00	$0	$1.00	$13,641
Outpatient - Subtotal				$56,849		$186,417
Cost/Percent Recovery	$1,071,128[d]			5.3%		17.4%
TESTS						
Laboratory tests	93,440[e]	flat fee[f]	flat fee[f]	$208,397[f]	2xflat fee[f]	$375,115[f]
Cost/Percent Recovery	$370,891[d]			56.2%		101.1%
X-ray exams	8,648[g]	flat fee[h]	flat fee[h]	$48,599[h]	2xflat fee[h]	$87,479[h]
Cost/Percent Recovery	$222,639[d]			21.8%		39.3%
ESTIMATED TOTAL REVENUES				**$611,943**		**$1,533,361**
TOTAL COST/PERCENT RECOVERY	**$6,179,544**			**9.9%**		**24.8%**

1. All figures in BLZ $: $2 BLZ = $1 US
(a) Assumes three different medicines per patient day; based on sample of medical charts.
(b) Charge is levied per patient day regardless of number or types of medicines applied.
(c) Number of patient days.
(d) From Exhibit 2.
(e) Represent all tests performed at BCH and Central Laboratory.
(f) From Annex Exhibit 5.
(g) Represent exams performed at BCH.
(h) From Annex Exhibit 7.

EXHIBIT 9
PRICES AND REVENUES UNDER TWO PARTIAL COST RECOVERY SIMULATIONS[1]
DISTRICT HOSPITALS, 1989

SERVICE	PATIENTS, TESTS, AND MEDICINES (1989)[a]	BASELINE (current rate structure, enforced) (70% Cat.II, 10% Cat.I, 20% free)			INCREMENTAL (modified rate structure) (20% free, lose 10%)	
		PRICE Cat. II PATIENTS	PRICE Cat. I PATIENTS	ESTIMATED REVENUES	SINGLE PRICE	ESTIMATED REVENUES
INPATIENT						
Discharges	8,195					
Patient Days	26,401	$2.50	$5.00	$59,402	$10.00	$190,087
Surgery						
- Major operations	18	$65.00	$100.00	$999	$130.00	$1,685
- Minor operations	1,662	$25.00	$40.00	$35,722	$50.00	$59,814
Maternity Cases	2,793	$25.00	$40.00	$60,050	$50.00	$100,548
Medicines	79,203[b]	$2/day[c]	$3/day[c]	$44,882	$3/drug/day	$171,078
Medical Supplies	26401[d]	$0.00	$0.00	$0	$3/day	$57,026
OUTPATIENT						
Physician Visits[e]	95,759	$0.00	$0.00	$0	$2.00	$137,893
Dressings[e]	13,964	$0.00	$0.00	$0	$2.00	$20,108
Minor surgery[e]	1,416	$0.00	$0.00	$0	$2.00	$2,039
Dental Visits	8,114	$2.00	$3.00	$13,794	$4.00	$23,368
Injections	23,143	$0.00	$0.00	$0	$1.50	$24,994
Prescriptions	83,838	$0.00	$0.00	$0	$1.00	$60,363
TESTS						
Lab tests	50,511	flat fee[f]	flat fee[f]	$84,423[f]	2xflat fee[f]	$151,961[f]
X-ray exams	6,659	flat fee[g]	flat fee[g]	$36,813[g]	2xflat fee[g]	$66,264[g]
ESTIMATED REVENUES				$336,085		$1,067,230
COST/PERCENT RECOVERY	$2,621,443[h]			12.8%		40.7%

1. All figures in BLZ $: $2 BLZ = $1 US

(a) See Annex Exhibit 8 for utilization data by facility.
(b) Assumes three medicines per patient day; based on sample of medical charts.
(c) Charge is levied per patient day regardless of number or types of medicines applied.
(d) Number of patient days.
(e) Represent separate visits.
(f) From Annex Exhibit 6.
(g) From Annex Exhibit 7.
(h) From Exhibit 2.

Since costs are lower in the district hospitals, as is evident in Exhibit 9, the baseline and incremental simulations would render 13 percent and 41 percent cost recovery, respectively. The lower costs at district facilities would allow policymakers to impose lower fees than in BCH, but enable these facilities a similar level of cost recovery. In other words, to achieve 25 percent cost recovery system-wide would require a lower fee schedule in district facilities than in BCH. Upon reviewing the incremental simulations of Exhibits 8 and 9, we see that the same price structure results in 41 percent cost recovery in the districts compared to 25 percent in BCH.

BCH may be a good place to start more aggressive cost recovery policies, since it represents such a large proportion of the MOH's medical care budget. For example, if the BCH begins to recover 25 percent of costs (incremental simulation) instead of the current two percent, as would be done potentially in moving from the current fee structure to a modified rate structure, revenue in the whole system would increase from two percent to 14 percent of costs.

However, moving district hospitals from the current level of three percent cost recovery to recovering an equivalent of 25 percent of their costs improves the overall system's performance by six percent. Adding to this array, 25 percent cost recovery at Belize City health centers would increase revenues by less than one percent.[9] Significantly, in these latter facilities, this can be accomplished with a $1 "gate" fee entitling the patient to a physician consultation and prescription drug.[10] In short, if all facilities were required to recover 25 percent of costs, the system as a whole would achieve approximately 21 percent recovery, but would require that prices vary across facility types to reflect differences in costs.

As suggested earlier, lower fees in district facilities (and perhaps urban health centers) could signal patients to make greater use of these less costly facilities.[11] Charging higher prices at the BCH (and, conversely, lower fees elsewhere) would improve equity. Higher-income urbanites, representing the majority of BCH users, would be paying a greater share of BCH costs. Poorer rural residents would be providing less of a subsidy to the BCH through their taxes.

At this time, without an insurance market and with a history of only nominal charges for health care, 25 percent cost recovery may represent an upper limit, especially for inpatient care.[12] Even 25 percent exceeds by orders of magnitude current revenue levels and could be achieved with what are still nominal prices--the "simple fees" incorporated into the incremental simulation. This is evident in Column C of Exhibit 12, which demonstrates the BCH's incremental rate structure as a percent of the lowest private sector fee for selected services. The nominal fees are still substantially less than the lowest private sector prices. Most fees are less than one-third of private prices. For example, this option would require $2 and $10 per outpatient visit in general medicine and specialty clinics, compared to $20 and $35 in the private sector. Inpatient bed-day charges would rise to $10, compared to $95 in private hospitals.

4.1.3 Results: Full Cost Recovery

Exhibits 10 and 11 present the results of two full cost recovery simulations: a cost-based user fee system and a comprehensive health insurance scheme. As can be seen from prices listed for the cost-based user fee system, an inpatient stay at full cost would truly be a catastrophic event for most Belizeans. With the exception of laboratory services, the hospital would have to charge four to five times current fees to recover the full (recurrent) costs of services. A typical maternity stay in BCH could cost over $400, while major

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[9]See Annex Exhibit 4 for simulations of Cleopatra White and Matron Roberts.

[10]Planners often make the mistake of assuming there is little potential for cost recovery in lower-level facilities, but this tends to be a mistake. The simple reason is that costs are lower, so small fees in lower levels represent a large offset against costs. (See Annex Exhibit 4).

[11]Reducing the flow of patients to BCH is a current MOH priority.

[12]This statement is speculative. Rural hospitals recover up to 70 percent of costs in Zaire, one of the poorest countries in the world.

surgery requiring four days of inpatient care could cost over $1,000. Exhibit 11 shows that the prices for the cost-based scenario in BCH would approximate private sector prices.

These cost-based simulations provide an indirect measure of inefficiency in public sector delivery of services. Prices for some services, such as radiology, would be higher than at private facilities. Most inpatient services would cost 88 to 93 percent of private prices. Unless the government could deliver considerably improved services at those prices, it undoubtedly would lose many patients. Given the current conditions of the BCH, it is likely that even those clients who can pay the high prices under a cost-based system would be unwilling to do so at that facility.

Exhibit 11 shows that under a cost-based, full recovery system, charges for most services in district hospitals would be half the BCH price. But these prices are probably still high for many rural inhabitants.

Without a third-party payment system, fees set at a level high enough to cover those costs would impose a great hardship on almost all patients. Attempts to collect unpaid bills would tend to go unheeded. However, given the high cost of inpatient services, the government could reasonably expect a contribution even by public patients sufficient to cover one day in the hospital. The subsidy would still be enormous. Under the comprehensive health insurance scenario displayed in Exhibits 10 and 11, the facilities would recover full cost, but charges would be 30 percent less than the cost-based option. Lower charges are possible with comprehensive health insurance because there is no need to make up for losses incurred in the provision of free care, or due to lower utilization, as is the case for the cost-based scenario. As seen in Exhibit 12, prices under comprehensive health insurance in BCH would range between one-half and two-thirds of private prices for most services, significantly lower than the cost-based simulation.

4.1.4 Simulations: Summary

As a short-term strategy, it is simple to raise large amounts of money using small, all-encompassing fees on high-volume services. Essentially, doubling the current rate structure and imposing nominal fees for outpatient services, as demonstrated in the incremental simulation, increases total collections under the current system by thirteen-fold (from $0.2 to $2.7 million), assuming the fees are enforced. Such a change is also unlikely to reduce patient volume significantly, because the prices are still quite low. In contrast, moving to full cost recovery through a cost-based user fee system would drive large numbers of patients into the private sector, thus reducing the probability that the additional revenues would actually materialize. From a revenue-enhancing standpoint, small price increases on high-volume services represent the most attractive short-term strategy for the public sector.

EXHIBIT 10
PRICES AND REVENUES UNDER TWO FULL COST RECOVERY SIMULATIONS[1]
BELIZE CITY HOSPITAL AND CENTRAL LABORATORY, 1989

SERVICE	PATIENTS, TESTS, AND MEDICINES (1989)	COST-BASED USER FEE SYSTEM (20% free, lose 10%)		COMPREHENSIVE HEALTH INSURANCE (100% pay)	
		SINGLE PRICES	ESTIMATED REVENUES[a]	SINGLE PRICES	ESTIMATED REVENUES[a]
INPATIENT					
Discharges	8,121				
Patient Days	41,682	$84.00	$2,520,927	$60.00	$2,500,920
Surgery					
-Major operations	967	$350.00	$243,684	$250.00	$241,750
-Minor operations	1,348	$70.00	$67,939	$50.00	$67,400
Maternity cases	2,363	$280.00	$476,381	$200.00	$472,600
Operating/birthing room	4,678[b]	$70.00[c]	$235,771	$50.00[c]	$233,900
Medicines	125,046[d]	$8/drug/day	$720,265	$6/drug/day	$750,276
Medical Supplies	41,682[e]	$8/day	$240,088	$6/day	$250,092
Inpatient - Subtotal			$4,505,056		$4,516,938
Cost/Percent Recovery	$4,514,886[f]		99.8%		100.0%
OUTPATIENT					
Outpatient visits	19,149	$16.80	$231,626	$12.00	$229,788
Specialist visits	10,491	$35.00	$264,373	$25.00	$262,275
Casualty visits	28,132	$21.00	$425,356	$15.00	$421,980
Dental visits	5,670	$14.00	$57,154	$10.00	$56,700
Injections	11,876	$7.00	$59,855	$5.00	$59,380
Prescriptions	18,946	$3.50	$47,744	$2.50	$47,365
Outpatient - Subtotal			$1,086,108		$1,077,488
Cost/Percent Recovery	$1,071,128[f]		101.4%		100.6%
TESTS					
Laboratory tests	93,440[g]	2xflat fee[h]	$375,115[h]	1.5xflat fee[h]	$390,744[h]
Cost/Percent Recovery	$370,891[f]		101.1%		105.4%
X-rays	8,648[i]	5.5xflat fee[j]	$240,566[j]	4xflat fee[j]	$242,996[j]
Cost/Percent Recovery	$222,639[f]		108.1%		109.1%
ESTIMATED TOTAL REVENUES			$6,206,845		$6,228,166
TOTAL COST/PERCENT RECOVERY	$6,179,544[f]		100.4%		100.8%

1. All figures in BLZ $: $2 BLZ = $1 US
(a) Assumes 100% pay.
(b) Total number of surgeries plus maternity cases.
(c) Anesthesia.
(d) Assumes three medicines per patient day; based on sample of medical charts.
(e) Number of patient days.
(f) From Exhibit 2.
(g) Total tests performed at BCH and Central Laboratory.
(h) From Annex Exhibit 5.
(i) Total exams performed at BCH.
(j) From Annex Exhibit 7.

EXHIBIT 11
PRICES AND REVENUES UNDER FULL COST RECOVERY SIMULATIONS[1]
DISTRICT HOSPITALS, 1989

SERVICE	PATIENTS, TESTS, AND MEDICINES[a] (1989)	COST-BASED USER FEE SYSTEM (20% free, lose 10%)		COMPREHENSIVE HEALTH INSURANCE (100% pay)	
		SINGLE PRICES	ESTIMATED REVENUES[a]	SINGLE PRICES	ESTIMATED REVENUES[a]
INPATIENT					
Discharges	8,195				
Patient Days	26,401	$40.00	$760,349	$30.00	$792,030
Surgery					
-Major operations	18	$175.00	$2,268	$125.00	$2,250
-Minor operations	1,662	$35.00	$41,870	$25.00	$41,538
Maternity Cases	2,793	$140.00	$281,534	$100.00	$279,300
Operating/birthing room	4,473[b]	$35.00[c]	$112,707	$25.00 (c)	$111,813
Medicines	79,203[d]	$4/drug/day	$316,812	$3/drug/day	$237,609
Medical Supplies	26401[e]	$4/day	$105,604	$3/day	$79,203
OUTPATIENT					
Physician Visits[f]	95,759	$8.00	$551,572	$6.00	$574,554
Dressings[f]	13,964	$8.00	$80,433	$6.00	$83,784
Minor surgery[f]	1,416	$8.00	$8,156	$6.00	$8,496
Dental Visits	8,114	$7.00	$40,895	$5.00	$40,570
Injections	23,143	$3.50	$58,320	$2.50	$57,858
Prescriptions	83,838	$1.75	$105,636	$1.25	$104,798
TESTS					
Lab tests	50,511[g]	1.5xflat fee[g]	$113,971[g]	1xflat fee[g]	$105,528[g]
X-ray exams	6,659	3xflat fee[h]	$99,396[h]	2xflat fee[h]	$92,033[h]
ESTIMATED REVENUES			$2,679,522		$2,611,362
TOTAL COST/PERCENT RECOVERY	$2,621,443[i]		102.2%		99.6%

1. All figures in BLZ $: $1 BLZ = $2 US

(a) Assumes 100% pay.
(b) Total number of surgeries plus maternity cases.
(c) Anesthesia.
(d) Assumes three medicines per patient day; based on sample of medical charts.
(e) Number of patient days.
(f) Represent separate visits.
(g) From Annex Exhibit 6.
(h) From Annex Exhibit 7.
(i) From Exhibit 2.

EXHIBIT 12 PRICES OF FOUR COST RECOVERY SIMULATIONS AS A PERCENT OF[1] LOWEST PRIVATE SECTOR PRICES, BELIZE CITY					
	(A) LOWEST PRIVATE PRICE[a]	(B) BASELINE	(C) INCREMENTAL	(D) COST-BASED USER FEE SYSTEM	(E) COMPREHENSIVE HEALTH INSURANCE
INPATIENT					
Patient Days	$95	3%	11%	88%	63%
Surgery					
-Major operations	$400	16%	33%	88%	63%
-Minor operations	$75	33%	67%	93%	67%
Maternity cases	$300	8%	17%	93%	67%
OUTPATIENT					
Outpatient clinic visits	$25	0%	8%	64%	48%
Specialist clinic visits	$35	14%	29%	100%	71%
Dental visits	$20	10%	20%	70%	50%
TESTS					
Laboratory tests	$19[b]	16%	31%	24%	16%
X-ray exams	$31[c]	23%	46%	125%	91%

1. All figures in BLZ $: $1 BLZ = $2 US
(a) Prices based on sample of private providers in Belize City.
(b) Based on weighted average of a sample of tests performed at Belize City Hospital and Central Laboraties. See Annex Exhibit 5 for tests.
(c) Based on weighted average of exams performed at Belize City Hospital. See Annex Exhibit 7 for exams.

From a full cost recovery standpoint, however, a comprehensive health insurance system may be the best option. A careful comparison of the costs and benefits of that approach must be made before conclusions can be drawn. Full-cost fees, particularly for inpatient care, are unaffordable for large segments of the population. For basic services delivered at outpatient facilities, collecting user fees may result in near full cost recovery, but the government will still have to provide large subsidies for hospital care. This leads to another problem. Community financing of local outpatient facilities through user fees coupled with the government's tax-based funding of urban hospitals may worsen inequities, as poor communities take on a greater share of costs of these facilities and, at the same time, subsidize urban hospitals through their taxes. Insurance coverage can help reduce such inequities.

Full-cost fees can be introduced under a comprehensive health insurance program in which the entire population participates. A person pays a fixed amount on a monthly or weekly basis (a premium) to a third party, a health insurance fund. The fund then can reimburse (or pay on a prospective basis) the facility for services rendered to the patient. Although fees are negotiable, they

generally approximate average costs.[13] It is not necessary under such an approach that all services be delivered by the government.

If the respective levels of government maintained the health budget near the current level (for approximately two years) and encouraged facilities to invest their initial collections of revenue in improving their services, repairing their physical plant, and replacing equipment, patients would observe an instant benefit directly attributable to the new fees.[14] Staff would realize the benefit of collecting the money. The simple lesson is that, in the short term, levels of cost recovery far exceeding the historical experience may be feasible in Belize. A carefully thought-out cost recovery program could be used to upgrade curative services at each level so that patients would see improvements connected to the payment of the fees.

To be conservative, given the many assumptions required to produce the revenue figures given in Exhibits 8 through 11, these figures should be viewed as upper-bound estimates, probably as much as 20 percent high. The estimates are useful, however, because they are comparable to each other (they are based on the same 1989 utilization data), and the experience of other countries suggests that if prices are raised and services are improved, use is likely to go up after an initial reduction. In addition, demand studies done in a variety of countries suggest that the demand for outpatient care is extremely price inelastic (demand is virtually unaffected by modest changes in prices), and we must keep in mind that fees in Belize are only a fraction of what they were in the 1960s in real terms. Since that time, income has more than doubled. While the revenue estimates may not be far off the mark, they should not be taken as much more than a reference point. The high level of uncertainty in the estimates suggests that a good strategy would be to experiment with price changes in "test markets" and accompany those experiments with population-based demand surveys before and after. (See technical assistance and applied research recommendations in sections 5.0 and 6.0.) Finally, any change in pricing practices in the public sector must be accompanied by a major effort to explain it to the public and demonstrate quick improvements in health care services that can be directly attributed to the price changes.

4.2 MEANS TESTING: PROTECTING THE POOR

In a number of developing countries confronted by declining resources for health, the presumption has switched from giving free services to all patients to the belief that all patients should contribute to the cost of their care. Given that Belize has one of the highest per capita income levels in Latin America and the Caribbean, it is difficult to argue that there are many people who could not pay the price of an inpatient admission or outpatient visit in MOH facilities at even twice the current low rates. Given the price comparisons made earlier, arguing that people cannot pay these prices is tantamount to arguing

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[13]There are many advantages to a national insurance system in terms of risk burden, provider efficiency, equity, and consumption of services. These issues are discussed in the final diagnosis paper.

[14]As recommended in the HFS report on Social Security, additional capital for quality improvement can be made available through Social Security for those facilities that successfully implement and sustain a cost recovery program.

that the price of beer, soft drinks, or chicken should be waived for a large segment of the population. Small fees represent a reasonable tool to discourage frivolous use, but they are unlikely to impede use of essential services.

As noted in section 1, means testing in MOH facilities is dysfunctional. Attempting to identify the poor directly at the point of admission is an onerous task, turning clerks into police, encouraging deceit, and pushing people to seek favors. Many problems can be avoided by developing a reasonable set of affordable fees, such as the prices listed in the incremental simulation, and enforcing them strictly for all patients at all locations.

Nevertheless, some cannot afford even the low fees. In the past, the Social Development Department (SDD) of the Ministry of Social Services and Community Development worked with the MOH in identifying those who could not pay. During the 1980s, this relationship ceased to exist for undetermined reasons. The SDD has social workers in all districts who are trained in performing means tests for the government's welfare program. The recipients are mostly the elderly, unemployed, and children in families with no stable source of income. They receive weekly cash subsidies or vouchers for food and clothing purchases. With the exception of the elderly, most cases are reviewed biannually to evaluate eligibility. The means test entails an interview and a home visit. An estimated 3,000 Belizeans receive some kind of social assistance on either a permanent or temporary basis. Case records of all social assistance recipients are kept at SDD district offices.

All Belizeans receiving social assistance are easily identified because they carry a card or can produce a check stub. Clearly, this group should be granted free access to MOH services. SDD officials claim that in the past means test forms were completed at the BCH and then sent to the SDD for investigation. This practice should be re-established. All patients desiring a fee waiver can seek certification from the SDD. The SDD also has procedures for waiving medical fees on a one-time basis through the Immediate Assistance Program.

A case can be made that the government should subsidize certain preventive services for women and children from low-income families not receiving social assistance. Fees may negatively affect their access to and utilization of these services. However, these groups are difficult to target. For example, children under five years of age can receive free well-baby care. Since poorer families tend to have more children than non-poor families, this strategy will indirectly target children in the former group. Similarly, pre-natal and post-partum care for women at risk also may be subsidized. Perhaps the best strategy for preventive services is to reduce prices for those services that are more price elastic and raise them for services that are less price elastic.[15] Preventive services are generally considered more price elastic than curative care.

Another strategy for protecting the poor is to build into the system low-cost alternatives that allow a patient to choose an adequate but lower-priced service that would fulfill his or her needs. An example would be to charge a higher fee at the BCH outpatient department to reduce congestion, cut frivolous use, and raise needed revenues while charging lower prices at urban health

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[15]For a price elastic service, an increase in price will disproportionately reduce the amount purchased. An inelastic service will experience little reduction in quantity purchased with an increase in price.

centers. Referrals to the BCH from the districts would, of course, be charged at a lower price or might be included in the fee at the health center. Rural health centers would represent a free alternative to more costly urban health center visits, which in turn would provide an alternative to even more costly hospital visits.

Of course, certain people always fall through the cracks, emergencies occur during which care cannot be denied, and some people will continually test the system for ways to avoid fees. If the facilities make a concerted effort to collect fees, and fees are charged in such a way that low-cost alternatives are always available, these problems will be minimized, but not eliminated. The SDD Immediate Assistance Program provides a basis for handling such problems in a formal manner.

4.3 PRIVATE PATIENTS

Policymakers may want to charge higher fees for private patients in BCH.[16] However, without the cooperation of the specialists, it will be difficult to identify them. There is no easy solution to this problem. Some MOH officials suggest outlawing private practice in MOH facilities. This would drive many patients to the private sector (in Belize and Mexico), reducing revenue potential for the hospital. It also may compel some specialists to abandon the public service. From the standpoint of strengthening the private medical sector in Belize, this is a preferable option. The MOH may experience a shortfall in specialists, however, unless changes are made in physician licensing legislation.[17]

One short-term measure is to levy the same fee schedule on all patients, private and public. In this way, there would be no incentive on the patient's part to conceal his or her status, allowing the hospital to monitor private admissions. Through administrative regulation, BCH administrators can limit the number of private admissions (in each service) as a means to reducing discriminatory practices against non-private patients.

Two long-term solutions would be the establishment of private wards in the new BCH or the development of comprehensive health insurance. Regarding the latter option, it would make little difference to a hospital or physician whether a patient was private or public, as they would collect the same payment.

4.4 FEE RETENTION, DECENTRALIZATION, AND QUALITY

Under current fee collection practices in Belize in which all fees are forwarded--via the Ministry of Finance--to the Treasury, a user fee becomes essentially a tax on illness episodes. The inability of the facilities to retain fee revenues creates disincentives to managers to bill patients and collect payments. Indeed, the inefficient billing and collection systems observed in the

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[16]The charging of fees for Social Security patients is discussed in the HFS social security paper.

[17]Easing physician licensing restrictions is a major recommendation of the HFS report on the private sector in Belize.

sampled facilities can be seen as a rational behavioral consequence of a user fee system that converts facility clerks into tax collectors.

The basic principle distinguishing a fee from a tax is that the institution collecting a fee--and indirectly the person paying the fee--benefits from the resulting revenues. Converting a taxation system into a fee collection system should be straightforward--let the institution collecting the money keep it. However, this approach has major consequences for a government agency, because having a separate source of revenue gives the collecting agency independent power over some portion of its resources.

4.4.1 Quality

In addition to providing collection incentives, allowing facilities to retain revenues is essential to staff and public acceptance of a user fee system. It is unlikely that user fees will be imposed successfully without concomitant quality improvements. Generally, people will be unwilling to pay for the same services that they previously received free of charge. Quality - or perceived quality - may be a greater determinant of utilization than price. Econometric models based on data from household demand surveys in Nigeria, for example, suggest that if the quality of government services is raised when prices rise, demand for services will nevertheless increase. User fee revenues will not translate into improved quality unless, in one way or another, the fees represent a net increase in the budget that facility managers can spend on service delivery.

4.4.2 Decentralization

A brief discussion of a few possible approaches can reveal the underlying principles of revenue retention. The most radical approach, but also the most economically efficient, would be to treat hospitals as if they were independent or parastatal institutions. Another would be to treat lower-level facilities--urban and rural health centers--as independent agencies raising some of their own funds, or as extensions of the hospital with varying degrees of financial and medical independence. In the latter case, the hospital would be responsible for creating an economically efficient and financially viable public health care system within its jurisdiction. Such an approach is possible for district hospitals. The system as a whole or each component can be overseen by a community health board of directors. The underlying principle is that collection and retention of fees provides the incentive and the means for decentralized management and control of the institutions providing health services. How far to go with that decentralization is a matter of judgement, but a system that is serious about user fees will move in that direction.

Another advantage of the decentralization is that it would free the central level MOH to concentrate on public health and promotional activities, while the hospital/clinic system would provide curative services. In terms of curative care, the MOH would step into more of a regulatory role than it has played historically. Continuing subsidies to curative services would be negotiated between the curative care institutions and the various levels of government, not to subsidize the facilities per se, but to subsidize specific patients (e.g., the poor) and to reimburse hospitals for public services they provide.

All approaches require--minimally--that the facility collecting the funds have some independence. That independence probably requires a board of directors composed partially of people representing the clients.

4.4.3 Revenue Sharing

Once the issue of degree of decentralization has been decided, another question is how to split the fee collections between the institution and the various levels of government that have an interest in the revenue. The implication in the examples above is that all money collected is retained by the institution, but once the central subsidy fades away (discussed below), it becomes apparent that some of the fees collected by the hospital will be lost. The best approach is to phase in a revenue sharing scheme. There are two options:

- A proportional tax is levied on revenues: e.g., 50 percent to the institution, 25 percent to the central MOH, and 25 percent to the MOF. This approach recognizes that upper-level bureaucracies provide services to the collecting facility. The facility knows it can keep a fixed percentage of all collections, so it has an equally strong financial incentive to collect every dollar.

- The facility keeps an increasing percentage of each dollar collected: In effect, other levels of government are taking a cut of collections for fixed administrative or other costs up front. This approach increases the facility's financial incentive to raise money as more is collected.

Both options can incorporate an added equity advantage. Fees retained by the MOH can be used to allocate additional resources in favor of poorer groups in rural areas or to fund preventive services.

4.4.4 MOH Subsidy Reduction

Recognizing that the central subsidy to facilities will decline as they collect more of their revenue from patients, policies must be well defined, clearly understood, and stable over a reasonable period of time so that facility-level administrators and boards know the rules of the game. Agreement must be reached on the character of the relationship between the institution and the governing ministry on pegging minimal levels of central support.

There are at least two alternatives:

- Minimum nominal funding: Agreement to maintain funding at the existing nominal level, or at some fraction thereof. This approach allows for a gradual reduction in real funding, assuming there is price inflation, allowing the institution to slowly adjust to the change.

- Minimum physical support, or minimum real funding: Provide a minimum level of government support to the institution, such as salaries of a minimum staff. The facility becomes responsible for all expenditures above that minimum, such as those for more staff, drugs, supplies, and minor equipment.

4.4.5 Summary

The main conclusion of this section is that decentralization is an implicit element of a user fee strategy, and essential to its success. It is the only way to create the incentives necessary to encourage fee collections, which, in turn, provide the resources to invest in quality improvement. If institutions find that they cannot benefit from collecting fees and patients see no discernable difference in the quality or quantity of services provided for those fees, the user fee strategy is likely to fail. It will collect little additional revenue, alienate patients, and reduce staff morale.

Decentralization, however, is not anarchy. Rules on accounting, auditing, and reporting must be built into the system. Many unexpected issues will arise: successful institutions will seek to expand, so procedures for planning investments in the sector will have to be reevaluated; many facilities will seek the power to enter credit markets individually, requiring policy decisions on that issue; some facilities will have favored access to charitable donations, and a mechanism for sharing those gifts might be warranted.

The central MOH will lose its historic role in the health system. It will be forced to plan for a new mission that has less to do with running curative health services and more to do with public health, promotional activities, environmental health, health education, regulating the system of public and private institutions, managing targeted subsidies, and supervising insurance systems.

The government may reject these recommendations and continue with the present system of centralized administrative control, plus continued taxation of sick people. If that route is chosen, we recommend that the MOH cease collecting fees altogether and turn the function over to the MOF, which can place tax collectors in the health system.

4.5 COST OF COLLECTION

Often, the cost of collecting small fees in the public system is cited as a reason not to collect them at all. In Belize, where, for the most part, HFS is considering changes in a fee schedule, marginal cost is all that matters. Most of the costs of collecting fees are fixed. If the facility collects only two percent of its expenditures, its collection costs will be high relative to revenues. As collections increase, the administrative cost falls rapidly as a percentage of collections. This statement applies to all hospitals in Belize--they all have the basic infrastructure in place to collect user charges. As collections increase, administrative costs will fade as an issue. Moreover, if the responsibility for means testing is transferred to the Social Development

Department, clerks probably will have additional time to handle billing and collection activities for the increased volume of paying patients.[18]

The relevant question for Belize, therefore, is how much the number of people involved in fee collection would decrease if fees were no longer collected. At facilities where fees are already collected, all clerks will still be needed. Generally, the clerks perform essential functions related to admitting patients, maintaining records, and other duties jointly carried out with the collection of fees. Thus, it is difficult to argue that the marginal cost of collecting fees in a well-administered facility is high; it is probably close to zero.

These points do not address the issue of collecting fees where there were none before, which is the situation at stand-alone health centers such as Matron Roberts and Cleopatra White. Depending on current staffing patterns, an additional person may be needed to collect fees and monitor revenues. The important point here is that sufficient revenues must be raised to make user fees a sensible thing to administer.[19] If possible, an initial strategy can include assigning existing staff to the task of collecting and accounting for the money.

Work patterns observed by the team of consultants in health centers--huge demand in the morning, followed by much lower utilization after noon--may make it possible to add accounting tasks in the afternoon without increasing the staff. Money collection can be done as part of the registration procedure.

Another way of stating the same issue is that any costs of collecting fees can be controlled to a considerable degree. In the previous examples, the key variable was the number of new collectors required. How the fees are charged, however, has an important impact on the number of people required to collect them. Under one scenario, a patient might pay at an outpatient department, a pharmacy, and a laboratory, requiring the services of three clerks. It would not take much imagination to combine all three fees into a single transaction or to charge all patients a single fee at the entrance based on the average cost of a visit, eliminating the need for so many collection points.

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[18]Under a national health insurance scheme, however, facilities probably will need to hire an additional person to handle billing. Also, as the system moves toward full cost recovery and greater decentralization, an accountant may be required in each of the district facilities to monitor revenues and costs.

[19]Lower-level facilities in other countries actually have been more successful than hospitals in recovering their costs because costs are low and each patient pays a small amount (compared to hospitals, where bills can be large). The experiences of Ethiopia and Zaire in achieving high levels of cost recovery in rural clinics, usually over 100 percent, are well documented. Both countries are much poorer than Belize. Documentation of cost recovery in evening clinics in the Sudan shows that collection costs were negligible once implemented (Griffin 1989). The lesson is that cost recovery in lower-level facilities may appear to be costly before the fact, but it should not be dismissed out of hand. In Belize, there are probably enough personnel in health centers to do the collecting and accounting during the course of a normal day at little or no additional cost. Moreover, if the facilities benefit from collecting the money, there is little doubt that the personnel will cooperate in collecting it.

In summary, the costs of collecting user fees should be considered in terms of incremental costs. At the margin, increasing prices, hence revenues, will result in negligible changes in the cost of collecting fees. In cases where the marginal cost of collecting new fees might be high, there are many techniques available to reduce it to nearly zero. In either case, it is safe to neglect collection cost as a factor in order to focus on other more important concerns.

Two changes associated with fee collection that have not been discussed are the training of staff to handle money and accounting forms, and greater attention to administration and control within the institutions. Such training will be crucial to any successful decentralization process. Again, it could be argued that such activities will prove beneficial to the system, and that the benefits extend beyond the fee system that originally creates the incentives to make the expenditures on training and management systems.

4.6 CONCLUSION

Strapped by increasing costs and decreasing budgetary allocations, the Ministry of Health faces rising operating deficits during the 1990s. The government has made it known that real increases in future MOH budgetary outlays are unlikely. To maintain service provision at even current levels of quality and quantity, the MOH must search for mechanisms that increase revenues and, at the same time, foster greater efficiency and equity in service production. This report analyzed the problems and potential of one such mechanism: cost recovery through user fees.

As currently practiced in MOH facilities, user fees are inconsequential in terms of revenues, efficiency, or equity. Factors contributing to poor performance include: low prices, ineffective means testing, informal exemption policies, and lax billing and collection practices. Further, facility managers have no control over fee revenues, which are deposited in the government's Consolidated Fund. Since there is little correspondence between fee revenues and service provision, the fees are essentially a tax on the sick.

Four simulations featuring partial and full cost recovery revenue estimates for the Belize City Hospital and district facilities were presented. As a short-term strategy, a partial cost recovery scheme has great potential for success. Simply doubling the current fee schedule and applying nominal flat fees for outpatient care will recover 25 and 40 percent of operating costs in Belize City Hospital and district facilities, respectively. Utilization loss probably will be insignificant because prices will remain considerably below private charges. A long-term option involves establishing a comprehensive health insurance system. However, a functional partial cost recovery system will be a necessary first step toward the development of full cost recovery through comprehensive health insurance.

To guarantee the high performance of a cost recovery program while improving efficiency and equity, several policy and administrative measures are required: decentralized facility management, fee retention at the point of collection, transferring of means testing to the Social Development Department, and a clearly defined subsidy reduction plan.

Demonstration projects are recommended as means to test different design strategies, as well as to develop sound management and financial practices.

Experimental projects offer the advantage of testing the political feasibility of different approaches among political leaders, health workers, and the general public.

5.0 RECOMMENDATIONS AND NEXT STEPS

As a short-term strategy, HFS recommends that the MOH experiment with different revenue-enhancing arrangements in a small sample of facilities. The proposed short-term activities are oriented toward a single objective: develop a partial cost recovery policy. Policymakers can use the simulation tools presented here to set a cost recovery goal, that is, the percent of costs to be recovered. HFS considers partial cost recovery a goal that is easily reachable, given current utilization levels, affordable to the majority of MOH clients, and relatively neutral in terms of equity considerations. Further, given the MOH's network of facilities, together with a very competent and committed staff, the potential for success is high. Activities will focus on options regarding price structures, revenue sharing, decentralization, and protecting the poor. The proposed actions, particularly in terms of revenue sharing, decentralization, and management, will help prepare the way for some system of comprehensive health insurance, the long-term full cost recovery strategy. Specific activities related to the design of a comprehensive health insurance plan are outlined in the "Social Financing" report.

There is so little knowledge of how either the health system or its clients will react to the price changes that experiments are highly recommended. Because the greatest potential for additional revenue and the greatest capability to collect and manage fees are in hospitals, they are the place to start in any experiment. We recommend the BCH and at least one district hospital as testing sites. Belize City health centers are also good candidates for pilot projects. The lessons learned from innovative pilot projects would pay high dividends in better policy formulation.

Recommendation 1: Develop a user fee strategy that incorporates a new price structure by facility and service type.

Once the MOH decides to go forward with reforming cost recovery arrangements, facility managers can, with external assistance, design and implement user fee strategies on a demonstration basis. The price structure incorporated in the incremental simulation provides an excellent reference point. The prices are double those of the current fee schedule, but are still significantly lower than in the private sector. Whether to charge fees for all services or apply a "registration" or "gate" fee that entitles the payor to a number of services will depend on the facility and can be determined on a demonstration basis. Blanket exemptions can be eliminated gradually.

Improved cost recovery also will require improved management practices, especially in billing and payment collections. Administrative costs can be minimized through the design process. Technical assistance can be provided to monitor and evaluate these experiments. Applied research activities, including demand and cost analysis, can be incorporated into this technical assistance. Such activities will be critical to assessing how different pricing arrangements affect demand, revenues, and costs. A proposal for applied research is outlined in the next section.

Recommendation 2: Develop a revenue-sharing arrangement and decentralization strategy for curative facilities.

Revenue retention at the facility level is the key element of any cost recovery strategy. It provides an incentive to facility personnel to collect fees by furnishing the means to make quality improvements. Resource management at the facility level implies decentralization. Devolving authority from the central to the local level usually includes some control over hiring practices and the purchases of goods and services. The best advice is to proceed carefully. Again, decentralization arrangements can be part of the pilot projects.

In collaboration with representatives of the MOF, MOH, and facility managers, health financing specialists can develop revenue-sharing schemes to test on a demonstration basis. Assistance also can be provided to develop and test a workable decentralization strategy that involves a combination of local autonomy and central control. Quality improvement will have to be planned and financed as part of a cost recovery scheme. Such improvement may require financial and technical assistance.[20]

Recommendation 3: Protect the poor: (1) transfer responsibility for means testing to the Social Development Department; (2) maintain free or low-cost alternatives to services for which fees are imposed.

It is simply too difficult to identify the destitute at the point of service purchase. Means testing to determine eligibility for free care should be placed in the capable hands of the SDD. Removing means testing from facility clerks will free up time for improving billing and collection systems. The SDD has an effective policy with proven procedures and a network of trained social workers. Assistance can be provided to the SDD and MOH to develop formal links between the two institutions.

Low-income Belizeans who are not identified by the SDD can be protected by maintaining low-cost alternatives to services for which fees will be imposed. The alternative may be another facility or the same facility during off-peak hours (e.g., lower prices in hospital outpatient departments in the evening). Instead of giving clerks the responsibility of placing these groups in income categories, let the latter identify themselves by allowing them the option of choosing the price and level of service they desire. As part of the demonstration projects, the MOH can establish alternative pricing schemes among facilities within the same catchment area.

6.0 APPLIED RESEARCH PROPOSAL FOR COST RECOVERY

The following research activity can be attached to USAID's upcoming technical assistance project, the health financing component of the Fiscal Policy Planning and Management Project. Thus, it is contingent on the character of that project and many other unknowns that are to be sorted out in the near future. We have not committed much time to the details of this activity, but will briefly outline what we envision.

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[20]The HFS Project recommends the Social Security Board as a source of financial assistance. See HFS report on Social Security.

The first assumption underlying this applied research activity is that the MOH decides to go forward with a cost recovery program. The second assumption is that USAID provides technical assistance to support the change in policy. Two features that would accommodate a good applied research project, but are not necessary for its success, are: (a) the MOH tests the policy change in one or two institutions before widening the scope of the reform to the whole country, and (b) at least one public hospital is turned into a quasi-independent institution with its own governing board, greater control over its staff, a fixed subsidy from the MOH, and freedom to create a cost recovery program. We are not recommending these actions, but do want to make clear that the character of policy changes in Belize will affect the character and value of the research.

Under these circumstances, an appropriate piece of technical assistance would be the provision of financial and management specialists who could help the staff of the institution in (b) above to transform itself into a self-governing body responsible for its own performance, in terms of providing high-quality care for which people will pay, with control over its revenues and expenditures. Assistance would be required to plan how the central government would continue to subsidize the operation and for what purposes (such as how to target assistance to specific patients).

An applied research activity could be built into this technical assistance that would do several things. First, the same types of demand information would be gathered as envisioned under the first applied research activity described previously. This effort would be focused on the specific task, providing demand analysis helpful for setting prices and predicting revenue in the experimental facility(ies). It would also, for example, provide information necessary to understand the mechanics and cost of targeting MOH subsidies to specific income groups. Second, a simple cost study of the facility would be performed to find out what types of fees would be required to recover costs. The combination of the demand and cost studies would provide information about feasible price levels, the scope for cross-subsidies within the hospital, and the level of continuing MOH subsidy required. Third, after the cost recovery program is put in place and people have adjusted to it, one or two additional demand surveys and cost studies would be undertaken to find out how use patterns change, and how the change in governance and the requirement for cost recovery affect efficiency within the institution. The information collected would help the government evaluate the impact of its change in policy and allow for mid-course corrections. These activities might take a year in total to complete. However, they would not have to be repeated at every institution subsequently because most of the information would be of a general nature that could be applied to other areas of the country with only minor modifications.

Beyond these activities, which are complex enough to present a daunting task, it would be helpful to monitor the pricing activities of other providers in the area, to include both a hospital and its satellite clinics in the cost recovery activity, to investigate the potential for social financing mechanisms to help pay the bills, and to assist the government in focusing its public health budget in areas where cost recovery is not feasible. These expansions of the technical assistance, with associated applied research activities, would increase tremendously the value of the exercise by attacking simultaneously the entire range of issues that determine success in cost recovery and allowing cost recovery to feed directly into the financing of government services in preventive or public health activities. However, we must be realistic about the cost of such an effort and our ability to organize such a wide range of activities.

The experience of completing the transformation in one facility and developing the ability to replicate it in other public facilities (with much less, and possibly no, additional technical assistance and certainly without further applied research) would allow the MOH to proceed confidently with its cost recovery program. The knowledge provided by the applied research activities would allow the Ministry of Health to fine-tune its cost recovery policy, to demonstrate the success or failure of the policy reform before making it national, and to show clearly the trade-offs that will have to be made among competing objectives.

ANNEX EXHIBIT 1
A COMPARISON OF PUBLIC AND PRIVATE SECTOR PRICES
FOR SELECTED LABORATORY TESTS, 1990

CATEGORY	TEST (a)	GOVERNMENT	PRIVATE LABORATORY	MISSION HOSPITAL	GOVERNMENT AS PERCENT OF PRIVATE	GOVERNMENT AS PERCENT OF MISSION
Hematology						
	HB/PVC	$2	$5	$3	40%	67%
	Full Blood Count	$4	$10	$8	40%	50%
	Sickle Cell	$2	$10	$5	20%	40%
	ESR (Sedimentati	$1	$5	$4	20%	25%
	HIV	$10	$60	NP	17%	—
Chemistry						
	Fasting Blood Su	$2	$8	$4	25%	50%
	BUN (urea nitrog	$2	$10	$7	20%	29%
	Cholesterol	$3	$10	$5	30%	60%
	Liver Function Te	$8	$40	NP	20%	—
	Bilirubin Total &	$6	$15	$6	40%	100%
	SGO-T	$3	$10	$5	30%	60%
	SGP-T	$3	$10	$5	30%	60%
	Alkaline Phosph	$3	$10	NP	30%	—
	Uric Acid	$3	$10	$5	30%	60%
	Sodium/Potassiu	$6	$40	$15	15%	40%
	Albumin/Protein	$3	$20	NP	15%	—
Urinalysis						
	Routine	$2	$8	$8	25%	25%
	Pregnancy	$3	$10	$10	30%	30%
Serology						
	VDRL	$2	$8	$5	25%	40%
	ASO titre	$5	$20	$10	25%	50%
	AFP SLIDE	$0	$15	$10	0%	0%
Parasitology						
	Ova and Parasite	$2	$8	$5	25%	40%
	Occult Blood	$1	$10	NP	10%	ERR
Bacteriology						
	Blood	$4	$40	NP	10%	—
	Urine	$3	$15	$6	20%	50%
	Stool	$3	$20	NP	15%	—
Immunohematology						
	Blood Grouping	$2	$5	$6	40%	33%

Note:$1 BLZ = $0.5 US
NP = Test Not Performed.
(a) = Tests represent 86% of volume performed in MOH facilities.

ANNEX EXHIBIT 2
A COMPARISON OF PUBLIC AND PRIVATE PRICES
FOR SELECTED RADIOLOGY EXAMS, 1990

EXAMINATION (a)	GOVERNMENT	PRIVATE (c)	MISSION HOSPITAL	GOV. PRICE AS PERCENT OF LOWEST PRIVATE	GOV. PRICE AS PERCENT OF MISSION HOSPITAL
ABDOMEN	$7.50	$30-40	$15	25%	50%
BARIUM ENEMA	18.00	80-150	NP	23%	—
BARIUM MEAL	15.00	70-150	NP	21%	—
THORAX (CHEST)	6.00	35-40	15	17%	40%
CERVICAL SPINE	7.00	35-40	24	20%	29%
EXTREMITIES (b)	4.00-6.00	25.00	10-24	16%	—
FEMUR	7.50	30-40	30	25%	25%
HIP	7.00	30-35	15	23%	47%
IV PHLEOGRAM	16.00	100	NP	16%	—
KNEE	8.00	30-35	20	27%	40%
LEG	8.00	30	15	27%	53%
LUMBO-SACRAL VERT.	9.00	40	24	23%	38%
PELVIS	8.00	30	15	27%	53%
RIBS	8.00	35-40	30	23%	27%
SKULL	8.00	30-35	36	27%	22%
STERUM	6.00	35-60	24	17%	25%
THERACIC VERT.	9.00	40-50	15	23%	60%
HISTERO-SALPINGOGRAM	10.00	95-100	NP	11%	—
COLESYSTOGRAM	10.00	60-80	NP	17%	—

Note: All prices refer to adults.
NP = test not performed.
(a) = Sample represents 90% of volume of exams performed at government facilities.
(b) = Foot, ankle, hand, wrist, finger, elbow.
(c) = In most cases, higher price includes radiologist interpretation.

ANNEX EXHIBIT 3
A COMPARISON OF PUBLIC AND PRIVATE SECTOR PRICES
FOR SELECTED HIGH VOLUME OUTPATIENT DRUGS, 1990

			UNIT PRICES		
DRUG (a)	CONCEN.	PRES.	GOVERNMENT	MISSION	PRIVATE (b)
Acetominophen (paracetamol)	500 mg	tab	$0.00	$0.05	$0.04 - 0.16
Acetaminophen syrup	120 ml	susp	$0.00	$2.70	$2.55 - 7.75
Ampicillin	250 mg	cap	$0.00	$0.13	$0.13 - 0.18
Ampicillin	60/100 ml	susp	$0.00	$2.25	$2.25 - 4.09
Aspirin	300/325mg	tab	$0.00	NA	$0.02 - 0.07
Chlorpheniramine Maleate	4 mg	tab	$0.00	$0.03	$0.09 - 0.12
Chlorpropamide (Diabenese)	250 mg	tab	$0.00	$0.07	$0.07 - 0.15
Choloraphenicol	250 mg	tab	$0.00	$0.25	$0.10 - 0.23
Cloxacillin	250 mg	tab	$0.00	$0.40	$0.19 - 0.2
Diazepam	5mg	tab	$0.00	$0.05	$0.04 - 0.07
Erythromycin	250 mg	tab	$0.00	$0.35	$0.24 - 0.36
Ferrous Sulfate	65 mg	tab	$0.00	$0.03	$0.03 - 0.04
Folic Acid	1 mg	tab	$0.00	NA	$0.03 - 0.1
Frusemide (Lasix)	40 mg	tab	$0.00	$0.10	$0.03 - 0.09
Griseofulvin	500 mg	tab	$0.00	$0.50	$0.50 - 0.61
Gentamycin (inj.)	40 mg	amp	$0.00	$1.63	$0.50 - 1.02
Hydrochlorthiazide (water)	50 mg	cap	$0.00	NA	$0.03 - 0.04
Ibuprofen	200 mg	tab	$0.00	NA	$0.11 - 0.16
Indomethacin	25 mg	tab	$0.00	$0.10	$0.11 - 0.23
Insulin – NPH	10ml u100	amp	$0.00	$37.00	$36
Levamisole	50 mg	tab	$0.00	NA	NA
Mg Trisilicate w/al tri	250/150mg	tab	$0.00	NA	$0.10
Mebendazole	200 mg	tab	$0.00	$0.23	$0.11 - 0.22
Mebendazole	20 ml	susp	$0.00	$2.40	$2.00 - 6.52
Methyldopa (Aldomet)	250 mg	tab	$0.00	$0.10	$0.15 - 0.2
Metronidazole	250 mg	tab	$0.00	$0.10	$0.12 - 0.13
Nefedipine	10 mg	tab	$0.00	$0.60	$0.53 - 0.94
Neomycin	5 gr	tab	$0.00	NA	$6.94
Penicillin (benz)	2.4 m	amp	$0.00	$4.95	$1.82 - 10.21
Penicillin Pro.	4mu	amp	$0.00	NA	$3.12 - 3.75
Propranolol HCL	40 mg	tab	$0.00	$0.04	$0.11 - 0.12
Ranitidine (Zantac)	150 mg	tab	$0.00	NA	$1.22 - 2.17
Salbutamol (Ventolin)	4 mg	tab	$0.00	$0.11	$0.10 - 0.31
Tetracycline	250 mg	cap	$0.00	$0.07	$0.06 - 0.07
Tolbutamide	500 mg	tab	$0.00	NA	$0.05 - 0.1
Trimetoprim Sulfamethoxzole	400 mg	tab	$0.00	$0.26	$0.13 - 0.41

Note: NA means not available.
(a) Represents 80–90% of outpatient drug volume in MOH facilities.
(b) Based on sample from four private pharmacies.

ANNEX EXHIBIT 4
PRICES AND REVENUES UNDER TWO PARTIAL COST RECOVERY SIMULATIONS,
CLEOPATRA WHITE AND MATRON ROBERTS HEALTH CENTERS, BELIZE CITY, 1989

		BASELINE (current rate structure)		INCREMENTAL (modified rate structure) (20% free, lose 10%)	
INPATIENT	UTILIZATION	PRICE (a)	REVENUES	PRICES	EST. REVENUE
Physician Visits (b)	31,864	$0.00	$0.00	$2.00	$45,884
Dressings (b)	11,446	$0.00	$0.00	$2.00	$16,482
Minor surgery (b)	225	$0.00	$0.00	$2.00	$324
Injections	7,598	$0.00	$0.00	$1.50	$8,206
Prescriptions	32,426	$0.00	$0.00	$1.00	$23,347
ESTIMATED REVENUES			$0		$94,243
COST/PERCENT RECOVERY	$166,517 (c)		0.0%		56.6%

All figures in BLZ $: 1 BLZ = 2 US $
(a) Fees are not charged at health centers.
(b) Represent separate visits.
(c) From Exhibit 2.

ANNEX EXHIBIT 5

LABORATORY TESTS, FEES, AND REVENUES UNDER DIFFERENT COST RECOVERY SIMULATIONS

BELIZE CITY HOSPITAL AND CENTRAL LABORATORY, 1989

				ESTIMATED REVENUES					
		VOLUME (1989)		BELIZE CITY HOSPITAL			CENTRAL LABORATORY		
Test	CURRENT FEES	BCH(a)	CENTRAL LAB (b)	BASELINE (c)	INCREMENTAL/ COST-BASED (d)	NATIONAL HEALTH INSURANCE (e)	BASELINE (c)	INCREMENTAL/ COST-BASED (d)	NATIONAL HEALTH INSURANCE (e)
Hematology/Blood Tests									
HB/PVC	$2.00	8,309	4,603	$13,294	$23,930	$24,927	$7,365	$13,257	$13,809
Full Blood Count	$4.00	4,829	4,875	$15,453	$27,815	$28,974	$15,600	$28,080	$29,250
Sickle Cell	$2.00	0	2,744	$0	$0	$0	$4,390	$7,903	$8,232
ESR (Sedimentation Rate)	$1.00	2,051	1,024	$1,641	$2,953	$3,077	$819	$1,475	$1,536
HIV*	$10.00	0	5,350	$0	$0	$0	$42,800	$77,040	$80,250
Chemistry									
Fasting Blood Sugar	$2.00	4,040	4,817	$6,464	$11,635	$12,120	$7,707	$13,873	$14,451
BUN (urea nitrogen)	$2.00	1,950	1,977	$3,120	$5,616	$5,850	$3,163	$5,694	$5,931
Cholesterol	$3.00	384	657	$922	$1,659	$1,728	$1,577	$2,838	$2,957
Liver Function	$8.00								
Bilirubin Total & Direct	$6.00	1,335	788	$6,408	$11,534	$12,015	$3,782	$6,808	$7,092
SGO-T	$3.00	1,041	565	$2,498	$4,497	$4,685	$1,356	$2,441	$2,543
SGP-T	$3.00	0	125	$0	$0	$0	$300	$540	$563
Alkaline Phosphatase	$3.00	481	473	$1,154	$2,078	$2,165	$1,135	$2,043	$2,129
Uric Acid	$3.00	103	228	$247	$445	$464	$547	$985	$1,026
Sodium/Potassium	$6.00	265	856	$1,272	$2,290	$2,385	$4,109	$7,396	$7,704
Albumin/Protein	$3.00	0	464	$0	$0	$0	$1,114	$2,004	$2,088
Urinalysis									
Routine	$2.00	0	2,879	$0	$0	$0	$4,606	$8,292	$8,637
Pregnancy	$3.00	0	162	$0	$0	$0	$389	$700	$729
Serology									
VDRL**	$2.00	0	7,478	$0	$0	$0	$11,965	$21,537	$22,434
ASO titre	$5.00	0	210	$0	$0	$0	$840	$1,512	$1,575
AFP SLIDE	$0.00	0	954	$0	$0	$0	$0	$0	$0
Parasitology									
Ova and Parasite	$2.00	0	3,685	$0	$0	$0	$0	$0	$0
Occult Blood	$1.00	0	245	$0	$0	$0	$0	$0	$0
Bacteriology									
Blood	$4.00	0	517	$0	$0	$0	$1,654	$2,978	$3,102
Urine	$3.00	0	850	$0	$0	$0	$2,040	$3,672	$3,825
Stool	$3.00	0	662	$0	$0	$0	$1,589	$2,860	$2,979
Immunohematology									
Blood Grouping	$2.00	3,458	3,516	$5,533	$9,959	$10,374	$5,626	$10,126	$10,548
VOLUME/REVENUES BASED ON SAMPLE		28,246	50,704	$58,006	$104,412	$108,762	$124,474	$224,052	$233,388
ESTIMATED TOTAL VOLUME AND REVENUES		30,934	62,506	$71,613	$128,903	$134,274	$136,784	$246,212	$256,470

NOTE: ALL PRICE SCENARIOS ALLOW FOR FREE PARASITE AND MALARIA TESTS

(a) Represents 81% of tests performed.

(b) Represents 91% of tests performed.

(c) Baseline simulation: Current rate structure, 20% free.

(d) Incremental simulation: double current fees, 20% free, lose 10%.
Cost-based user fee system simulation: double current fees, 20% free, lose 10%.

(e) National Health Insurance simulation: 1.5 x current fees, 100% pay.

ANNEX EXHIBIT 6

LABORATORY TESTS, FEES, AND REVENUES UNDER DIFFERENT COST RECOVERY SIMULATIONS

DISTRICT HOSPITALS

Test	CURRENT FEES	VOLUME (a) (1989)	ESTIMATED REVENUE BASELINE (b)	INCREMENTAL (c)	COST-BASED USER FEE SYSTEM (d)	NATIONAL HEALTH INSURANCE (e)
Hematology/Blood Tests						
HB/PVC	$2.00	9,855	$15,768	$28,382	$21,287	$19,710
Full Blood Count	$4.00	5,083	$16,266	$29,278	$21,959	$20,332
Sickle Cell	$2.00	1,740	$2,784	$5,011	$3,758	$3,480
ESR (Sedimentation Rate)	$1.00	1,373	$1,098	$1,977	$1,483	$1,373
HIV	$10.00	0	$0	$0	$0	$0
Chemistry						
Fasting Blood Sugar	$2.00	4,151	$6,642	$11,955	$8,966	$8,302
BUN (urea nitrogen)	$2.00	548	$877	$1,578	$1,184	$1,096
Cholesterol	$3.00	162	$389	$700	$525	$486
Liver Function	$8.00					
Bilirubin Total & Direct	$6.00	390	$1,872	$3,370	$2,527	$2,340
SGO-T	$3.00	242	$581	$1,045	$784	$726
SGP-T	$3.00	191	$458	$825	$619	$573
Alkaline Phosphatase	$3.00	308	$739	$1,331	$998	$924
Uric Acid	$3.00	109	$262	$471	$353	$327
Sodium/Potassium	$6.00	0	$0	$0	$0	$0
Albumin/Protein	$3.00	166	$398	$717	$538	$498
Urinalysis						
Routine	$2.00	5,497	$8,795	$15,831	$11,874	$10,994
Pregnancy	$3.00	0	$0	$0	$0	$0
Serology						
VDRL**	$2.00	6,577	$10,523	$18,942	$14,206	$13,154
ASO titre	$5.00	0	$0	$0	$0	$0
AFP SLIDE	$0.00	190	$0	$0	$0	$0
Parasitology					$0	$0
Ova and Parasite	$2.00	3,510	$0	$0	$0	$0
Occult Blood	$1.00	0	$0	$0	$0	$0
Bacteriology						
Blood	$4.00	0	$0	$0	$0	$0
Urine	$3.00	0	$0	$0	$0	$0
Stool	$3.00	0	$0	$0	$0	$0
Immunohematology						
Blood Grouping	$2.00	4,275	$6,840	$12,312	$9,234	$8,550
VOLUME/REVENUES BASED ON SAMPLE		44,367	$74,292	$133,726	$100,294	$92,865
ESTIMATED TOTAL VOLUME/REVENUES		50,511	$84,423	$151,961	$113,971	$105,528

NOTE: ALL PRICE SCENARIOS ALLOW FOR FREE PARASITE AND MALARIA TESTS
(a) Represents 88% of tests performed.
(b) Baseline simulation: Current rate structure, 20% free.
(c) Incremental simulation: double current fees, 20% free, lose 10%.
(d) Cost-based user fee system simulation: 1.5 x current fees, 20% free, lose 10%.
(e) National Health Insurance simulation: current fees, 100% pay.

ANNEX EXHIBIT 7
RADIOLOGY EXAMS, FEES, AND REVENUES UNDER DIFFERENT COST RECOVERY SIMULATIONS
BELIZE CITY HOSPITAL AND DISTRICTS, 1989

		BELIZE CITY HOSPITAL					DISTRICTS				
			ESTIMATED REVENUES					ESTIMATED REVENUES			
EXAM	CURRENT FEES	VOLUME	BASELINE (a)	INCRE-MENTAL (b)	COST-BASED(d)	NAT'L HEALTH INSURANCE (c)	VOLUME	BASELINE (a)	INCRE-MENTAL (b)	COST-BASED(d)	NAT'L HEALTH INSURANCE (f)
CHEST	$6	2739	$13,147	$23,665	$65,079	$65,736	2156	$10,349	$18,628	$27,942	$25,872
ABDOMEN	$8	788	$4,728	$8,510	$23,404	$23,640	555	$3,330	$5,994	$8,991	$8,325
COLESYSTOGRAM	$10	161	$1,288	$2,318	$6,376	$6,440	112	$896	$1,613	$2,419	$2,240
SKELETAL	$7	4684	$26,230	$47,215	$129,840	$131,152	3729	$20,882	$37,588	$56,382	$52,206
IVP	$16	113	$1,446	$2,604	$7,160	$7,232	64	$819	$1,475	$2,212	$2,048
BARIUM MEAL	$15	69	$828	$1,490	$4,099	$4,140	21	$252	$454	$680	$630
BARIUM ENEMA	$18	28	$403	$726	$1,996	$2,016	17	$245	$441	$661	$612
MISC	$10.00	66	$528	$950	$2,614	$2,640	5	$40	$72	$108	$100
TOTAL		8648	$48,599	$87,479	$240,566	$242,996	6659	$36,813	$66,264	$99,396	$92,033

$2 BLZ = $1 US
(a) Baseline simulation: current rate structure, 20% free.
(b) Incremental simulation: double current fees, 20% free, lose 10%.
(c) National Health Insurance simulation: 4 x current fees, 100% pay.
(d) Cost-based user fee system simulation: 5.5 x current fees, 20% free, lose 10%.
(e) National Health Insurance simulation (districts): 2 x current fees, 100% pay.
(f) Cost-based user fee simulation (districts): 3 x current fees, 20% free, lose 10%.

Source: Central Statistics Office

ANNEX EXHIBIT 8
UTILIZATION STATISTICS IN DISTRICT FACILITIES, 1989

INPATIENT	(Toledo) Punta Gorda	Corozal	(Dandriga) Stan Creek	Orange Walk	Cayo	Belmopan	Mopan	Total
Discharges	1,227	1,573	1,378	1,457	1,295	1,265	NP	8,195
Patient Days	6,192	3,487	3,071	3,704	3,732	6,215	NP	26,401
Surgery								
major	1	0	0	0	1	16	NP	18
minor	289	245	210	428 (3)	113	377	NP	1,662
Maternity Cases	203	493	328	897	504	368	NP	2,793
OUTPATIENT								
Physician Visits	13,268	13,267	18,258	17,208	12,254	11,446	10,058	95,759
Dental Visits	690 (1)	1,877	1,355	1,515 (4)	1,359 (4)	1,318	NP	8,114
Dressings	1,302	2,580	941	3,932	3,072	1,736	401	13,964
Injections	3,108	4,180	4,762	4,810	4,161	1,611	511	23,143
Minor surgery	302	169	310	168 (7)	390 (5)	0	77	1,416
Total Patients	18,670	22,073	25,626	27,633	21,236	16,111	11,047	142,396
TESTS AND MEDICINES								
Lab tests (8)	10,806	NP	10,467	22,152	NP	28,592	NP	72,017 (9)
X-ray exams	1,012	1,030	675	2,528	NP	1,414	NP	6,659
Prescriptions	12,344	12,144 (2)	16,751	22,821	9,193	10,585	NP	83,838
Prescription Drugs	23,947 (6)	22,774 (2)	27,805	47,075	17,997	23,143	NP	162,741

(1) Estimate based on two-month sample.
(2) Estimated based on seven-month sample.
(3) Estimated based on eight-month sample.
(4) Estimate based on four-month sample.
(5) Estimate based on six-month sample.
(6) Estimated based on ratio drugs p/prescription from other district hospitals.
(7) Estimate based on three-month sample in 1990.
(8) Overestimated due to double counting of exams for statistical purposes.
(9) Exams adjusted for duplication in Annex Exhibit 5 & 6 to 50,511.

Based on six-month sample, total volume is adjusted for simulations.
Source: Monthly facility statistical ledgers, Central Statistics Office

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HEALTH FINANCING AND MANAGEMENT IN BELIZE: AN ASSESSMENT FOR POLICYMAKERS

A Compendium of Technical Notes

Volume III: Social Security

Submitted to:

Health Services Division
Office of Health
Bureau for Science and Technology
Agency for International Development

By

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HEALTH FINANCING AND MANAGEMENT IN BELIZE: AN ASSESSMENT FOR POLICYMAKERS

A Compendium of Technical Notes

Volume III: Social Security in Belize: Current Situation and Prospects for Health Care Benefits

By

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The Other Volumes in the Compendium:

Volume I:	Summary Diagnosis, by Gerard La Forgia and Ruth Levine
Volume II:	Health Sector Cost Recovery in Belize: Current Situation and Prospects for Change, by Gerard La Forgia
Volume IV:	The Private Medical Sector in Belize, by Gerard La Forgia and Charles Griffin
Volume V:	Resource Allocation in the Public Health Sector in Belize, by Ruth Levine and Gerard La Forgia
Volume VI:	Pharmaceuticals and Supplies Procurement in Belize, by James Rankin

ABSTRACT

To help facilitate an informed public debate on the constraints to Social Security Board (SSB) participation in health care financing, this report examines SSB coverage, benefits, financing, and claims experience during the scheme's first decade of operation and provides an in-depth analysis of the Social Security system. This study recommends a long-term strategy that prepares for a comprehensive health insurance system. For a short-term strategy, this report recommends three courses of action for Social Security: (1) establish a cost-based reimbursement system with the MOH to finance medical care provided to injured workers under the current regimen; (2) develop an occupational health program focusing on the agriculture sector; and (3) expand the purview of the recently initiated Social Security Development fund to include grants and loans for the expansion or improvement of public and private health services.

BELIZE COMPENDIUM

ABBREVIATIONS

ALOS	Average Length of Stay
BCH	Belize City Hospital
CDR	Crude Death Rate
CGA	Citrus Growers Association
CHI	Comprehensive Health Insurance
CHW	Community Health Worker
CMS	Central Medical Stores
CRDTL	Caribbean Regional Drug Testing Laboratory
CSO	Central Statistics Office
CWHC	Cleopatra White Health Center
DHS	Director of Health Services
DMO	District Medical Officer
EAP	Economically Active Population
EEC	European Economic Community
ECDS	Eastern Caribbean Drug Service
EDP	Essential Drugs Project
FORMED	Fondo Rotario de Medicamentos Esenciales
FPPM	Fiscal Policy Planning and Management
FY	Fiscal Year
GDP	Gross Domestic Product
GNP	Gross National Product
GOB	Government of Belize
HFS	Health Financing and Sustainability Project
HMO	Health Maintenance Organization
ILO	International Labour Office
IMF	International Monetary Fund
IMR	Infant Mortality Rate
IPC	Income per Capita
MIS	Management Information System
MMR	Maternal Mortality Rate
MOF	Ministry of Finance
MOH	Ministry of Health
MRHC	Matron Roberts Health Center
MSH	Management Sciences for Health
MSO	Medical Statistics Office
NTUCB	National Trade Union Congress of Belize
OPD	Outpatient Department
PAHO	Pan American Health Organization
PNO	Principal Nursing Officer
PS	Permanent Secretary
RN	Registered Nurse
SDD	Social Development Department
SI	Statutory Instrument
SSB	Social Security Board
SSCGDP	Social Security Costs as a Percent of Gross Domestic Product
SSDF	Social Security Development Fund
TBA	Traditional Birth Attendant
UNDP	United Nations Development Programme

UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
VEN	Vital, Essential, Necessary

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EXECUTIVE SUMMARY

Belize is a rapidly growing country facing the same health financing-related problems currently assailing its Caribbean and Central American neighbors: deteriorating physical plant, underfunded recurrent costs, inefficient management, and poor quality of care. In the country's search for sustainable financial mechanisms to improve and expand health services, government leaders increasingly are looking to the Social Security Board (SSB) as a source of funding. Through an in-depth analysis of the Social Security system, this report seeks to facilitate an informed public debate on the possibilities and constraints to SSB participation in health care financing.

This report examines SSB coverage, benefits, financing, and claims experience during the scheme's first decade of operation. Financial analysis focuses on the Short-Term Branch and the "short-term" fund of the Employment Injury Branch. The perspectives of employers and workers toward the scheme are also discussed.

Compared to other social security funds in Latin America and the Caribbean, the SSB's coverage of the labor force and general population is low, in part because of the exclusion of the self-employed and dependents. The current benefit structure is designed to protect the worker against the risks of income loss for the following contingencies: sickness, work-related accidents, old age, maternity, invalidity, and disablement. Dependents receive cash subsidies for survivor benefits only. Health coverage is not a benefit except for treatment for work-related accidents.

The SSB currently enjoys strong financial standing. Excess reserves have resulted from a more favorable claims experience than expected, a limited scope of benefits, and a high-performance investment strategy. Low payment levels and strict qualifying conditions contribute to the low frequency and brief duration of sickness, maternity, and employment injury claims. Cash payments for short-term loss of income (sickness, employment injury, and maternity) are low in relation to current salaries, in part due to erosion by inflation. Based on a 1986 actuarial review, the International Labour Organization recommended that the SSB ease restrictions and raise wage ceilings and benefit payments. No action has been taken to date. Further, the range of benefits has remained unchanged since the scheme's inception in 1981. Administrative costs are high by regional standards. The growth in personnel is unjustified by increases in the number of insured, volume of claims, or amount of benefit expenditures.

Generally, there exists a negative attitude among employers and workers toward Social Security, its scope of benefits, and levels of payment. Some of these criticisms result from lack of knowledge or information concerning the system. Others are justified, as both groups consider that the SSB has not made good on its promises of coverage. Anecdotal evidence suggests that evasion of contributions--especially among agricultural producers--appears to be increasing.

SSB appears to place little burden on the country's economy by regional standards. SSB expenditures as a percent of gross domestic product (GDP) are the

lowest in Latin America and the Caribbean, in part because of the absence of health benefits. Projections of economic growth demonstrate the Belize economy will remain strong during the 1990s. However, it is difficult to ascertain what effect a significant increase in SSB expenditures will have on the economy in the future.

The health sector in Belize is entering a period of transition. In light of the planned construction of a new Belize City Hospital and the recent Ministry of Health (MOH) initiative to extend services and improve the quality of care in the districts, there is a sense of urgency among top government officials to institute the mechanisms whereby these improvements can be financially sustained. Some government leaders have demonstrated an unwillingness to pay for MOH budget overruns. Facing an uncertain financial future, MOH officials are looking to Social Security as a source of funding. Some seek direct transfers from Social Security to the MOH to support operations. At the same time, business leaders seek to strengthen the private medical sector and reduce the flow of Belizeans to "offshore" medical facilities.

Given the perceived poor quality of care at MOH facilities, it is unlikely that employers or workers will support the use of Social Security funds to finance current MOH operations. However, experience elsewhere in the region has demonstrated that Social Security should not establish separate health financing or service systems. One potent means available to meet the needs to provide a basic level of coverage to all Belizeans is the establishment of a comprehensive health insurance (CHI) system.

MOH officials with the support of some international donor agencies have recommended that the SSB make large transfers to the MOH to finance operations. Some government and union leaders suggest that the SSB establish a health benefits scheme. This report does not support these recommendations. Instead, as a long-term strategy, it is recommended that government instititions (e.g. Ministries of Finance, Economic Development, and Health), with SSB participation, prepare for a comprehensive health insurance system. A comprehensive health insurance system can incorporate the government as financiers of health services, not as providers. A CHI system can make use of MOH and private provider networks. Depending on the system design, an insurance system can have several advantages: fostering greater equity, generating resources for both public and private providers, and promoting more rational resource allocation. Disadvantages include: moral hazard, non-price rationing of services, and resistance from providers. This paper discusses a number of issues which policymakers should consider when planning and designing a comprehensive health insurance scheme. The discussion highlights options regarding beneficiaries, benefits, providers, and payment systems. The potential role (if any) of Social Security also is discussed.

As part of a short-term strategy that meets both current MOH and SSB needs and contributions to preparation for the creation of a comprehensive health insurance system, three courses of action for Social Security are recommended: (1) establish a cost-based reimbursement system with the MOH to finance medical care provided to injured workers under the current regimen; (2) develop an occupational health program focusing on the agricultural sector; and (3) expand the purview of the recently initiated Social Security Development fund to include

grants and loans for the expansion or improvement of public and private health services. Targeted technical assistance activities can catalyze each of these actions.

1.0 INTRODUCTION

This report examines the experience of Belize's Social Security system since its founding in 1981. The analysis and recommendations are directed at providing a technical basis for future policy discussions on prospects and options for Social Security's role in financing of health care in Belize. The study proposes that Social Security--together with private insurers and the government--develop a long-term strategy involving the design and development of a comprehensive health insurance system. Short-term activities that will prepare the way for Social Security's participation in comprehensive health insurance are discussed.

This study was funded by USAID/Belize, and carried out by the Health Financing and Sustainability (HFS) Project as part of a series of background technical studies for the proposed health financing component of the Fiscal Policy Planning and Management (FPPM) Project (see Scope of Work, Appendix 1). Previous USAID/Belize-funded studies recommended a more active participation of the Social Security Board (SSB) in financing Ministry of Health (MOH) services. Currently, Social Security only covers medical care for employment-related injuries involving insured workers. Although these investigations did not specifically examine Social Security operations or analyze its financial status, their recommendations are worth noting. A detailed study of financing and costs of MOH services proposed that Social Security finance medical service benefits for enrollees (Raymond et al., 1987). A 1988 health sector assessment recommended the development of innovative approaches to health care financing and organization, including the creation of a Social Security-financed hospital insurance fund that would make use of both MOH and private sector facilities (Norris, et al., 1988).

Building upon these previous recommendations, this study explores whether and how Social Security can participate in the financing of health care interventions in Belize. The principal task is to analyze opportunities to make optimal use of Social Security funds and insurance systems for financing routine health services and extending public sector coverage.

To accomplish the task, it is necessary to examine the Social Security system in its totality: origins, evolution, coverage, financing, economic impact, and political significance. These subjects constitute the principal contribution of this report. To provide a comparative perspective on these themes, relevant data from social security systems in Latin America and the Caribbean are included. Specific approaches to expansion of social security benefits to cover health care are proposed, as well as recommendations of technical assistance activities to facilitate the process. The decision regarding whether and how to proceed is contingent upon policy discussions and ultimately political expediency. It is a major objective of this report to contribute to an informed debate on Social Security's future and its role in financing health services.

Financial data were collected from internal Social Security documents, including financial reports and actuarial analyses. Perspectives on Social Security operations and benefits were gathered through interviews with more than

30 employers representing the manufacturing, service, and agricultural sectors. Additional meetings with business organizations and trade associations produced important insights. The HFS team also met with representatives from five trade unions to assess the worker viewpoint.

Section 2 of this report briefly introduces the Social Security system, its origins, and the economic conditions in which it exists. Section 3 presents a critical analysis of the major features of the scheme: coverage, contributions, benefits, financing, costs, impact on the economy, and level of political support from employers and workers. Such an examination provides an essential backdrop to a later section which outlines a proposal to extend health coverage to the entire population through a comprehensive health insurance system. Short- and long-term recommendations are presented in Sections 4 and 5.

2.0 BACKGROUND

2.1 LEGISLATION AND STRUCTURE

Compared to most countries in Latin America, the countries of the English-speaking Caribbean were latecomers in enacting social insurance programs. Whereas most Latin American countries initiated social security before 1950, inception of such programs in the English-speaking Caribbean began in the 1970s. Belize enacted a Social Security Ordinance in 1979. It was the penultimate country in the region to do so, followed only by Grenada in 1983.

Before 1979, sickness, maternity, and employment injury benefits were mandated by The Labour Ordinance (No. 17 of 1964 and No. 19 of 1975) and the Workingman's Compensation Ordinance (No. 9 of 1959). These laws stipulated the periods of paid sick and maternity leaves, and required all employers to purchase private insurance to cover employment injury or death. However, the Social Security Ordinance (No. 6 of 1979), together with subsequent amendments, substituted or altered the earlier laws. As will be discussed in Section 3, many employers are confused as to their responsibilities with respect to the Social Security system in covering sickness, maternity, and employment injury contingencies.

The 1979 ordinance created the SSB, which began operations in 1981. For most Belizeans, the SSB and the Social Security system refer to the same entity. The law stipulates that the SSB oversee all operations, including financial authorizations and the drafting of administrative regulations. It is responsible to the Minister of Finance, who must approve any proposed changes in benefits, contributions, regulations, etc. The Board consists of seven members, a chairman, and two representatives each from government, employers, and workers. All board members are appointed by the Minister of Finance. The Minister consults with employer and employee organizations for potential candidates.

The Social Security system in Belize consists of three benefit branches or funds: Short-Term, Long-Term, and Employment Injury. These funds, financed through employee and employer contributions, pay cash benefits for the following contingencies: retirement, sickness, maternity, employment injury, and

invalidity. Medical care is covered only in the case of work-related injury or sickness.

2.2 ECONOMIC CONDITIONS

The economy of Belize presents mixed conditions for the development of Social Security. When compared to other countries in Central America and the Caribbean, Belize has experienced notable economic growth during the past decade. For example, per capita GDP grew by an annual average of 4.5 percent in real terms between 1981 and 1989 (Central Statistics Office, 1989). According to World Bank estimates, per capita gross national product (GNP) rose nearly 60 percent during the decade (World Bank, various years). In 1988, the gross domestic product (GDP) of US $1,500 per capita was one of the highest in the region. Inflation has been low, averaging 2.2 percent annually between 1980 and 1988. Since 1976, the Belizean dollar has been pegged to the U.S. dollar at a rate of BLZ $2 per U.S. dollar.

The International Monetary Fund (IMF)/World Bank projects that real growth will continue during the 1990s, albeit at a slower pace of 3.4 percent annually (IMF, 1990). Continued growth will depend on uncertainties concerning the terms of trade and Belize's preferential market status in the European Economic Community (EEC) and the U.S. for its primary export products: sugar, citrus, and bananas. These products represent approximately 60 percent of export earnings.

The high standard of living is related to a high cost of living. The country is dependent on relatively expensive imports for most consumer and manufactured products. Beverages and clothing are the only domestically manufactured products. World price fluctuations could constrain future growth. Moreover, most imports are heavily taxed, driving up the price to the consumer. (Import and custom duties represent the source of nearly two-thirds of government revenues. Individual and corporate income taxes correspond to about seven percent of revenues.) This situation contributes to high labor costs, which may limit future foreign investment in labor intensive industries.

Data on the labor force and unemployment are unavailable except for a 1984 survey. At that time, the labor force survey demonstrated high unemployment: 14 percent of Belizeans between the ages of 14 and 55 did not have full-time jobs (working 40 hours or more per week).[1] Among the employed population, five percent were employers, 64 percent were salaried workers, 22 percent were self-employed, and nine percent were unpaid family workers. The Central Statistics Office estimated a 15 percent unemployment rate in 1987 (World Bank, 1989).

[1]The 1980 Census also showed an unemployment rate of 14 percent.

3.0 CURRENT SITUATION AND CRITICAL ANALYSIS

3.1 COVERAGE

According to the 1979 law, participation is mandatory for all employers and salaried public and private sector employees between the ages of 14 and 65. As shown above, these groups represent approximately 70 percent of the labor force with full-time work. The scheme does not cover the self-employed, persons in military service, part-time workers (less than eight hours a week with a single employer), casual workers, unpaid family members, and domestic workers (less than 24 hours per week).[2] Seasonal workers receive full coverage while under contract during the harvest season. Employed persons over 65 years of age are covered against employment injury only. Finally, with the exception of survivor benefits, dependents of the insured are not covered.

Exhibit 1. SSB POPULATION COVERAGE: 1981, 1985, AND 1989

YEAR	(A) CONTRIBUTING INSURED[a]	(B) LABOR FORCE[b]	(C) POPULATION[c]	(D) PERCENT COVERAGE	(E)
				LABOR FORCE	POPULATION
1981	24,960	46,460[d]	149,420	53%	17%
1985	29,620	47,300[e]	166,880	61%	18%
1990	32,160	52,260	192,000	62%	17%

[a]Figures for 1990 estimated by ILO (1986).
[b]Economically active population: 14 years of age or older.
[c]1985 and 1990 are the author's estimates.
[d]1980; data from National Census
[e]1984; Belize Labour Force Survey

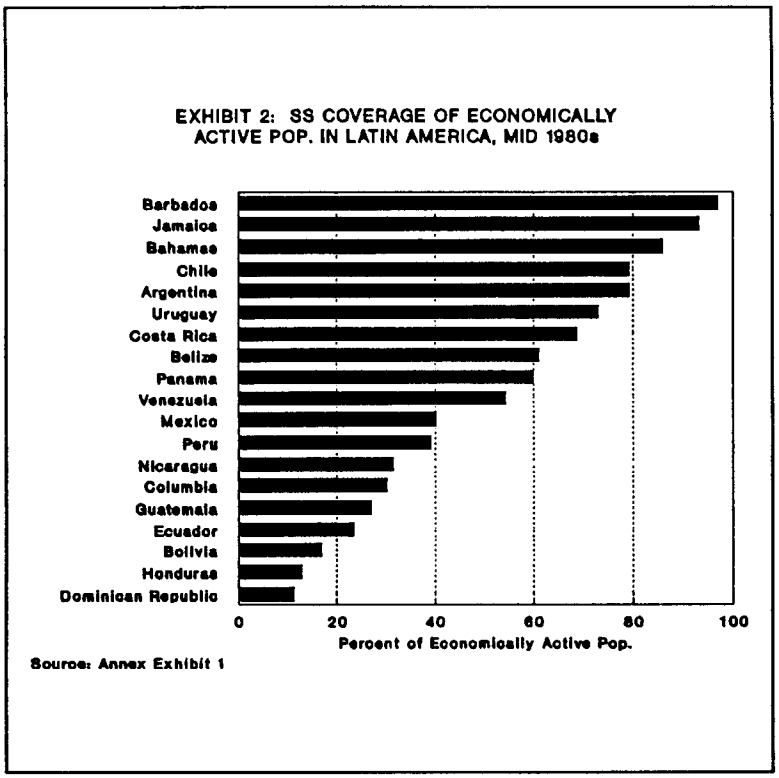
Source: ILO (1986)
Central Statistics Office (1984)
National Census (1980)

Exhibit 1 demonstrates that during the SSB's first decade, coverage increased from 53 percent to 62 percent of the labor force. However, population coverage has remained stagnant in part because dependents are excluded from most benefits. The number of insured workers (Column A) increased nearly 30 percent (from 24,960 to 32,160) between 1981 and 1990, equalling population growth (Column C) but outpacing growth in the labor force (13 percent) (Column B). Two-thirds of the increase in contributing insured over this period were inscribed into the SSB regimen before 1985. This probably responds to late inscriptions after the initial (1981/82) registration period. Since 1985, however, growth in the insured population has kept pace with growth in the labor force, suggesting that increased coverage will be difficult without extension of benefits to occupational groups other than salaried workers (such as the self-employed).

---

[2]For persons who had made at least 150 contributions but are no longer liable to contribute (such as the case of a former salaried worker who becomes self-employed), voluntary insurance is available. According to SSB officials, few Belizeans make voluntary contributions. Precise data were unavailable.

In terms of labor force coverage, Exhibit 2 shows that SSB is among the top half of social security schemes in the region. All the schemes listed in the graph are financed mainly through payroll taxes and provide risk insurance to workers for loss of income due to old age, and to a lesser extent, short-term illness and employment injury. Health benefits vary widely, however. For example, some schemes do not offer health coverage, others offer a limited range of services, and still others restrict benefits to certain population groups.



As observed in the exhibit, the SSB's labor force coverage trails other countries in the English-speaking Caribbean. For example, social security systems in the Bahamas, Barbados, and Jamaica cover approximately 90 percent of their respective labor forces, compared to 60 percent in Belize. Similar to Belize, these schemes cover old age, employment injury, and salary replacement for sickness and maternity. Unlike in Belize, however, these programs partly or fully cover the self-employed and domestic workers.

Turning to population coverage, SSB coverage (17 percent) ranks in the bottom third of regional schemes. This results from the limited benefits accruing to dependents. Most social security systems in Latin America cover workers' spouses and children through a medical care program. In contrast, no social security scheme in the English-speaking Caribbean has introduced a medical care program for non-work-related illness. Following the British model, all these countries have comprehensive health systems that preceded the introduction of social security. In some countries, all citizens have free access to government health care. In others, user fees are charged. Significantly, in his study of social security in Barbados, Bahamas, and Jamaica, Mesa-Lago (1987) points out that the comprehensive health services in these countries are under severe economic stress. Government leaders are searching for alternative sources to finance health care.

3.2 CONTRIBUTIONS

The SSB is financed through employer and employee contributions and returns from investments. The government does not provide transfers to subsidize SSB operations. In 1989, wage-based contributions represented more than 60 percent of total revenues.

Contributions are based on placing all participants into one of four wage categories, depending on weekly salaries (all figures in this report are in Belize dollars, unless otherwise specified): (1) under $40, (2) $40 to $69, (3) $70 to $109, and (4) $110 and over. However, unlike schemes elsewhere in the region where contributions are calculated as a percentage of the insured's wage, the SSB computes contributions as a percentage of a wage cap. Exhibit 3 shows the wage caps, known as weekly insurable earnings, corresponding to each wage category. The wage cap (Column B) ranges from 20 to 30 percent below the ceiling within each wage category (Column A), except for the highest category.

Contributions constitute seven percent of the wage caps in each category. With the exception of the lowest earning category (under $40), employers pay six percent of the cap, while the employee contributes one percent through a salary deduction. For example, the total (weekly) contribution for a worker earning between $70 and $109 weekly is $6.31 (seven percent x $90). The worker pays one-seventh ($0.90) and the employer pays the remainder ($5.41). Since employed persons over 65 years of age are only covered for work-related injury, their employers are responsible for paying a flat fee of $2.60 per week.

Significantly, because the caps and wage categories have remained unchanged since 1981, they are no longer appropriate to current wage levels. The caps (column B of Exhibit 3) represent between 60 and 80 percent of the ceilings in each of the first three wage categories. However, since most workers are classified in the highest wage category, the caps actually represent a smaller share of their salaries. As measured by the consumer price index, the cost of living increased by nearly 50 percent between 1981 and 1989. The International Labour Office (ILO)(1986) estimated that 45 percent of the insured in 1985 were in the highest wage category.

Exhibit 3. WEEKLY CONTRIBUTIONS PAYABLE OF EMPLOYEE AND EMPLOYER

(A) WEEKLY EARNINGS (wage categories)	(B) WEEKLY INSURABLE EARNINGS (wage caps)	WEEKLY CONTRIBUTION					
		EMPLOYEE		EMPLOYER		TOTAL	
		AMOUNT	% OF (B)	AMOUNT	% OF (B)	AMOUNT	% OF (B)
Under $40	$25	$0.12	0.5%	$1.63	6.5%	$1.75	7.0%
$40 to $69	$55	$0.55	1.0%	$3.30	6.0%	$3.86	7.0%
$70 to $109	$90	$0.90	1.0%	$5.40	6.0%	$6.30	7.0%
$110 and over	$130	$1.30	1.0%	$7.80	6.0%	$9.11	7.0%

All figures in BLZ$: 2 BLZ$ = 1 US$.

Source: Statutory Instrument No. 80 of 1980.
ILO (1986)

It is safe to assume that salaries have also increased, albeit at a slower pace than inflation. Based on a sample of government salaries for teachers,

clerks, nurses, porters, record clerks, seamstresses, typists, and others, between 1985 and 1989, wages for government workers increased by 25 to 33 percent. Of the above-mentioned group, in 1989 only porters and seamstresses made less than $110 per week. The increase responds in part to a government salary adjustment of 10 to 12.5 percent in 1986 (GOB, 1985, 1990). Further, most private employers interviewed for this study stated that few employees make less than $110 per week, including agricultural workers. In sum, an even greater proportion of contributors probably were classified in this category in 1989.

Similarly, when comparing real salaries to the effective percentage contribution, the distribution appears inequitable, burdening workers in the lower-income groups with contributions that correspond to a higher percent of earnings. Since contributions are based on the wage caps or weekly insurable earnings within each wage category, the more one earns (within each wage cagegory), the less one contributes as a percentage of real wages. Based on a sample of weekly wages, Exhibit 4 demonstrates that contributions as a percent of wages decrease as salaries increase. Nevertheless, the apparent regressivity of contributions is balanced by the progressivity of benefits. As discussed in a later section (3.4.5), payments for many benefits (including pensions and sick pay) also are computed as a percent of insurable earnings. However, benefits such as lump-sum payments and medical care (for work-related injuries) are not tied to the wage caps.

Exhibit 4. SSB CONTRIBUTIONS AS A PERCENT OF SALARY

WEEKLY SALARY	CONTRIBUTION AS PERCENT OF SALARY
$25	7.0%
$50	7.7%
$100	6.6%
$150	6.1%
$200	4.6%

All figures in BLZ$: 2 BLZ$ = 1 US$

As observed in Exhibit 4, employer and employee contributions as a percent of salary range from 4.5 to seven percent. Most Belizean workers earn between $100 and $150 per week, which corresponds to total contributions of approximately six percent of wages. The level of contributions is one of the lowest in Latin America and the Caribbean, followed only by Jamaica (five percent).[3] The low level of contributions in Belize may explain in part the low level of SSB benefits. Level of benefits is discussed below.

3.3 SCOPE OF BENEFITS

The SSB administers three schemes known as "benefit branches": Short-Term, Long-term, and Employment Injury. Except for medical care for work-related injuries, all benefits consist of cash allowances. With the exception of unemployment compensation, the SSB benefit package was designed to combine income

[3]Contributions as a percent of earnings are higher than 15 percent for most Latin American countries. However, unlike the English-speaking Caribbean, Latin American social security systems provide comprehensive health care benefits.

replacement with workingman's compensation. As noted earlier, dependents are eligible for pension benefits only as survivors of a deceased pensioner.

Exhibit 5 provides brief descriptions of the benefits within each branch. Note that "benefits" and pensions are payments in lieu of salary that are allocated over a specified time period, while "grants" represent one-time lump sum payments. For the most part, a grant is a compensatory allowance for workers who do not qualify for a specific, longer-term benefit. Also, the Employment Injury Branch is divided into separate short- and long-term funds. As explained in the next section, since the benefits that constitute these funds call for different reserve requirements, each is financed differently.

EXHIBIT 5: DESCRIPTION OF SSB BENEFITS

BRANCH	BENEFIT NAME	DESCRIPTION
SHORT-TERM	Sickness Benefit	Payments in lieu of salary for up to 78 days for sickness or injury that is not job related. First three sick days are not covered.
	Maternity Benefit	Payments in lieu of salary for 72 days to an insured woman.
	Maternity Grant	Lump sum payment for insured women or non-insured wives of insured males.
LONG-TERM	Retirement Pension	Payments to insured persons 60 years of age or older.
	Retirement Grant	Lump sum payment to insured persons who do not qualify for a retirement pension due to an insufficient number of contributions.
	Invalidity Pension	Compensation for insured persons who become permanently disabled due to a non-work related injury or sickness.
	Invalidity Grant	Lump sum compensation to insured persons who do not qualify for an invalidity pension due to an insufficient number of contributions.
	Funeral Grant	Lump sum payment to defray burial expenses.
	Survivors' Pension	Compensation to survivors (spouse, partner, and children) of deceased insured person who had been receiving retirement or invalidity pensions.
	Survivors Grant	Lump sum compensation to survivors (spouse, partner, and children) of deceased insured person who had been receiving retirement or invalidity grants.
EMPLOYMENT INJURY (short-term)	Medical Care	Free care provided in MOH facilities for work-related sickness or injury. If insured have no access to MOH facilities, SSB will reimburse the cost of private care.
	Injury Benefit	Payments in lieu of salary for up to 156 days for job-related sickness or injury. First three lost workdays are not covered.
	Funeral Grant	Lump sum payment to defray burial expenses.
(long-term)	Disablement Grant	Lump sum payment to insured persons who are less than 20% disabled.
	Disablement Pension	Payments to insured persons who become more than 20% disabled due to work-related injury or sickness. Amount depends on percent disablement as determined by medical board.
	Death Benefit	Pension paid to surviving widow, children, or parents of an insured person whose death is caused by employment injury.

3.4 FINANCIAL STANDING

In response to the low level of expenditures and favorable yields on investments, the SSB currently is enjoying sound financial standing and startlingly large reserves. For some branches, the reserves exceed by 20 times the mandated minimum requirements to cover unexpected fluctuations in claims. This section reviews the SSB's financial performance through an examination of

methods of finance, revenues, expenditures, administrative costs, investments, and reserves.

3.4.1. Financing Methods

To understand if the SSB can afford to expand benefits or add new programs, such as health care, it is first necessary to review the methods of finance for each of the three branches. Both the Short-Term Branch and the "short-term" fund of the Employment Injury Branch use a "pay-as-you-go" or assessment system of finance. Since the relative costs of benefits provided in these branches tend to fluctuate according to changes in volume (number of sickness claims, employment injuries, etc.), contribution rates are set to cover current expenditures and provide for a contingency reserve to meet higher than anticipated outlays. According to the SSB Ordinance, the Short-Term Branch requires a minimum reserve of six months average benefit expenditures of the branch during the preceding three years. The Employment Injury Branch requires a 12-month reserve. However, if, over the long run, real costs consistently exceed anticipated expenditures--usually due to inflation--and the reserve is insufficient to cover the deficit, contribution rates must be adjusted accordingly. In Belize, however, the effect of inflation on SSB benefit expenditures is limited because benefits (and the contributions) are based on a percentage of a fixed wage cap that has remained unchanged since the SSB's founding, and non-employment-related health care benefits are non-existent. As discussed in a later section, even expenditures for medical care for employment-related injuries are limited because the SSB pays an annual lump sum to the MOH regardless of the number of cases or the intensity of treatment.

The Long-Term Branch uses a "scaled-premium" system of finance. This method attempts to maintain a defined period of equilibrium in which income exceeds expenditures and the surplus is placed in a reserve which should not decrease during the period. The original actuarial assessment established a 15-year period of equilibrium for the branch. Normally, contribution rates are not altered within a period, but are raised between successive periods.

Disability pensions and death benefits, which make up the "long-term" fund of the Employment Injury Branch, are financed by an "assessment-of-constituent-capitals" system. Under this system, the present value of benefits that are awarded annually is accounted for as an expense during that year. This creates a "technical" reserve to meet future obligations for existing beneficiaries.

3.4.2. Revenues and Expenditures

More than 60 percent of SSB income comes from employer and employee contributions. Revenues from interest-bearing accounts and investments account for the remainder. Exhibit 6 shows the distribution of revenues among the three branches according to income source. The distribution of contribution earnings is legally mandated (Statutory Instrument (SI) No. 86 of 1980, Art. 14). This statute also stipulates that investment income gained from the reserves of each branch is allocated to that branch. Consequently, the Long-Term Branch with its larger reserves (see below) and long-term investment objective is able to obtain

more favorable returns. For example, in 1989, the Long-Term Branch earned 52 percent of total SSB income from contributions and investments, compared to the mandated 50 percent.

Exhibit 6. STATUTORY DISTRIBUTION OF REVENUES BY BRANCH AS A PERCENT OF INSURABLE EARNINGS AND TOTAL CONTRIBUTIONS

BRANCH	LEGAL MANDATE	
	AS PERCENT OF INSURABLE EARNINGS	AS PERCENT OF TOTAL CONTRIBUTIONS
LONG-TERM	3.5%	50.0%
SHORT-TERM	1.5%	21.4%
EMPLOYMENT INJURY	2.0%	28.6%
TOTAL	7.0%	100.0%

Source: Statutory Instrument No. 86 of 1980.

Exhibit 7 demonstrates the favorable financial situation of each of the SSB benefit branches. Although growth has slowed since the early days of the scheme, revenues are three to five times greater than expenditures. The surpluses in the current account of each branch have resulted in large reserves (discussed below). Since 1985, the annual excess of revenues over expenditures has been rising for the Short-Term Branch and remaining steady for the Employment Injury Branch. For example, between 1985 and 1989, Short-Term Branch expenditures as a percent of revenues decreased slightly from 33.3 to 32.6 percent. The corresponding indicator for the "short-term" fund of the Employment Injury Branch remained unchanged at 29 percent.

The surplus can be explained by several factors: high revenues on investments, lower than expected claims experience, low level of payments, and the absence of health care benefits. The scheme's immaturity is the principal cause of low expenditures in the Long-Term Branch. Before turning to a discussion of each of these items, it is important to note that the following sections will focus on the Short-Term Branch and the "short-term" fund of the Employment Injury Branch. Recall from a previous discussion that the Employment Injury Branch divides both expenditures and reserves into separate funds: the "short-term" fund for medical care, employment injury, disablement benefits, and funeral grants; and a "technical" fund for disablement pensions and death benefits. In 1989, expenditures for these latter benefits represented 15 percent of total branch expenses, and the "technical" reserve represented 9 percent of the total branch reserves. In the case of the Long-Term Branch and "technical" fund of the Employment Injury Branch, surpluses and amassing of large reserves are necessary to meet future pension and survivor-benefit obligations. Improvements or extensions of benefits should not be financed from revenues earmarked for these funds.[4]

[4]The ILO 1986 actuarial report estimated that, at current contribution rates, reserves will continue upward until the year 2003. At that time, the branch would reach its equilibrium ($71.6 million) and an adjustment in the contribution rate would be needed.

Exhibit 7. SSB REVENUES AND EXPENDITURES, 1984-1989
(in 000 BLZ$)

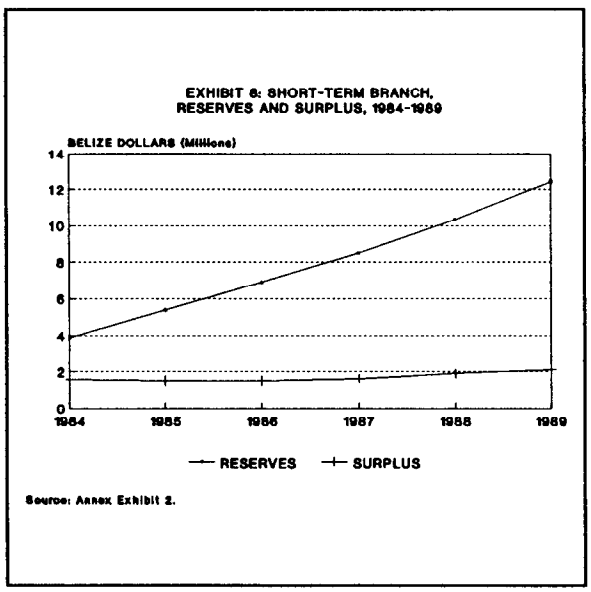
	BRANCH	1984	1985	1986	1987	1988	1989
REVENUES	SHORT-TERM	$2,270.6	$2,259.8	$2,299.2	$2,486.6	$2,794.1	$3,107.5
	LONG-TERM	$5,287.6	$5,173.9	$5,841.5	$6,288.6	$7,041.5	$7,985.3
	EMPLOYMENT INJURY	$3,030.1	$2,993.4	$3,102.8	$3,372.4	$3,780.4	$4,242.8
EXPENDITURES	SHORT-TERM	$680.8	$753.6	$788.7	$854.1	$907.9	$1,014.3
	LONG-TERM	$390.5	$570.8	$861.2	$1,086.2	$1,298.8	$1,616.7
	EMPLOYMENT INJURY	$583.4	$879.2	$748.7	$1,002.6	$1,009.4	$1,250.8
EXPENDITURES AS A PERCENT OF REVENUES	SHORT-TERM	30.0%	33.3%	34.3%	34.3%	32.5%	32.6%
	LONG-TERM	7.4%	11.0%	14.7%	17.3%	18.4%	20.2%
	EMPLOYMENT INJURY	19.3%	29.4%	24.1%	29.7%	26.7%	29.5%

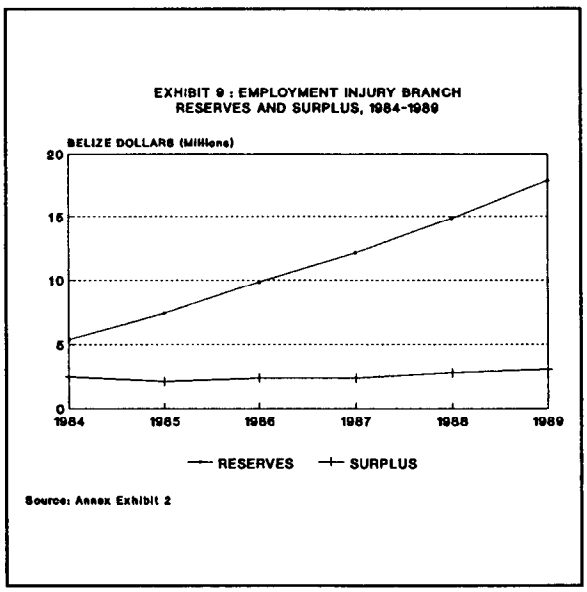
Note: Employment injury refers to short-term benefits only.

3.4.3. Reserves

The SSB maintains separate reserves for each benefit branch. Each reserve is essentially a fiduciary account consisting of certificates of deposit, cash, and other holdings. The value of the reserves is approximately equivalent to the value of accumulated yearly surpluses (revenues less expenditures), plus interest earnings.

Amassing large reserves is inappropriate for the Short-Term Branch and "short-term" fund of the Employment Injury Branch, especially given the narrow range and low level of benefits. In 1989, however, these funds, totalling $30.5 million, constituting 43 percent of the total SSB reserves. Exhibits 8 and 9 show that, since 1986, both funds are experiencing growth in their surpluses. By 1989, the Short-Term Branch and the "short-term" fund of the Employment Injury Branch had accrued reserves of $12.4 and $17.8 million, respectively. As explained earlier, reserves for any short-term benefit fund are essentially contingency reserves to cover unanticipated fluctuations in claims experience. As suggested in the ILO actuaries, these amounts significantly exceed the sums required to cover future adverse contingencies.[5] Currently, the reserves represent approximately 40 times the minimum amounts mandated by the Social Security law. The law (SI 86 of 1980, Art. 17) stipulates a minimum level of six and 12 months of average benefit expenditures for the Short-Term Branch and Employment Branch (short-term) reserves, respectively.





Finally, it is important to note that earnings from investments alone are sufficient to cover total (benefit and administrative) expenditures in both the Short-Term and Employment Injury Branches. In effect, all income from

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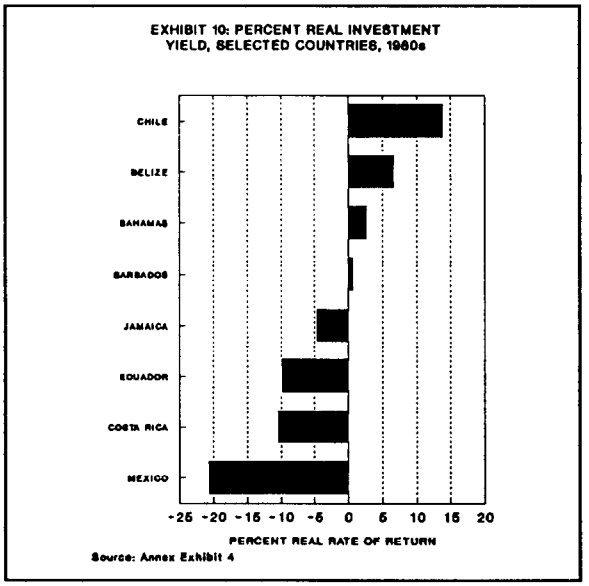
[5]Based on financial data from 1985--when the Short-Term and Employment Injury reserves were worth one-third of their present values--the ILO (1986:68) referred to the amounts as exceeding by "a substantial margin, the usual requirements of these reserves."

contributions is allocated to the branches' respective reserves. As projected by the ILO 1986 study and as evidenced by more recent SSB financial reports (see Exhibits 8 and 9), the reserves for these two branches will continue to grow at a rapid rate during the 1990s.

3.4.4. Investments

The increasing surpluses are a result in part of relatively high returns on the SSB investment portfolio. Between 1983 and 1989, investment income rose by 60 percent in real terms (from $0.8 to $3.7 million). SSB income from investments has increased steadily, from less than 20 percent of SSB revenues in 1982 to nearly 40 percent in 1989. The above-mentioned capping of contributions within wage categories has slowed the growth of income from contributions. For example, between 1986 and 1989, revenues from investments increased by 50 percent, while contributions rose by less than 30 percent. By the early 1990s, more than 50 percent of SSB earnings will accrue from returns on investments.

Exhibit 10 demonstrates that the SSB's 6.6 percent average real rate of return is one of the highest among social security systems in the region during the 1980s. The favorable rates of return respond to a prudent SSB investment policy and to a low average inflation rate of 2.2 percent during the 1980s. Further, unlike most countries in Latin America and the Caribbean, a relatively small proportion of SSB reserves (19 percent in 1989) are invested in low-yielding government securities. The majority of the reserves are invested in fixed-term deposits (one or two years) in private banks that yielded a respectable 8.9 percent in that year.[6]



3.4.5. Current Benefits

Three additional factors contribute to the amassing of large reserves in the Short-Term and Employment Injury Branches: the low dollar value of benefit payments, a low claims experience, and the limited range of benefits.

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[6]The commercial banks' weighted average interest rates during 1988 and 1989 ranged from 9.2 to 7.7 percent (Central Bank of Belize, 1990, Table 18).

Exhibit 11 presents a matrix that summarizes restrictions and benefit amounts for each benefit. In terms of both claim volume and expenditures, the major Short-Term Branch benefits are sickness subsidies and maternity allowances. These benefits require a minimum of 50 weeks of contributions before qualification. Both benefits also require contributions for a large number of weeks immediately preceding the claim. Restrictions appear to contribute to a low incidence of sickness claims and high disallowance rates, which in turn contribute to low outlays.

In 1985, there were 4.4 sickness claims paid per 100 insured, much lower than the incidence projected by the original actuarial projections prior to the SSB founding (ILO, 1986). By 1989, HFS estimates that this rate decreased slightly to 4.1. Between 1985 and 1989, the average number of days per claim remained unchanged for sickness benefits (12) and decreased from 61 to 68 days for maternity allowances. Over this same period, however, expenditures for sickness benefits and maternity allowances (excluding administrative costs) rose by 20 and 27 percent respectively. The increase in cost responds to a greater number of claims (two percent increase for sickness claims, and 10 percent increase for maternity claims) and higher per-day benefit payments. As suggested in an earlier discussion, the increase in payment levels corresponds to a greater number of claimants in a higher wage category in 1989 than in 1985. For example, the average daily maternity allowance rose by 30 percent, from $7.90 in 1985 to $10.20 in 1989.

EXHIBIT 11. RESTRICTIONS AND BENEFIT AMOUNTS BY TYPE OF BENEFIT

(A) BRANCH	(B) BENEFIT	(C) MINIMUM NO.OF WEEKLY CONTRIBUTIONS	(D) SPECIAL RESTRICTIONS	(E) BENEFIT AMOUNTS
SHORT-TERM	Sickness Subsidy	50[a]	78 days[d]	60% AIE
	Maternity Allowance	50[b]	72 days	60% AIE
	Maternity Grant	50[c]	--	$50
EMPLOYMENT INJURY	Medical Care	none	MOH facilities[e]	free
	Injury Benefit	none	156 days[d]	60% AIE
	Disablement Pension	none	none	20 to 60% AIE[f]
	Disablement Grant	none	Less than 20% disablement	lump sum
	Perm. Disablement Pension	none	100% disablement	60% AIE
	Funeral Grant	none	N/A	$300
	Death Benefit	none	Depends on survivor's age and relation to deceased	proportion of 60% AIE[g]
LONG-TERM	Retirement Pension	500	Age 60 or older	50-60%[h]
	Retirement Grant	26[i]	Age 60 or older	(j)
	Invalidity Pension	150[a]	Certification by physician panel	50-60%
	Invalidity Grant	26[i]		(j)
	Funeral Grant	150	N/A	300
	Survivor's Pension	(m)	Depends on survivor's age and relation to deceased	proportion of 50-60% AIE[o]
	Survivor's Grant	(n)		proportion of $300[o]

AIE = Average Insurable Earnings
N/A = not applicable

[a]Requires 8 contributions in 13 weeks immediately before the week before illness or incapacity commenced.
[b]Requires 30 contributions in 39 weeks immediately before claim.
[c]Requires 25 contributions in the 50 weeks before confinement.
[d]First three lost workdays are not covered.
[e]If worker has no access to MOH facilities, can seek care privately.
[f]Depends on physician-determined degree of disablement.
[g]Usually between 40 and 100 percent of deceased disablement pension.
[h]Depends on number of weekly contributions.
[i]For those who do not qualify for a retirement pension.
[j]Depends on number of weekly contributions.
[l]For those who do not qualify for an invalidity pension.
[m]Deceased must have been receiving an invalidity or retirement pension.
[n]Deceased must have received an invalidity or retirement grant.
[o]Represents from 20 to 50 percent of deceased's invalidity or retirement pension/grant.

Source: SI 82 of 1980.

The low incidence of sickness claims may correspond to a youthful and generally healthy population. Nevertheless, restrictions that prohibit compensation for the first three lost workdays (to avoid moral hazard), and confusion among firms concerning SSB and employer responsibilities, may also contribute to low claims experience. The Belize Labour Ordinance mandates that employers grant sick leave with full pay up to a period of 16 days per year (SI 19 of 1975, Ch. 234, Art. 131). The employer pays full salary during the first three days of a sickness episode (assuming that the worker has not consumed his allotted 16 days). Commencing with the fourth day of a sickness episode, both the SSB and the employer contribute to the worker's full wage. The SSB takes at least one week to issue a check, and it appears that some firms delay their portion until the SSB pays the worker. Although the Labour Ordinance is clear on this matter, other firms do not pay their portion of the worker's salary, claiming that this is the SSB's responsibility. Since few workers can forego a week with little or no income, many return to the job before the fourth day of illness regardless of their condition, and without submitting a claim to the SSB. In the mid-1980s, approximately 60 percent of claims lasted less than seven days and less than five percent of claims lasted up to the statutory limit of 78 days (ILO, 1986).

Exhibit 12. VALUE OF BENEFITS FOR SELECTED SALARY LEVELS

WEEKLY SALARY	WEEKLY INSURABLE EARNINGS[a]	WEEKLY BENEFITS[b]	
		AMOUNT[c]	AS PERCENT OF SALARY
$25	$25	15	60%
$50	$55	33	66%
$100	$90	54	54%
$150	$130	78	52%
$200	$130	78	39%

[a]Represent 60% of weekly insurable earnings.
[b]Refer to pensions, sickness, and maternity benefits.
[c]Set by law.

Benefit payments are only 60 percent of insurable earnings. We recall from a previous discussion that insurable earnings correspond to a wage cap (within a specified wage category) that serves as a base amount to determine contribution and benefit rates. As observed in Exhibit 11, most benefits are determined as a percentage of "insurable earnings": sickness subsidies, maternity allowances, injury benefits, and all types of pensions. Exhibit 12 demonstrates that benefit payments represent between 40 and 60 percent of real earnings. As a worker's wages increase, the relative value of the benefit decreases. Since most insured workers currently earn more than $110 per week, benefits amount to 50 percent or less of their wages. Consequently, many claimants for maternity allowances and

sickness benefits appear to return to work as soon as possible.[7] For example, in 1985 and 1989, the average number of benefit days paid for maternity cases was two weeks less than the 12-week maximum. Insured women are entitled to no other benefits under the Labour Ordinance, such as full salary compensation by employers for maternity leave (SI 6 of 1979, Ch. 234, Art. 177).

Since 1985, annual disallowance rates have averaged nearly 10 percent of claims for sickness benefits and maternity allowances. In 1989, 12 percent of injury benefits were disallowed. These rates are considered high when compared to social security systems elsewhere in the Caribbean.

Disallowances are for the most part due to restrictions on the minimum number of weekly contributions required to qualify for a benefit (see Column C of Exhibit 11). Significantly, most disallowances, as well as a low rate of claims, appear to occur among seasonal agricultural workers (ILO, 1986). In 1989, this group represented one-third of insured persons. These workers are mostly migrant laborers from western Belize or elsewhere in Central America. They tend to change employers several times during the harvest season and may not obtain the necessary minimum number of contributions necessary to qualify for sickness or maternity benefits (as reported in an interview with representatives of the Sugar Cane Farmers Association). Moreover, migrant workers from Western Belize are self-employed farmers during the non-harvest season and, therefore, are not covered by Social Security.

The rates of short-term incapacity due to employment injury have also been much lower than originally forecast. The ILO (1986) reported that, in 1985, a very low 1.6 injury benefit claims were reported per 100 insured. In 1989, the rate had increased to 2.7, accounting for a large part of the doubling of benefit expenditures between 1985 and 1989. However, the cost per claim only increased by 17 percent over this period, in part because the number of paid days per claim remained unchanged at 14 days. The continued low incidence of claims probably relates to the high number of insured workers in the commerce (11 percent) and service sectors (34 percent) that involve low risks.

Unlike the case of sickness benefits, the Workingman's Compensation Law (Ch. 40, Art. 8, Sec. (d)) does not require employers to provide full pay during the first three days or fill the gap between SSB payment and the worker's full salary. Some employers--especially those with organized workers--appear to pay full wages during the first three lost workdays and make up the difference between SSB payments and full salary. For those without this additional coverage, the low benefit payment may provide an incentive to return to work after three days (no claim is filed) and a disincentive to remain off the job for long periods.

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[7]Payment levels appear adequate for long-term benefits. For example, although the replacement rate for pensions as a percentage of salary is low when compared to some Latin American countries, it compares well with the 40 percent mark in developed countries (McGreevey, 1990). As evident in Exhibit 12, since most workers earn between $100 and $200 weekly, their pensions will provide 40 to 55 percent of wages.

This section concludes by reviewing several recommendations outlined in a 1986 actuarial report (ILO, 1986). The ILO proposed a number of amendments to SSB legislation aimed at decreasing disallowances and improving current benefits of the Short-Term and Employment Injury Branches. These included: reduce the minimum number of weekly contributions to qualify for sickness and maternity benefits, increase maternity and funeral grant amounts, pay injury benefits for the first three days if injury lasts eight days or more, extend maximum period of payment for sickness and injury benefits, and establish a "Social Security Development Fund (SSDF)." Importantly, according to the ILO, these improvements could be financed from current reserves and/or through (upward) adjustments in the wage caps and wage categories used to determine insurable earnings. According to SSB managers, a legislative bill was prepared to enact the proposed changes. However, the government took no action at the time (1986/87).

In 1990, the SSB implemented one ILO recommendation: the creation of the SSDF through an annual allocation of 0.15 percent of insurable earnings. These funds are deducted from the reserve of the Short-Term Benefits Branch. The fund provides grants for projects that "enhance the general well-being and standard of living of the community." SSB guidelines stipulate that any person, government institution, or private organization is eligible to apply. Medical care services and recreational facilities are specifically mentioned in the SSB guidelines. Since its inception, the SSB has distributed $70,000 of the $208,000 allocation.

3.4.6. Health Care

Another reason for low SSB expenditures is restricted coverage of medical care. The SSB only covers medical care for employment injuries, and requires that treatment be provided at MOH facilities. The SSB pays for private medical care when injured workers have no access to MOH services (e.g., the facility is closed or the physician is absent). The SSB transfers $50,000 annually to the Ministry of Finance (MOF) for these services. Since the MOH neither keeps records of the volume of insured patients treated nor calculates the costs of the treatment (for any patient), it is difficult to assess the real cost to the MOH. In 1989, the SSB paid 630 claims involving work-related injuries, all of which required medical care at MOH facilities.[8] However, the SSB does not differentiate between claimants that required hospitalization from those receiving outpatient care only. In a study of MOH costs, Raymond et al. (1987) assumed that one-third of the cases required hospitalization and the rest were treated on an ambulatory basis only. Applying the average MOH per inpatient and outpatient cost figures developed by Raymond et al., adjusted for inflation, in 1989 these patients cost the MOH at least $125,000, or $198 per case. In effect, the SSB paid $79 per case. By way of contrast, in that same year, the SSB paid an average $92 per case for private medical services in Belize for (mostly) outpatient services rendered to 319 injured workers.

Interviews with employers and employees reveal much dissatisfaction with SSB benefits in general and medical care coverage in particular. Some employers have purchased supplemental compensation to cover work-related accidents. They maintain that because of the perceived low quality of care of MOH facilities,

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[8]A physician must certify any temporary injury benefit claim.

their workers prefer to receive treatment from a private provider. Moreover, because of queues and irregular physician hours, injuries requiring brief but immediate attention often can result in one or more lost workdays. Some employers also have purchased supplemental sickness coverage to pay the balance between the SSB salary subsidies and a worker's real wages.

An undetermined number of private firms have purchased private group health plans for professional and executive employees. But the firms are concerned that delays and poor service at MOH facilities result in high absentee rates among office and blue-collar workers. For example, a child's illness often requires that a mother spend the day waiting for service at an MOH facility.

Most Belizean firms have instituted an informal insurance mechanism, whereby interest-free loans are provided to workers to purchase emergency medical care in private or offshore facilities. Through interviews with employers, HFS found that five to 20 percent of weekly payrolls goes to paying medical care for employees through short-term loans.[9] Because these loans depend on employer beneficence, the distribution of benefits (loans) is potentially inequitable. Some employers considered that a group health plan administered through the Social Security system would cost less than plans currently offered through private insurance and would be more efficient and equitable than the informal loan arrangements.

Another problem area related to medical care is the situation of agricultural workers, particularly sugar cane cutters and citrus pickers. These groups represent about one-fourth of insured workers, yet are the source of nearly two-thirds of work-injury claims.[10] In many of the areas, they have little access to government facilities for themselves (in case of injury) or their families. Moreover, the SSB does not operate an occupational health program in which workplace accidents are assessed, safety measures enforced, and proper treatment applied.

Finally, it is important to note that over one-third of sickness benefit claims in 1989 were due to infectious diseases (i.e., intestinal and respiratory infections). Many of these illnesses can be easily treated (and prevented) and should not result in long absences from the workplace. This high incidence of infectious disease suggests that many workers may not have access to primary care services.

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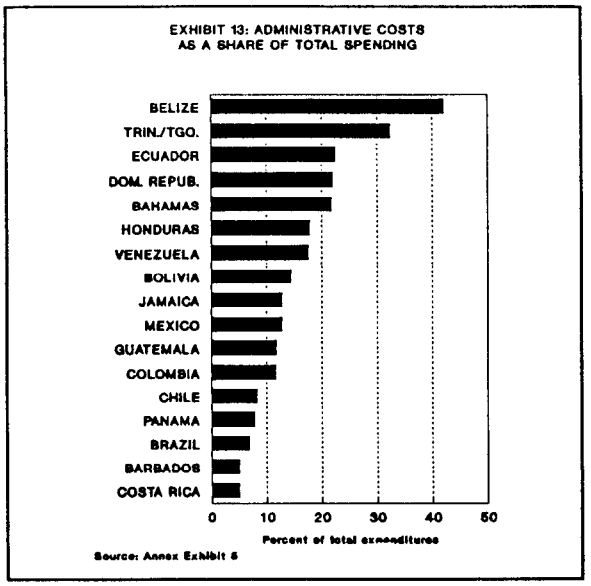
[9]See La Forgia, Gerard M., Harry Cross, and Ruth Levine. "The Private Medical Sector in Belize." Unpublished HFS report to USAID/Belize, October 30, 1990.

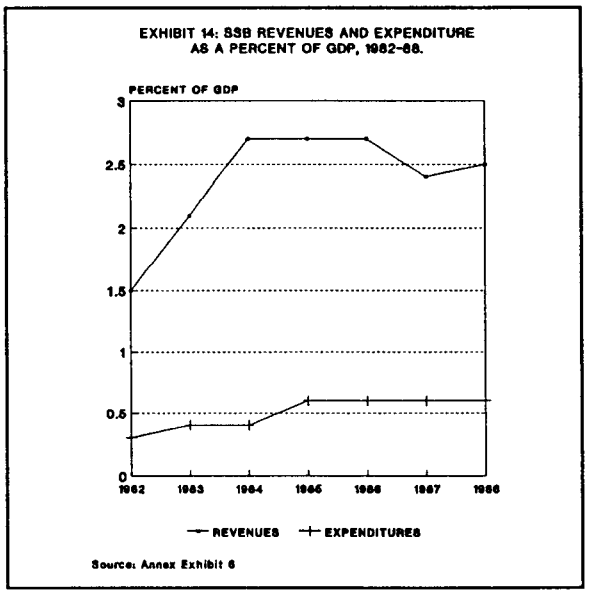
[10]Recall from a previous discussion that an undetermined number of migrant workers are not registered by their employers. Many producers are small farmers and thus are not covered. Also, many employers and employees pay the SSB contribution, but many never receive any benefits (other than work injury) because of qualifying restrictions.

3.4.7. Administrative Costs



A common characteristic of social security systems throughout the region is the high level of administrative expenditures. Nevertheless, even when compared to other Latin American and Caribbean systems, the SSB demonstrates extremely high administrative costs. As displayed in Exhibit 13, SSB administrative expenditures as a percentage of total expenditures (42 percent) represent the highest in the region, two to three times greater than most countries. By way of comparison, administrative costs in developed countries in North America and Europe are between one and three percent of total expenditures (Mesa-Lago, 1990; McGreevey, 1990). High administrative costs can be partly explained by the immaturity of the system, high personnel expenditures, and by the continuance of the same benefit package and payment levels since the scheme's founding. Nevertheless, since the mid-1980s, growth in administrative costs has outpaced growth in benefit expenditures, in part because of high personnel costs. Between 1985 and 1989, the number of claims processed by the SSB increased by 20 percent (from 5,086 to 6,096) while the number of administrative positions rose by 66 percent (from 68 to 113). Over the same period, the number of administrative positions per 1,000 insured increased from 2.2 to 3.5.

3.4.8. The Impact on the Economy



Although it is difficult to determine the burden of social security expenditures with respect to a country's economic capacity, SSB costs in Belize appear less a burden on the country's economy than their counterparts elsewhere in the region. SSB revenues and expenditures as a percent of GDP are among the lowest in Latin America and the Caribbean, in part because of the absence of health benefits. Exhibit 14 shows that after the initial registration period (1982-1984) in which revenues nearly doubled, SSB income as a percent of GDP has remained rather uniform, fluctuating between 2.7 and 2.5 percent. Expenditures have remained constant since 1985 at 0.6 percent of GDP. This compares well with schemes in the Eastern Caribbean which offer a similar (income security) benefit

package. For example, Mesa-Lago (1990) reports that social security expenditures as a percent of GDP in 1983 for six English-speaking Caribbean countries varied from 1.0 to 3.7 percent. Similar to Belize, social security expenditures in St. Lucia represented 0.6 percent of GDP for that same year.

It is likely that SSB revenues as a percent of GDP will decline in the future due to the constraints on revenues derived from contributions (i.e., wage caps). Further, as previously suggested, since relatively few workers remain in the lower wage categories, increases in worker income will not translate into significant gains in SSB revenues.

Another issue involves the impact of employer contributions on wages, prices, profits, and employment. We recall from a previous discussion that employers pay the lion's share (86 percent) of the SSB contribution. An increase in employer contributions (to finance the introduction or expansion of benefits) can have three direct effects: the cost might be transferred to insured workers who receive a lower net wage; the cost could be transferred to consumers through higher prices; or the cost can be transferred to capital by lowering profits. From a theoretical perspective, McGreevey (1990) argues that labor ultimately will bear the burden of a payroll tax increase in terms of lower wages, decreased demand for labor, or both. Although empirical studies are limited and consequently generalizations are difficult, Mesa-Lago (1990a) concludes that this is probably the case for the most developed countries in Latin America. However, he cautions that in the short run the cost is probably transferred to the consumer in terms of higher prices, given the following economic and institutional conditions: inelastic demand for labor, the existence of oligarchical market structures, strong state intervention in labor markets through minimum wage legislation, contributions that are fixed by law and not through collective bargaining, tariff barriers (reduce the elasticity of substitution for domestic products), and labor laws that make it difficult to dismiss workers. He also suggests that although higher employer contributions may have little overall effect on currrent employment, in the long run, they may reduce future employment opportunities due to a decrease in demand for the taxed product.

How an increase in payroll taxes would affect employment in Belize is difficult to predict. The most likely scenario is a reduction in the future demand for formal sector labor and higher consumer prices. Further analysis is needed before more definitive statements on the relation between employer contributions and employment can be made. However, for small changes in the payroll tax or employer contribution, it is fairly safe to say that resulting changes in employment also will be small. The important point is that any increase in the payroll tax (to finance the introduction of health benefits) will impose a cost on the economy, so great care must be exercised to ensure that tangible benefits are produced as a result of the increase. For example, if a tax increase is necessary simply to cover higher administrative costs of the system, the negative economic effects are likely to be compounded. If the tax increase results in improved benefits, greater efficiency and equity in the delivery of health services, and reduced risk of financial disaster for Belizeans, clear and tangible benefits are produced.

3.4.9. Employer and Worker Perspectives

SSB contributions are considered a burden by many employers and workers, in part because benefits and payment levels generally are perceived as inadequate. Confusion over coverage and benefit levels contributes to SSB's low esteem among these key interest groups. One employer cogently summarized the issues:

> Many feel deceived by the SSB. The Social Security scheme was launched with much government propaganda, stating such things as "the workers' health problems are solved." SSB benefits are too small for sickness and work-related injuries . . . also, it's a hassle to obtain a benefit. Many [employers and employees] are ignorant of benefits even though they contribute. Also, why make a SSB contribution for medical care (for work-related injuries) when one can get the same doctors and treatment for free at Belize City Hospital? The workers don't want to land in that hospital.

The low dollar amount of benefits is a common complaint among insured Belizeans. Between 1980 and 1989, the purchasing power of all cash benefits decreased by half. Similarly, since the majority of insured workers earn more than $110 weekly, the wage cap in the highest wage category, the real value of most benefits has remained at $78 per week since the SSB's founding. Workers also complain of the delays and difficulties in obtaining benefits as evidenced by the high disallowance rates previously discussed. Interestingly, some union representatives state that benefits were better under the former Workingman's Compensation Laws, which mandated that all employers purchase private insurance. These plans often covered full salary compensation and private medical care for work-related injuries. They further maintain that medical coverage under Social Security is of little value since workers were (and still are) able to obtain "free" care at MOH facilities before the establishment of the scheme. Since many firms are formally or informally providing supplemental workingman's compensation, the unions (and employers) contend that the SSB is in effect failing to make good on its promise to protect the Belizean worker. This is evidenced from a previous discussion of employers who send injured workers to private physicians to avoid delays at MOH facilities.

In November 1990, the National Trade Union Congress of Belize (NTUCB) held a two-day workshop on Social Security in which representatives from six trade unions participated together with SSB Board members and managers. The workshop produced a number of recommendations, which the NTUCB will present to the government. Expectedly, the union representatives also seek to loosen qualifying conditions (for sickness and maternity benefits) regarding the number of weekly contributions, particularly for migrant workers, allow injured workers to visit a private doctor in order to obtain immediate attention, and raise wage caps and

wage categories to reflect the current salary structure.[11] The NTUCB also recommended that the SSB subsidize prescription drugs. In a statement concerning the NTUCB's position on health policies, the unions proposed full reimbursement by the SSB for medical services rendered to injured workers in private settings.

Employers share many of the concerns of the unions. They view the scheme as an economic burden in part because few benefits accrue to their workers and employers are forced to purchase supplemental coverage through private carriers. Representatives of the Cane Farmers Association and Citrus Growers Association see little reason for farmers to contribute since few workers qualify to collect benefits. Even with employment injuries, many farmers have to pay out-of-pocket for private medical care for injured workers.

Employers in manufacturing and service sectors also stated that workers do not make claims to SSB due to the delays and low payment levels. Increasingly, these employers are purchasing private insurance to cover lost salary resulting from employment injury and maternity or to cover private medical care for injured workers. Others provide loans to workers for medical reasons. As a result of these measures, employers increasingly view SSB contributions as a form of corporate tax. Significantly, union representatives and a majority of employers appear willing to increase their contributions if benefits were more substantial. The Belize Chamber of Commerce recently petitioned the government to reform the SSB particularly in terms of improved sickness and maternity coverage.

4.0 NEXT STEPS AND RECOMMENDATIONS FOR TECHNICAL ASSISTANCE

4.1 RECOMMENDATIONS

As a short-term strategy that in part will prepare the way for the design and development of a comprehensive health insurance system, several activities are proposed. Some of these activities correspond closely with actions proposed in companion reports on cost recovery and the private sector. Specific actions leading to the design and implementation of comprehensive health insurance are discussed in the "summary diagnosis" report. The following short-term activities are aimed at assisting the SSB with a necessary first step: establishing financial linkages with public and private providers.

<u>Recommendation 1:</u> Institute a cost-based reimbursement system with the MOH

HFS could provide assistance to the SSB and MOH to develop and implement a cost-based reimbursement system, whereby the SSB pays for services rendered to insured workers in MOH facilities. Currently, the SSB pays an annual lump sum to the MOF. This activity coincides with recommendations arising from the cost recovery study that call for improvements in billing and cost accounting in MOH

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[11]The workshop produced other recommendations concerning pension and survivor benefits. The recommendations were similar to those made by the ILO in 1986.

facilities. The prices can be negotiated between the two institutions, but should approximate costs. HFS proposes a cost analysis of a sample of services at MOH facilities. Price lists generated in this activity will serve as the basis for reimbursement when the insurance system comes on line.

Recommendation 2: Expand the purview of the Social Security Development Fund

We recommend that the SSDF be used to expand and improve private and public health services in preparation for a comprehensive health insurance system. Funds can be drawn from the short-term reserves. This activity can take two forms:

a. Support the development of private medicine: Currently, insurance in general and the SSB in particular have a poor reputation among Belizeans. The failure of two life insurance firms in the 1970s, together with disillusionment over the SSB, have resulted in a loss of confidence in insurance systems among the populace. Moving rapidly to implement a comprehensive health insurance program will generate considerable resistance among employers and workers in part because of unfamiliarity with and mistrust of insurance institutions. Moreover, because of the underdevelopment of the private medical sector in Belize, a national insurance scheme initially will be highly dependent on MOH providers. Because of the general perception of poor quality at MOH facilities, this will be unacceptable to most firms and their employees.

   The SSB can stimulate the growth of private medicine in Belize, creating opportunities for a greater number of firms to experience group health plans. Business leaders affiliated with the Belize Chamber of Commerce also view expansion of private medicine as an important goal. This will involve the creation of group practices, establishing linkages between providers and employers, and organizing group health insurance plans.

   In preparation for a comprehensive health insurance system, the SSB can augment SSDF allocations and expand its scope to include loans to organized private provider groups that seek to establish facilities, expand services, and set up managed care schemes. Attracting the participation of private providers, employers, and employees in prepayment schemes will be an important step to the subsequent implementation of mandatory comprehensive health insurance. As discussed in the report on the private medical sector, private providers are in need of capital to upgrade services. These loans should be contingent on the formation of group practices and subsequent participation in a comprehensive health insurance system. HFS can assist SSB managers in identifying and assessing potential applicants. HFS is able to provide technical assistance to these groups to set up low-cost managed care schemes that eventually will constitute an important part of a future health insurance system.

b. Improve the quality of MOH services: In coordination with technical assistance to develop cost recovery mechanisms and improve quality of care at MOH facilities, the SSB can consider awarding small

grants or low-interest loans to individual MOH facilities. The grants will be awarded on the condition that the facilities demonstrate sound management practices, implement a cost recovery system, and develop a quality improvement plan. As outlined in the cost recovery report, technical assistance can be provided in these areas.

SSB grants or loans can provide additional resources to facilities beyond revenues collected through user fees. These funds can pay for high-expense items such as plant improvement and equipment purchase. Renovations and basic equipment are especially needed in many district facilities. As suggested in an earlier discussion and contrary to the recommendations of the PAHO consultants, we do not support large SSB transfers to the MOH. Given the current management environment of the MOH, it is unlikely that transfers will result in substantial long-term improvement of MOH services in terms of quality, access, or equity. SSDF public sector grants can be based on specific criteria that provide an incentive to the MOH to institute a cost recovery policy, improve efficiency, and grant greater financial and management autonomy to the facilities.

Recommendation 3. Develop an occupational safety program

In most Latin American countries, social security institutes operate occupational health programs in name only. This is unfortunate, given the state of the workplace in most countries. In Belize, there is a tremendous need for an occupational safety program focusing on agricultural workers. We recommend that the SSB establish an occupational health program that includes the following components: evaluation of workplace hazards, implementation of preventive measures, and provision of immediate and effective treatment for injured workers. Such a program is urgently needed in the sugar cane and citrus growing regions.

The ILO and PAHO can provide technical assistance on program design. Additional assistance can be provided regarding financial and cost analysis, particularly for the medical care component of the program. The program can be funded from the reserves of the Employment Injury Branch.

5.0 LONG-TERM OPTIONS: TOWARD COMPREHENSIVE HEALTH INSURANCE

Different societies posit different principles and objectives when formulating national health policies and designing health service delivery systems. These can include: equal access to a minimal level of services independent of income or place of residence, consumer freedom of choice of providers, clinical freedom of providers to organize service production, and cost control. Depending on historic, political, and economic characteristics, varying emphases can be placed on one or more of these principles. According to the government's five-year plan for health (1990-94), high priority has been placed on equal access to care and distribution of resources. As analyzed in the HFS reports on cost recovery and resource allocation, under the current service system in public facilities, these twin equity goals are seriously compromised.

The practice of private medicine in public facilities, deficient means testing for user fees, preferential treatment to special groups, and shortages of drugs and supplies favor those who can pay private fees or otherwise "jump the queue" and, conversely, place a greater burden on poor and rural Belizeans. Increasingly, access to MOH care is a privilege rather than a right.

Currently, the health sector in Belize is fragmented in terms of financing and provision. For the most part, the private sector is limited to outpatient services provided by fee-for-service, solo practitioners. The public sector has a large network of facilities, but the range of services is circumscribed and quality of care is perceived as low. A large but undetermined number of Belizeans bypass both the private and public sectors and seek higher-quality and generally higher-cost care in Mexico and Guatemala. Private health insurance is restricted to a minority of Belizeans, usually upper-management professionals, who seek coverage for offshore services. Finally, during the last few years, the MOH has [illegible]

As discussed in the previous section, workers, employers, unions, and other organizations are beginning to pressure for SSB benefit improvement and expansion. It is becoming increasingly difficult for the SSB to justify to these groups the accumulation of excess reserves in the short-term benefit funds. The SSB needs to define its future role in health insurance. Its entrance into the area appears inevitable.

There is a sense of urgency among MOH and government leaders to find alternative yet sustainable financing mechanisms for current and future MOH services. At the same time, they seek to correct current MOH deficiencies, extend coverage, and stimulate the development of the health sector as a whole. Uppermost in the minds of some officials is defining the financial participation of the SSB. With the aim of guiding the future policy debate, this section examines several policy and implementation issues relating to the SSB and government's role in the social financing of health care. We turn first to a discussion of three policy options currently facing Belize: (1) SSB financial support of MOH services, (2) introduction of SSB health benefits, and (3) comprehensive health insurance.

5.1 SSB UNDERWRITING OF MOH SERVICES AS A POLICY OPTION

In their search for additional resources to upgrade deteriorating physical plant and expand service coverge, MOH officials are actively seeking to tap SSB reserves. Predictably, SSB members and managers reject the proposal, claiming that the reserves "belong" to the insured population and cannot be used for services provided to non-contributing groups.

MOH aspirations to gain access to SSB funds were bolstered by two recent studies financed by the Pan American Health Organization (PAHO). The studies proposed that on a yearly basis the SSB transfer a large sum (from the short-term reserves) to the MOH to raise salaries, contract additional personnel, and generally improve the quality of care (Roemer, 1990; Frank, 1990).

It is questionable whether the transfer of large sums from the SSB to the MOH--as suggested by the PAHO consultants--will result in improved services, given the current inefficiencies evident in MOH operations. A series of studies have chronicled waste and inefficiencies in MOH services, resulting in deficit spending, deteriorating physical plant, unequal access, ad-hoc resource allocation, low service production, and general low quality of care (Raymond, et al., 1987; Norris, et al., 1988; Levine and La Forgia, 1991; La Forgia and Griffin, 1991; Rankin, 1991). Without major improvements in nearly all aspects of the MOH health service system, the injection of additional resources probably will have little effect on MOH operations. Under any circumstances, the simple transfer of a block grant to the MOH creates incentive problems because is is not tied to the purchase of specific services by SSB.

5.2 AN SSB HEALTH BENEFITS PACKAGE--AN OPTION FOR HEALTH POLICY?

The development of medical care benefits for the social security system has been considered by government leaders since the scheme's founding. In the past, SSB members and managers have rejected any discussion of the matter, maintaining that benefits should only cover the risks related to loss of income. Board members claim that Belizeans have the right to free care from the MOH, and the SSB should not interfere with that role. Further, since the health profile of the population is quite high by regional standards, it is argued that there is little need for SSB involvement in health care.

However, pressure is mounting from government officials, and to a lesser extent, from unions and employers, for the introduction of health benefits by the SSB. Some political leaders view this measure as a first step toward establishing comprehensive health insurance. Introducing health benefits would create a dual system typical of social insurance systems in Latin America. In other words, it would cover less than 20 percent of the population, excluding the remainder.

Such a policy may reinforce overall societal stratification. For the most part, Latin American social security systems cover salaried workers in the urban formal sector, usually a minority of the economically active population, while the majority of the population is excluded. Many of the these systems have established separate health service systems. Duplication of facilities and services leads to inequities of access (and utilization) between the insured and uninsured populations, loss of economies of scale, and competition for human resources. Also, health services operated by social security institutes in Latin America are notorious for their costly and inefficient services.

5.3 COMPREHENSIVE HEALTH INSURANCE AS A POLICY OPTION

High-level government officials have expressed interest in establishing a comprehensive health insurance system in which the SSB will play an important, but undefined role. These officials are motivated by both financial and equity considerations. They seek a financial system that will foster coverage of the entire population, but will also offer the opportunity to impose greater fiscal discipline on the MOH. Deficit spending due to waste and inefficiencies in the MOH service system are major concerns of government leaders.

What makes comprehensive health insurance (CHI) a viable option is its potential to foster greater equity in terms of financing, access, and use of services, generate resources to strengthen both the public and private provision of health care, and promote more economically efficient planning and allocation of capital, manpower, and other resources. More difficult to achieve is designing and integrating mechanisms that contain costs, improve efficiency and quality, and avoid non-price rationing of services (e.g., queues).

Structuring the issues in a debate over CHI is not an easy task. CHI, as practiced in several industrialized countries, has developed within historic, cultural, political, and economic traditions that differ considerably from Belize. To be sure, it is difficult to compare policies, costs, and outcomes of CHI schemes across countries. Although it is beyond the purview of this report to examine country experience with CHI or the myriad of arrangements, the collective experience of these countries provides important insights into the wide range of issues requiring examination when introducing comprehensive health insurance. For discussion purposes, the remainder of this section presents features of a hypothetical CHI system which policy makers may want to consider. Other options are possible and should also be examined before moving forward with a specific design.

In the Belizean context, CHI can be envisioned as a form of financing health care for the entire population. At the risk of oversimplication, the following are several goals or ideals that Belizean decision makers can consider when planning for a CHI scheme:

1) The scheme is entirely prepaid.

2) Mandatory universal coverage.

3) Financing through a combination of payroll deductions and tax revenues.

4) The government is the sole purchaser (but not provider) of health services. Fees are negotiated with provider groups, both public and private.

5) All citizens have a free choice of providers (public or private)--with some limits.

6) The scheme covers a defined package of services.

Comprehensive health insurance should not be confused with a national health service or "socialized medicine." As envisioned here, CHI is a means of financing health care and does not imply the direct provision of services. CHI can be viewed as a social insurance system that provides the mechanism--through the formation of a single, national risk pool--whereby the sick and healthy as well as the rich and poor can share the financial risk of illness. It need not restrict provider selection. It need not favor a particular pattern of delivery, e.g., state-owned and -operated facilities with salaried staff. In a sense, CHI refers to the nationalization of the financing of health care, not nationalization of service production.

The appeal of CHI as practiced in several countries is that funding is universally available, a large array of services are covered, and consumers are granted free choice of providers. Further, these systems have had greater success in containing overall costs than in the more market-oriented and pluralistic system of the United States. CHI systems have a good record in providing access to basic curative and preventive care for all income groups. Also, a single payor (or monopsony insurer) eliminates adverse selection and avoids the negative equity effects of risk-rating, although risk-rating makes sense on efficiency grounds. Finally, public support of most CHI systems appears high.

On the other hand, in the absence of cost-sharing requirements (e.g., copayments) in CHI systems, consumer demand is sometimes controlled through queues and other allocative devices. Access to expensive, high-technology services is often limited. Providers--particularly physicians--are critical of these systems in the sense that they compromise their professional autonomy to determine the price and volume of services. Broadly, these systems control costs through monopsony power, e.g., through a system in which individual providers and facilities negotiate with a single financing entity for payment. Essentially then, providers negotiate fees with the government. There are a number of variations on how this approach is carried out in practice, although it characterizes all of Western Europe, Japan, Canada, and Australia.

In setting the goals for a health financing system, policymakers define the key characteristics or features underlying the policy and attempt to implement them. Generally, policy formation and implementation involves reconciling often conflicting interests of various players. In the area of health, these can include: government (representing citizens as patients and payors), employers as payors, physicians, hospitals, and insurance companies.

Exhibit 15 matches different health service systems with health policy characteristics and values. In all systems some features will be included, but others will be sacrificed. Despite placing a high value on equity and quality, the Belizean public health system, as currently organized and financed, falls short of the mark. At the same time, the system fails to contain costs. Typical of private medicine in non-socialist countries, the Belizean private sector does provide consumer freedom of choice and full professional autonomy, but access is compromised and quality is limited.

For comparative purposes, Exhibit 15 also displays key features of health systems in other countries. The United States' system appears to place higher value on insurer and provider autonomy and on consumer choice. Cost containment is sacrificed. Canada and West Germany, however, emphasize equity and consumer freedom of choice. These systems have achieved a relatively greater degree of equal access and cost control through restricting provider freedom and fostering greater government intervention in and regulation of the medical market. These systems have maintained consumer freedom of choice, but inefficiencies in service provision linger.

EXHIBIT 15
A COMPARISON OF HEALTH SYSTEMS WITH COMPETING HEALTH POLICY CHARACTERISTICS, SELECTED COUNTRIES

TYPE OF SYSTEM	EQUAL ACCESS	CONSUMER FREEDOM OF CHOICE	ACCOMMODATES PROVIDER FREEDOM OF PRICING AND DETERMINATION OF VOLUME	QUALITY	OVERALL COST CONTROL
BELIZE: PUBLIC	LOW	LOW	NO	LOW	LOW
BELIZE: PRIVATE	LOW	HIGH	YES	LIMITED	PROBABLY LOW
CUBA (national health service)	HIGH	LOW	NO	UNKNOWN	PROBABLY LOW
UNITED STATES ("pluralistic")	LOW	HIGH	YES	HIGH	LOW[a]
CANADA, WEST GERMANY (national health insurance)	HIGH	HIGH	NO	HIGH	HIGH
UTOPIA	HIGH	HIGH	YES	HIGH	HIGH

[a]Certain modes of medical care organization and delivery (e.g., HMOs) are highly efficient.

Source: Adapted from Reinhardt, 1989, p.73.

5.4 ISSUES IN IMPLEMENTATION

Upon establishing a CHI scheme, planners will have to be selective regarding balancing equity and efficiency considerations. The trade-off between these two principles will be played out at all phases of the design and implemention of the scheme. What will be the roles of the SSB, MOH, private insurance companies, and the private medical sector? Can a national insurance scheme be designed that would reduce the risks of moral hazard as well as foster efficiency in service delivery by affiliated providers? How can such a scheme promote greater equity in terms of resource allocation, access, and utilization?

This section presents a series of principles that can guide future planning and shape the formation of a long-term strategy, culminating in the creation of a comprehensive health insurance system. These principles touch upon the CHI features and policy orientations mentioned in the previous section. Here, the aim is to provide more specific implementation guidelines based on lessons learned from social insurance experience in Latin America, coupled with CHI experience in developing countries. Implementation issues relating to five key aspects of program design are highlighted: beneficiaries, benefits, providers, role of government, and payment.

1) Beneficiaries: Avoid establishing a separate social security insurance scheme.

This point was made in the previous section, but it is worth repeating. Based on the experience of social security systems in Latin America, the introduction of a health benefit package for the insured population by the SSB may result in further stratification of access to health services, and impede the development of a comprehensive health insurance scheme. Social security systems in the region tend to offer their members full access to higher-quality health services while the majority of the population has limited access to basic public health services. In general, social security systems are known for low population coverage and inequalities in terms of coverage of occupational groups, economic sectors, and geographical areas. They tend to favor industrial over agricultural workers, salaried over self-employed workers, the formal over informal sector, and urban over rural areas.

Most social security systems have a poor record of extending coverage to rural, informal sector, and self-employed groups. This is due in part to the financial mechanism based on salary contributions, and in part because of resistance from the insured population. If financing of a health benefit package is mandated legally to rely on employer and employee contributions (as presently is the case for the SSB), low-income agricultural, informal, and self-employed workers will remain excluded. The introduction of health benefits may create interests among both employers and employees that lead to resistance to additional population coverage. The insured population tends to exert pressure on governments to expand benefits for themselves rather than extend coverage to other population groups.

2) Benefits: Design an equitable and financially self-sufficient package.

Latin American social insurance schemes are characterized by generous packages that lead to moral hazard and inequitable utilization among different segments of the insured population. They are also characterized by regressively designed payroll taxes, high tax rates, and eligibility criteria that distort labor markets. Overly-generous benefit packages, poor medical care organization, and inefficient resource allocation have contributed to costly over-utilization, over-medication, and use of expensive technologies. Many social security institutes have been forced to tap (and in some cases deplete) pension and workingman's compensation funds to pay for cost overruns of health benefit programs. Further, higher-income urbanites are the principal consumers of expensive, high-technology services covered under social security schemes.

Insurance is a means whereby the financial loss due to risks, or uncertain events, are shared among many people. It is based on the probability of uncertain events (e.g., severe financial loss due to illness) occuring among a large group of individuals. In theory, in exchange for premium payments, an individual is protected by an insurance plan against financial catastrophe due to illness. In practice, however, many insurance schemes provide protection against catastrophic loss, but also contain elements of prepayment plans. That is, they cover predictable events and small losses due to routine utilization.

Risk exposure can be limited through offering a basic package that first and foremost protects against catastrophic loss, and, as a secondary benefit, covers preventive and basic curative care. On economic grounds, a pure catastrophic plan makes the most sense. However, policymakers may want to include coverage for more routine preventive and curative care. To avoid frivolous utilization, it is desirable that the individual pay for part of the cost, especially for curative care, such as outpatient visits, through deductibles and copayments.

Defining the services covered by a national insurance scheme--or alternatively the method of limiting benefits--will be difficult. For example, even defining what constitutes catastrophic coverage can be a daunting task. Will it be defined in terms of a monetary amount or in terms of particular diseases? In whatever case, there will be pressures to expand the definition. Moreover, catastrophic coverage provides incentives to providers to expand those services (e.g., hospitalization) covered under the plan.

Those firms or individuals that desire additional coverage (beyond the mandatory benefit package) can purchase supplemental insurance through a private carrier or managed care plan (see below). The important point here is that the scheme offers a basic level of protection for the entire population, including dependents of contributors as well as the indigent and unemployed.

Defining the benefit package is particularly important in terms of the ability of the economy to afford the scheme. Providing universal health coverage will probably require a substantial increase in payroll and other forms of taxes. In an analysis of health benefits under Latin American social security schemes, McGreevey (1990) cautions that high payroll taxes may provide incentives to both employers and employees to evade payment, encourage firms to invest in capital-intensive technologies and to attempt to shift the tax to consumers. He recommended that contribution rates remain as low as possible through the structuring of an affordable medical care benefit package that minimizes moral hazard.

3) Providers: Work with both the public and private medical sectors.

Insurance schemes that make use of both public and private provider networks allow greater consumer choice and may stimulate efficiency through competition among providers. To compete within a comprehensive health insurance system that permits private provider participation, the MOH will need to improve both the efficiency and effectiveness of operations. As recommended in the HFS report on cost recovery, this will require a transition period in which MOH operations are decentralized, partial cost recovery schemes through user fees are implemented, and quality is improved.

Another advantage of such a strategy is to stimulate the expansion of private medicine. Business leaders seek to end the high utilization by Belizeans of services in Mexico and, in turn, develop Belize's private medical sector. By limiting coverage to services provided in Belize, the scheme can reduce the flow of patients to "offshore" facilities. Nevertheless, referral arrangements can be

organized with nearby foreign providers for special services unavailable in Belize.

As suggested above, allowing enrollees to choose between public and private providers may result in greater efficiency and improved quality of care. Moreover, the plan can also encourage private insurance markets. For example, although mandatory premiums can be collected by a CHI fund, the scheme can permit and encourage consumers to enroll in private HMOs that offer an optional benefit package. These plans can offer supplemental coverage and options (i.e., more liberal utilization limits and lower copayments) depending on consumer demand, charging additional premiums accordingly.

4) Government: A New Role.

In many Latin American countries, governments transfer funds from general revenues to social security systems. This contributes to inequity as benefits accrue only to the insured, usually a minority of the total population.

In Belize, the government will play a key role in any insurance system, but will be ultimately responsible for financing services for the unemployed, elderly, and indigent. In effect, a comprehensive health insurance system will reorient the government's financial relationship with the MOH, particularly with respect to medical services. Instead of providing transfers to underwrite all MOH activities, comprehensive health insurance will require government to pay only for services rendered to special groups not covered by the CHI. Effective means testing mechanisms will be required to target these groups. The government becomes the purchaser of care for these groups through an autonomous CHI fund. The MOH, as a provider, will depend on insurance payments from the CHI fund for curative services covered by the scheme and rendered in MOH facilities. Eventually, the MOH can develop into a non-profit entity providing curative services through its network of facilities, or remove itself from such activities completely to concentrate on public health and promotional interventions and to play a more regulatory role within the health sector.

Although it is difficult to estimate the financial responsibility of the government, it certainly can be relieved of the burden of financing most medical services for a large portion of the population. The scheme can allow the MOH to recover a higher portion of costs than is possible under a strict user fee system. Estimates of revenues generated under various user fee and insurance mechanisms are presented in the HFS companion report on cost recovery. However, the CHI fund will have tremendous power to regulate private services through its decisions regarding eligibility of providers and reimbursement.

5) Provider Payment: Promote Efficiency Incentives.

Comprehensive health insurance schemes as well as social security funds are not known for their efficiency of operations. Overcentralization, disregard for consumer preferences, rationing by queue, absence of accountability to clients, and excess catering to providers are often characteristic of these schemes. Part of the problem rests with insufficient separation between the payor and the provider and the lack of competition among the latter. This is particularly the case in Latin American social security systems which provide services directly.

The trick is twofold: to promote efficiency without sacrificing equity and to promote decentralized service provision coupled with centralized funding control. These goals can be accomplished in a number of ways that may require an initial period of experimentation. We have already mentioned several measures: decentralized management of public facilities, a well-defined and affordable service package, universal coverage, and consumer choice of providers (public and private). As the single payor, the government will have leverage to control overall providers' costs through government-provider negotiations of fee schedules.

Comprehensive health insurance can also stimulate the establishment of and competition among managed care plans such as health maintenance organizations (HMOs) or pre-paid capitation plans. That is, in addition to selecting a particular provider or facility, a patient can be free to enroll in a managed care plan. This does not mean he or she can "opt out" of the CHI. A comprehensive health insurance fund can transfer a percentage of premium payments (less collection costs) to these plans based on the number of enrollees. These plans, which can be formed among both public and private provider networks, are then responsible for providing the basic service package. To lure additional patients, some plans may offer additional services for no additional fee. Consumers can enroll in the plan of their preference. Those plans that provide quality care efficiently will be awarded with a greater number of enrollees. However, the CHI will have to guard against risk selection by providers and other forms of exclusion or screening of potential enrollees (such as balance billing). Overall costs can be controlled through government-provider negotiations of fee schedules.

6) A Role For Social Security?

The SSB was designed to be an income insurance scheme. The participation of the SSB in a comprehensive health insurance system will require careful study. It may be best for the SSB to remain institutionally separate from a CHI agency. As mentioned earlier, many Latin American social security schemes combine income maintenance coverage with a health benefits package. The results have not been favorable--resulting in highly inefficient health service delivery for a minority of the population. It is a common practice to draw on pension reserves to pay for deficits in health benefits programs. Further, social security institutions are pressured from insured populations and other interest groups to exclude lower-income groups from health coverage (Ugalde, 1985). In light of the increasing pressure on the SSB to tap the large reserves of the short-term funds, SSB can focus on raising the level of current benefits (as suggested by the ILO) or extending benefits to new population groups (e.g., the self-employed). Another option is to reduce the contribution rate.

Nevertheless, the SSB can provide important services to a CHI system. Its experience in premium collection, accounting, claims analysis, and investment management can be very useful to a fledgling CHI fund. The SSB recently established a network of offices in all districts and is currently working on a plan to reduce waiting time between claim submission and payment to less than one week. The SSB's high administrative costs suggest excess administrative capacity in the SSB bureaucracy. Perhaps the best approach is institutional separation combined with administrative cooperation.

6.0 CONCLUSION

This report analyzed the evolution of Belize's Social Security system over a nearly 10-year period. It focused on four system characteristics: coverage, financing, benefits, and claims experience. Worker and employer perspectives toward the system were also assessed.

As SSB revenues increase and reserves surge, the system is under increasing public and government scrutiny. Pressure appears to be mounting to improve and broaden the current benefit package, and to extend coverage to additional population groups. From a different perspective, the MOH seeks access to SSB reserves to finance current operations, improve quality, and extend services. To this array is added the MOF, which is searching for the appropriate financial and management mechanisms to raise efficiency and contain escalating MOH expenditures. However, top government officials are also concerned about the effect of any health financing reform on equity.

A comprehensive health insurance system is proposed as a possible long-term solution to the needs and demands of the above institutions and groups. It also can contribute to the development of private medicine in Belize. In view of the need to structure the issues for public debate and to define the roles of institutional participants, the report outlined several principles to guide future discussions. Although at this point it is difficult to predict the precise role of the SSB in a comprehensive health insurance system, its financial and administrative contribution will be significant. A series of short-term activities are recommended. For the most part, these actions will facilitate SSB participation in a comprehensive health insurance system.

APPENDIX 1: SCOPE OF WORK

Initial studies financed by USAID indicate that the GOB Social Security Board must play a more active role in the financing of health care. A longer-term objective of Project -0045 will be to modify laws to permit payments for general health care. To lay the foundation for future interventions in this area, HFS is to provide a consultant specializing in social security systems for a period of four weeks. The primary responsibility of this consultant will be to analyze alternative options for optimal use of social security funds for routine health services. This will include an assessment of the capacity of social security to meet public sector demand, the ramifications of increasing coverage, an analysis of alternatives to increase coverage, cost estimations, and alternatives to financing options.

APPENDIX 2: ANNEX EXHIBITS

ANNEX EXHIBIT 1
SOCIAL SECURITY COVERAGE OF ECONOMICALLY ACTIVE POPULATION (EAP), SELECTED COUNTRIES, MID-1980s

COUNTRY	PERCENT OF EAP MID-1980s
Barbados	96.9
Jamaica	93.2
Bahamas	85.9
Chile	79.2
Argentina	79.1
Uruguay	73.0
Costa Rica	68.7
Belize	61.0
Panama	59.8
Venezuela	54.3
Mexico	40.2
Peru	39.1
Nicaragua	31.5
Colombia	30.2
Guatemala	27.0
Ecuador	23.4
Bolivia	16.9
Honduras	12.8
Dominican Republic	11.3

Source: Mesa-Laga (1990), cited in McGreevey, 1990

ANNEX EXHIBIT 2
SSB SURPLUS AND RESERVES, 1984-89
(in 000 BLZ dollars)

BRANCH	1984	1985	1986	1987	1988	1989
SURPLUS (revenues less expenditures)						
SHORT-TERM	1,589.8	1,506.2	1,510.5	1,632.5	1,886.2	2,093.2
LONG-TERM	4,897.2	4,603.2	4,980.3	5,202.5	5,742.6	6,368.6
EMPLOY.-INJURY[a]	2,446.7	2,114.2	2,354.1	2,369.8	2,771.0	2,992.0
RESERVES						
SHORT-TERM	3,892.5	5,390.6	6,879.4	8,488.6	10,351.9	12,418.9
LONG-TERM	11,788.3	16,367.0	21,281.5	26,411.1	32,083.5	38,367.8
EMPLOY.-INJURY[a]	5,374.5	7,476.2	9,800.3	12,136.4	14,874.9	17,828.3

2 BLZ $ = 1 US $
[a]Figures refer to "short-term" fund only.

Source: SSB Annual Report, various years.

ANNEX EXHIBIT 3
REVENUES FROM INVESTMENTS AND CONTRIBUTIONS
AS PERCENT OF TOTAL SSB INCOME, 1982-89

SOURCE OF REVENUES	1982	1983	1984	1985	1986	1987	1988	1989
	AMOUNT							
INVESTMENT/ INTEREST	651.6	1,051 .4	1,504 .9	3,017 .0	3,814 .6	3,847 .5	4,662 .5	5,710 .3
CONTRIBUTIONS	4,646 .2	5,927 .4	9,044 .2	7,172 .3	7,377 .7	8,201 .1	8,846 .3	9,512 .7
	AS PERCENT OF TOTAL REVENUES							
INVESTMENT/ INTEREST	12.3	14.3	14.2	28.9	33.9	31.7	34.2	37.2
CONTRIBUTIONS	87.6	80.7	85.4	68.8	65.6	67.5	65.0	62.0

Source: SSB Annual Report, various years.

ANNEX EXHIBIT 4
AVERAGE REAL RATE OF RETURN TO
SOCIAL SECURITY INVESTMENTS
SELECTED COUNTRIES, 1980s[a]

COUNTRY	PERCENT YIELD
CHILE	13.8
BELIZE	6.6
BAHAMAS	2.6
BARBADOS	0.7
JAMAICA	-4.8
ECUADOR	-10.0
COSTA RICA	-10.5
MEXICO	-20.8

[a]Bahamas 1980-85, Barbados and Ecuador 1980-86, Chile and Peru 1981-87, Mexico 1981-83 Belize, 1983-89.

Source: Belize, SSB Annual Report, various years.
All other countries, Mesa-Lago (1990), cited in McGreevey (1990).

ANNEX EXHIBIT 5
ADMINISTRATIVE COSTS AS A PERCENT OF
TOTAL COSTS OF SOCIAL SECURITY AGENCIES
SELECTED COUNTRIES, MID-1980s

COUNTRY	PERCENT OF TOTAL COSTS
BELIZE[a]	42.0
TRINIDAD/TOBAGO	32.4
ECUADOR	22.5
DOMINICAN REPUBLIC	22.0
BAHAMAS	21.8
HONDURAS	17.8
VENEZUELA	17.6
BOLIVIA	14.5
JAMAICA	12.8
MEXICO	12.8
GUATEMALA	11.8
COLOMBIA	11.6
CHILE	8.2
PANAMA	7.7
BRAZIL	6.8
BARBADOS	5.0
COSTA RICA	5.0

[a]1989; 41 percent in 1985.
Source: Belize: Annual Report, 1989.
All other countries, Mesa-Lago (1990);
cited in McGreevey (1990).

ANNEX EXHIBIT 6

SSB REVENUES AND EXPENDITURES AS A PERCENT OF GDP, 1982-89

(in 000 BLZ dollars)

	1982	1983	1984	1985	1986	1987	1988
	AMOUNT (current prices)						
GDP	355,568.0	346,676.0	389,294.0	387,356.0	417,237.0	499,142.0	550,499.0
SSB REVENUES	5,301.5	7,349.4	10,588.4	10,427.2	11,243.5	12,147.6	13,615.9
SSB EXPENDITURES	1,206.6	1,514.9	1,654.8	2,203.6	2,398.6	2,942.8	3,216.2
	AS PERCENT OF GDP						
SSB REVENUES	1.5%	2.1%	2.7%	2.7%	2.7%	2.4%	2.5%
SSB EXPENDITURES	0.3%	0.4%	0.4%	0.6%	0.6%	0.6%	0.6%

Source: SSB Annual Report, various years.

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HEALTH FINANCING AND MANAGEMENT IN BELIZE: AN ASSESSMENT FOR POLICYMAKERS

A Compendium of Technical Notes

Volume IV: The Private Medical Sector

Submitted to:

Health Services Division
Office of Health
Bureau for Science and Technology
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ABSTRACT

The authors analyze the factors constraining expansion in the private medical sector in Belize. The recommendations in this report focus on increasing lower income groups access to private medicine. The private medical sector in Belize is limited in terms of the number of providers and range of services. The report identifies the factors contributing to the lack of growth in the supply of private medicine in Belize: among other things=licensing regulations that restrict the number of physicians authorized to practice privately, the proximity of higher quality services in Mexico, and low population coverage of group medical insurance.

BELIZE COMPENDIUM

ABBREVIATIONS

ALOS	Average Length of Stay
BCH	Belize City Hospital
CDR	Crude Death Rate
CGA	Citrus Growers Association
CHW	Community Health Worker
CMS	Central Medical Stores
CRDTL	Caribbean Regional Drug Testing Laboratory
CSO	Central Statistics Office
CWHC	Cleopatra White Health Center
DHS	Director of Health Services
DMO	District Medical Officer
EAP	Economically Active Population
EEC	European Economic Community
ECDS	Eastern Caribbean Drug Service
EDP	Essential Drugs Project
FORMED	Fondo Rotario de Medicamentos Esenciales
FPPM	Fiscal Policy Planning and Management
FY	Fiscal Year
GDP	Gross Domestic Product
GNP	Gross National Product
GOB	Government of Belize
HFS	Health Financing and Sustainability Project
HMO	Health Maintenance Organization
ILO	International Labour Office
IMF	International Monetary Fund
IMR	Infant Mortality Rate
IPC	Income per Capita
MIS	Management Information System
MMR	Maternal Mortality Rate
MOF	Ministry of Finance
MOH	Ministry of Health
MRHC	Matron Roberts Health Center
MSH	Management Sciences for Health
MSO	Medical Statistics Office
NHI	National Health Insurance
NTUCB	National Trade Union Congress of Belize
OPD	Outpatient Department
PAHO	Pan American Health Organization
PNO	Principal Nursing Officer
PS	Permanent Secretary
RN	Registered Nurse
SDD	Social Development Department
SI	Statutory Instrument
SSB	Social Security Board
SSCGDP	Social Security Costs as a Percent of Gross Domestic Product
SSDF	Social Security Development Fund
TBA	Traditional Birth Attendant
UNDP	United Nations Development Programme

UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
VEN	Vital, Essential, Necessary

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EXECUTIVE SUMMARY

The Health Financing and Sustainability (HFS) Project undertook an analysis of the private medical sector in Belize in an effort to understand the current constraints to expansion of private medical services, and to identify opportunities for USAID/Belize to assist the Government of Belize in taking full advantage of all of the country's health resources. The analysis and recommendations in the report are oriented toward increasing access to private medicine by lower-income groups.

Unlike other countries in the Caribbean basin, the private medical sector in Belize is limited in terms of the number of providers and range of services. In 1989, there were less than 25 exclusively private physicians, and approximately 20 others who practice in the public and private sectors. At the same time, population characteristics (currently at 200,000) and relatively high per capita income, suggest that demand for private medical care is strong and growing.

Several factors contribute to the lack of growth in the supply of private medicine in Belize. These include: licensing regulations that restrict the number of physicians authorized to practice privately, the proximity of higher-quality services in Mexico, low population coverage of group medical insurance, the absence of group practices, and the absence of linkages between those who finance and those who provide health care. The use of public hospitals by government-contracted specialists to treat private inpatients also has contributed to the underdevelopment of exclusively private facilities.

There are important opportunities for USAID/Belize to provide policy analysis and technical assistance, with the intent of expanding medical coverage to low-income populations. Policy analysis will focus on the access and cost consequences of regulations that restrict the supply of physicians. The analysis will also demonstrate how the restrictions may stunt the development of medical practice in Belize. This, in turn, has contributed to the growth of utilization by Belizeans of offshore facilities, and may compromise the country's foreign exchange balance. Regarding this latter point, more in-depth macroeconomic analysis may be needed before more definitive statements can be made about the relation between offshore utilization and foreign exchange balance. Additional policy analysis can be undertaken to evaluate the costs and benefits of government tax credits to employers who contribute to health insurance plans for their employees.

In addition, through technical assistance, USAID/Belize could help insurance companies, service providers, and business/trade organizations (such as the Chamber of Commerce) to establish linkages for the purpose of designing and implementing low-cost managed care schemes.

1.0 OVERVIEW

This report examines the current condition of the private medical sector in Belize and recommends activities that will enhance its potential for future growth. The analysis and recommendations are oriented toward increasing access to private medicine by lower-income groups.

The authors gathered information from a number of sources: employers, insurance company executives and agents, Chamber of Commerce representatives, government and private physicians, private clinic managers in Belize and Mexico, employer association representatives, Social Security Board (SSB) officers, and government officials. Meetings over a several-month period produced a quantity of information, opinions, and conclusions on the factors that directly affect the development and growth of private medicine in Belize. These include: physician supply, insurance products, government and Social Security regulations, offshore facilities, and informal employer-based "insurance" mechanisms. (See Scope of Work, Appendix 1.)

The report is divided into four parts. First, using demographic and macroeconomic data, we show why the demand for health services will increase over the next two decades. The second part turns to the supply of services. Here, we examine types of services and providers available in Belize. The third part analyzes the constraints to the growth of private medicine. This section focuses on three factors: government regulations, competition from offshore providers, particularly in Mexico, and the lack of coverage through health insurance. The report concludes with a series of recommendations concerning policy actions and technical assistance.

2.0 THE DEMAND FOR PRIVATE HEALTH SERVICES

2.1 DEMOGRAPHIC FACTORS

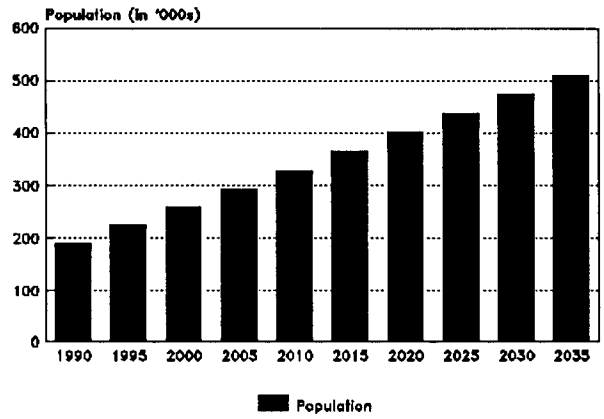
Estimates of population growth and economic development suggest that the demand for private health services by Belizeans will increase substantially during the 1990s. These factors exert a strong influence on the total (private and public) demand for health services. Belize has one of the highest population growth rates in the world. The average Belizean woman has between five and six live births in her reproductive lifetime, compared to an average of 3.7 in Latin America and the Caribbean (Population Reference Bureau, 1990). Moreover, whereas the birth rate is declining in many developing countries, the birth rate in Belize remains at a high level.

If we assume that all people born in Belize remain there, the population would double in 20 years. Yet, during the past several decades, many Belizeans have migrated out of the country. This may have lowered the rate of population growth. The World Bank projects that migration is decreasing and that it will decline to a trickle in the next 30 years. Further, during the 1980s, Belize has received an undetermined number of migrants and refugees from Central America. Some migrate to seek work as seasonal agricultural laborers and soon return to

their native lands. Others have returned (or will return) depending on political conditions. Anecdotal evidence suggests that many have remained in Belize. A drop-off in migration out of the country, together with continued immigration of Central Americans, will dramatically increase the number of people living in Belize during the next three decades.

Exhibit 1 shows that the population of Belize will double in 30 years to 400,000 people. The trend suggests that 15 years later (by the year 2035), the country will contain half-a-million inhabitants. At that time, Belize City's population could approach 200,000. (Exhibit 1 is based on the following assumptions: 1) declining fertility: from a total fertility rate of 5.2 in 1988 to 3.5 in 2000, and 2.2 in 2035. 2) no change in age-specific death rates; and 3) declining migration rates, from -3.4 per 1,000 net migration in 1885-1990, to 0 net migration in 2035.)

EXHIBIT 1
PROJECTION OF THE POPULATION IN BELIZE, 1990-2035

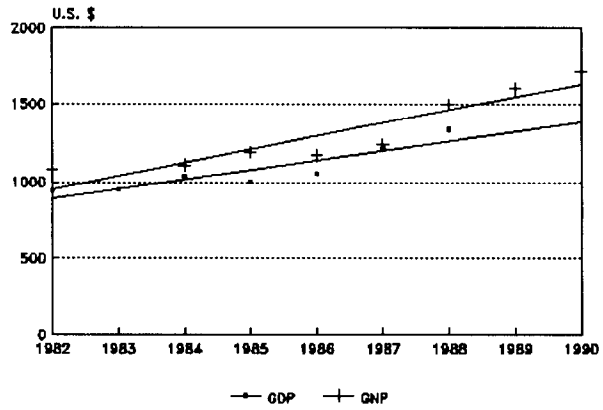


Age structure, or the distribution of people by age, also influences the demand for health services. Different age groups have different demands for health services. Women of child-bearing age, together with older people, constitute a large portion of the demand for inpatient services. The former seek gynecological services, while the latter require care for chronic and degenerative diseases. The age groups that will grow the fastest in Belize are precisely these groups that consume the most health services. Over the next 25 years, women of child-bearing age will be the fastest-growing age group in Belize. Their numbers will double by the year 2010 (from 40,000 to 80,000). In approximately 20 years, the over-55 population will double (from 20,000 to 40,000).

2.2 ECONOMIC FACTORS

Finally, the demand for health services, particularly private health care, is strongly related to changes in income. Real per capita income has increased substantially in Belize during the past decade. It is likely that income will continue along the trend shown in Exhibit 2. Studies in Latin America have found that for every additional one percent of spendable income, a household will increase its private health care expenditures by at least one percent (Musgrove, 1983). If this holds true in Belize, and there is sufficient supply of private services to meet the growing demand, we can expect that expenditures on private health will increase at nearly the same rate as per capita income.

EXHIBIT 2
GROWTH OF PER CAPITA INCOME IN BELIZE



Without a household survey, it is difficult to gauge precisely the demand for private health services.[1] Based on a 1980 survey of general household expenditures, it was estimated that the private sector accounts for approximately 45 percent of Belize's expenditures on health care (Central Planning Unit, 1980). Because of the deterioration of state services during the 1980s, it is safe to say that Belizeans are increasingly seeking care from private providers in and outside of the country. Indirect evidence suggests that Belizeans from all social classes exhibit a high demand for private services. For example, most upper- and middle-class Belizeans have purchased indemnity insurance plans that are designed to cover expenses for private services provided in Mexico, Guatemala, and the United States. Workers and other lower-income employees, the majority of the Belizean labor force (Ministry of Economic Development, 1984), make use of an informal insurance mechanism available through employers. Most employers routinely lend money to employees to cover private medical expenses. Insurance coverage and employer-based loans are discussed in greater detail in a later section.

In sum, specifying the demand for private medical care requires information on people's health-seeking behaviors during illness events. Household surveys are a generally reliable method to obtain this information. In lieu of survey-based data, indicators of population growth, age structure, and income suggest that the demand for health services in Belize will rise rapidly over the next three decades. Financed through insurance or employer-based loans, many Belizeans are already demanding private care from both domestic and foreign providers.

3.0 THE SUPPLY OF PRIVATE MEDICAL SERVICES

Unlike other countries in the Caribbean basin, the private medical sector in Belize is limited in terms of the number of providers and range of services. In 1988, there were 2,045 people per doctor in Belize compared to the Latin American and Caribbean 1984 average of 1,230 (World Bank, 1990). In 1989, the Health Ministry's Medical Statistics Office reported 95 registered physicians practicing in public and private settings. Approximately half (45) the physicians are exclusively private practitioners, or specialists who practice in both the public and private sectors. Anecdotal evidence suggests that a limited number of physicians, mostly unlicensed migrants from neighboring countries, practice privately. Contrarily, not all the registered private physicians are

[1]In early 1991, the Centers for Disease Control will be performing a demographic and health survey, which will include some questions on the demand for and expenditures on private services.

currently practicing in Belize. Some have left the country and others are semi-retired and receive patients on an irregular basis.

Only 17 licensed specialists practice in Belize. Most of these (13) are located in Belize City. All work for the Ministry of Health and, with the exception of two anesthesiologists, practice privately. Exhibit 3 presents the distribution of physicians by specialty. Except for those under state contract in Belize City, most general practitioners elsewhere in the country maintain a private practice.

EXHIBIT 3
DISTRIBUTION OF PHYSICIANS BY SPECIALTY, 1989

SPECIALTY	NUMBER
Gynecology	3
General Surgery	3
Pediatrics	3
Internal Medicine	2
Ophthalmology	2
Anesthesiology	2
Orthopedics	1
Radiology	1
Total Specialists	17
General Practice	78
Total Physicians	95

The private medical sector in Belize is for the most part limited to outpatient services. Most private doctors receive patients in storefront consultation clinics. In 1988, a group of five specialists opened a small outpatient clinic. These physicians, who work for the government during weekdays, hold consultation hours in the early evening and on Saturdays. The physicians who invested in the clinic do not constitute a group practice. As is the norm for most providers in Belize, these doctors practice independently. Any referral links among physicians are arranged on an impromptu and informal basis. Private diagnostic facilities consist of one laboratory and a recently installed radiology unit. Both are located in Belize City and are not affiliated with any outpatient or inpatient facility. The laboratory performs a full battery of basic tests. Samples are sent to the United States for more sophisticated tests requiring expensive reagents and equipment.

Some secondary care is provided for maternity cases and simple surgeries. Surgeons are permitted to operate on private patients in the Belize City Hospital (BCH). Since the closing of the Holden Memorial Hospital in 1978, private general hospital services have become scarce. During the 1980s, on at least three different occasions, physicians established modest inpatient facilities. These short-lived endeavors were unsuccessful in part because of the low volume of patients and the limited supply of physicians. Raymond et al. (1985:52) succinctly pinpoints the reasons for the closing of the Santiago Castillo Hospital in 1986:

> The problems encountered at Santiago Castillo were not cost problems; private services can be offered competitively in the Belize market. Rather, the hospital's problems were generated by a medical system which limited the hospital's access to physicians and patients.

Interestingly, a small group of physicians has recently set up a five-bed hospital in the same building that housed the Santiago Castillo hospital. The clinic offers general outpatient and inpatient services, including maternity care. However, laboratory and other diagnostic services are not provided. Clinic managers are currently seeking an anesthesiologist and equipment for an operating theater. In Corozal, another group of physicians recently established a group practice and are constructing a small hospital.

Within a two-hour bus ride from Belize City, in Chetumal, Mexico are two private hospitals/outpatient clinics. These are the Clínica de Especialidades y Diagnóstico de Chetumal, and the Clínica Fundación Médica de Quintano Roo. The former facility appears to emphasize outpatient services, while the latter, a recently inaugurated facility, features high-quality secondary and tertiary care.

The quality of care in the two clinics appears markedly superior than private services in Belize. The Chetumal facilities integrate outpatient, inpatient, diagnostic, and pharmaceutical services under one roof. Diagnostic services, operating theaters, and intensive care units are well-equipped. The recently constructed Clínica de Chetumal acquired sophisticated equipment to provide tertiary care, including traumatic and intensive care services. Approximately 20 physicians, representing a wide range of specialties and subspecialties, are affiliated with each clinic. Further, formal referral arrangements are established within each facility that allow a patient to visit two or more physicians (and obtain diagnostic tests) during the same day. Clinic representatives report that many Belizeans cross the border to seek specialty services, particularly those services not available in Belize (such as cardiology, urology, and otorhinolaryngology). Pediatrics and general medicine, available in Belize, are not big demand specialties for Belizean patients crossing the border.

4.0 CONSTRAINTS TO THE GROWTH OF PRIVATE MEDICINE

Several factors contribute to the lack of growth of private medicine in Belize. These include: licensing regulations that restrict the number of physicians authorized to practice privately, the proximity of higher-quality services in Mexico, low population coverage of group medical insurance, the absence of linkages between financiers and providers of health care, and the practice of private medicine in Belize City Hospital. We take up each of these themes in turn.

4.1 PHYSICIAN LICENSING

The supply of physicians in Belize is artificially restricted by regulations and practices that make it difficult for newly arriving doctors, such as medical school graduates, to practice privately. The limited size of the medical corps contributes to high physician fees, which in turn deter utilization by low-income groups. In Belize City, most specialists charge US $15-18 for an outpatient visit. This amount represents 25 to 35 percent of the weekly salary of most blue-collar workers. The physician's fee, together with the cost of a prescription drug or a diagnostic test, may represent over 50 percent of a week's wages for most Belizeans.

As suggested above, nascent private facilities are unable to expand services in part because of a lack of physicians. Moreover, since most general practitioners are not permitted private practice in Belize City, the largest market for private medicine, a significant portion of services provided by high-priced specialists is routine primary care.

According to Belize Ordinance, Law 21 of 1973, an amendment to the Medical Practitioners Registration Ordinance (Chapter 20), licensing is granted through the Medical Council of Belize. The Council is made up of the Health Minister, two appointees (appointed by the Minister), and two representatives of the Belize Medical and Dental Association. Through the auspices of the Medical Council, elements within the Belize Medical Association appear to have restricted the entry of new doctors into the private medical market in Belize City. Since 1960, it is estimated by one source that fewer than 30 private licenses have been issued.

To obtain a license to practice privately, known as Full Registration, a physician must work two years for the government or have worked for a prescribed period in a rural area. Nevertheless, although the law is not clear on this matter, specialists are immediately permitted private practice if employed in the public service. This is a practice left over from the colonial period. General practitioners assigned to government facilities in Belize City are prohibited from practicing privately, and are even paid a small monthly compensation for this restriction. Currently, 25 general practitioners constitute this group. Seven Belize City general practitioners have been granted licenses through special government decree. They were exempted from the law because they were long-established practitioners or because of political influence.

Although the law was originally meant to guarantee a sufficient number of physicians for government facilities, this is no longer the case. Since government vacancies are limited, few recent medical graduates can obtain positions. Reportedly, during the last few years, this has happened on more than one occasion to young Belizean physicians (including specialists). The Medical Council also denied them a private license because of the government service requirement. They subsequently left the country. The Medical Council is also known to block or at least delay the licensing of physicians who have met the two-year public service requirement. Because of professional, ethnic, and political divisions within the Belizean medical corps, specialists and general practitioners already licensed to practice in Belize City have been able to control the Belize Medical Association and exert sufficient pressure on Health Ministers to maintain the status quo.[2] Some may fear losing their already limited market share.

4.2 OFFSHORE MEDICAL CARE

Many Belizeans bypass the private medical sector in their country and seek services in Mexico, Guatemala, and the United States. As will be shown in the

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[2]As demonstrated in the 1989 elections, elections in Belize are decided by a small margin of votes. A group of 20 people can make up a political constituency. The Medical Association is considered a powerful interest group.

next section, most middle- and upper-income Belizeans have purchased indemnity insurance plans that are tailored to cover their offshore medical expenses. However, it appears that some offshore facilities are frequented by Belizeans representing all income groups. Insurance company executives, physicians, employers, and government officials admit that facilities in the city of Chetumal, Mexico attract patients from throughout Belize.

One Chetumal clinic estimated that in 1989, 18,000 consultations were provided to patients from Belize. The clinic's administrator reported that most of these patients represent middle- and low-income groups. Both clinics claimed that one-third of their bed-days were filled by Belizeans, though more precise figures were unavailable. An undetermined number of Belizeans seek services at solo practices that dot Chetumal. Prices at the Mexican clinics are highly competitive with the Belizean private sector. For example, an outpatient consultation with a specialist costs $20-25, compared to the $35 charged in Belize.[3] Factoring in the $10 transportation costs (from Belize City), the prices are essentially equivalent. Hospital per diem is $110 compared to $95 in Belize's only private hospital. Based on the price lists and utilization information provided by the clinics, we estimate that Belizeans spend between $2 and $4 million annually for medical services in Chetumal alone.

Clinic directors in Mexico are eager to establish formal links to the Belizean private medical sector and to expand their catchment area. In fact, the medical director of Clínica de Chetumal suggested that they would provide discounts for inpatient services in exchange for incorporation into a provider network linked to a prepayment scheme. The clinic's principal marketing objective is to capture the patients (Belizeans and Mexicans) who go to Mérida, the regional capital, for secondary and tertiary care.

The Mexican Consul in Belize City reported that approximately 15 patients per month seek visas for medical reasons. However, he stated that probably many more do so, but do not list medical reasons on the visa application. Insurance company representatives in Belize concur that most patients who go to Mérida (eight to 10 hours by bus) seek tertiary care or sophisticated diagnostic services (such as computerized axial tomography).

4.3 HEALTH INSURANCE

The market for health insurance in Belize is limited to white-collar employees and a scattering of blue-collar workers. Six insurance companies sell group and individual indemnity plans. Although auto, casualty, and life insurance are their principal product lines, insurance company executives maintain that medical insurance sales have increased rapidly during the 1980s. Individuals or groups desiring a medical scheme are required to purchase some other type of insurance (usually casualty or life).

We estimate that private insurance covers from 5,000 to 7,000 Belizeans. Group plans are limited to firms such as banks, utility companies, financial service institutions, trading companies, etc. Many of these companies are

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[3]All figures in Belize dollars unless otherwise noted: US $1 = BLZ $2

affiliates of large international firms. Of the approximately 50 firms covered by indemnity plans, dependents are covered in less than 50 percent of the schemes. On the average, the firms pay from 50 to 100 percent of the premiums for their employees.

As noted earlier, the benefit packages are fashioned to cover expenses for medical care acquired outside of Belize. Insurance company representatives state that most claims are for services provided offshore in part because of the limited facilities and services available in Belize. Column A of Exhibit 4 presents a high-cost generic scheme which would provide excellent coverage for most expenses incurred in Mexico or Guatemala. For example, based on the price list from the Clínica de Chetumal, an appendectomy requiring three bed-days will cost approximately $2,200 (including physician fees, anesthesia, laboratory tests, etc.). The scheme listed in Column A would reimburse the patient for all expenses except $90. Insurance companies also sell "executive" schemes that cover services provided in the United States. All companies have purchased reinsurance policies on the international market.

EXHIBIT 4
A COMPARISON OF A SAMPLE OF BENEFITS AND PREMIUMS FROM HIGH- AND LOW-COST GROUP INDEMNITY PLANS[1]
(BLZ $)

BENEFITS/PREMIUMS	(A) HIGH-COST	(B) LOW-COST
BASIC MEDICAL		
HOSPITAL (room and board)		
max per day	85	40
max per disability	5,950	1,200
SURGICAL		
surgical max	1,600	800
anesthesia max	400	300
DOCTOR'S VISITS (in hospital)		
max per day	30	6
max per disability	420	(covered under major medical rider)
OUTPATIENT SPECIALIST		
max per visit	40	35[2]
max per disability	160	70
OUTPATIENT GENERAL PRACTITIONER		
max per visit	25	202[2]
LAB AND X-RAY		
max per period of disability	200	75
MATERNITY		
normal delivery	600	200
C-section	900	400
PRESCRIBED DRUGS AND MEDICINES		
max per year	300	(covered under major medical rider)
deductible each accident or illness	5	--
MAJOR MEDICAL[3]		
coinsurance	20%	20%
max lifetime benefit	100,000	20,000
deductible--calendar year	100	100
PREMIUM RANGE[4] (monthly)		
individual	30-45[5]	15-20[5]
family	50-100[5]	25-50[5]

Notes:
1. Figures are not representative of any particular benefit package. Rather, for comparative purposes, they represent typical coverage limits for each benefit.
2. May exclude first annual visit.
3. Deactivated after Basic Medical maximum limits are reached.
4. Amounts vary according to group size as well as age, sex, and occupational characteristics of the members therein.
5. Total premium payments are approximately $10 higher per month. Insurance companies require that firms also purchase some other type of insurance coverage (usually life insurance) to qualify for a group medical plan.

Taken together, payments for premiums, deductibles, and copayment levels are generally out of reach for the average worker, who earns between $400 and $600 monthly. The volume is generally too small to form a local risk pool. This contributes to higher premium levels. Most insurance companies insert their groups into an international risk pool based on sex, age, salary, and occupational characteristics.

As shown in Column A of Exhibit 4, family coverage can cost as much as $100 monthly, representing 20 to 25 percent of the earnings of many Belizean workers. It is important to note that premium payments are approximately $10 higher than those shown in Exhibit 4. Insurance companies will not sell a group medical policy unless a firm also purchases life insurance or some other type of coverage.

Typical of indemnity schemes, enrollees are required to first pay the provider out-of-pocket and then submit a claim for reimbursement. As evident in the above example, workers' income is often too low to make an up-front payment and then bear the invariable delay for reimbursement.

A few domestic firms have purchased group medical insurance to cover blue-collar or lower-income employees. Column B of Exhibit 4 provides an example of a low-cost benefit package. The scheme is designed to cover services offered within Belize, that is, physician fees for private outpatient services and for surgery performed in the Belize City Hospital. Only with the prior authorization of a Belizean specialist will the policy pay for a claim for services provided in Mexico or Guatemala.

Insurance companies have not sold many lower-end plans to companies employing blue-collar workers. The reasons are varied. First and foremost, most companies have instituted an informal health insurance mechanism. Firms routinely lend money interest-free to employees to cover medical expenses. Through interviews with employers, the authors found that five to 20 percent of weekly payrolls are comprised of repayments for loans. At any one time, anywhere from 15 to 50 percent of employees have loans outstanding. Company executives maintain that most of the loans are for medical reasons. Workers directly petition the firm's general manager or owner for a loan. The loans are repaid through scheduled salary deductions over a six- to 12-month period. Because this system depends on employer beneficence, the distribution of benefits (loans) is potentially inequitable.

Second, some employers incorrectly assume that Social Security (SSB) covers all sickness events. In fact, the SSB only covers work-related injuries and illness. Yet, according to Social Security regulations, patients are required to seek services in public facilities. Despite SSB coverage, many employers have purchased supplementary insurance to cover private medical expenses for work-related injuries. They maintain the employees often must miss a day's work due to waiting time in the Belize City Hospital or district hospitals. Moreover, the employees themselves prefer to receive attention from private providers.

Third, health benefits are usually not on the collective bargaining agenda for both owners and unions. (A low proportion of the labor force is unionized in Belize. Existing unions are considered to wield little political power and

rarely pressure employers for increased salaries and benefits.) Employers and employees consider the premiums too expensive for the (low) level of benefits of the low-cost schemes (such as the scheme presented in Column B of Exhibit 4). Employees question the rationale of paying premiums for low-quality treatment in public facilities, such as for surgery in the Belize City Hospital. Workers claim that they already have relatively free access to these services.

Finally, because of the bankruptcy of two (foreign) life insurance firms in the 1970s, many Belizeans lost confidence in insurance as a means of financial protection against life's risks. Although the situation is changing, any project to extend coverage to middle- and lower-income groups will require marketing as well as consumer education.

4.4 LINKAGES BETWEEN FINANCIERS AND PROVIDERS OF HEALTH SERVICES

As suggested above, insurance companies have yet to establish formal arrangements with providers in Belize. This responds partly to the nature of the insurance product they sell and partly to the lack of organization among physicians. Freedom of choice of providers is desired by most upper- and middle-income enrollees, but, at the same time, the resulting high premiums exclude the large volume of working-class Belizeans. The insurance schemes reimburse enrollees for services obtained in four countries--with few questions asked. Consequently, insurers are in a poor position to counter the adverse effects of over-utilization or moral hazard and provider fraud. Applying utilization controls and checking the validity of claims submitted for services rendered in offshore facilities is obviously difficult. Some insurance executives recognize the need to implement controls to reduce or contain costs. To incorporate workers and other lower-income groups into an affordable insurance scheme, which also includes cost containment measures, may require a different type of design--one linked to a specified network of providers.

Except for the recent initiatives of the Myo'on Clinic in Belize City and the Northern Medical Group in Corozal, there have been few attempts by physicians to organize group practices. As noted earlier, this responds to the restricted supply of physicians, and to a lesser extent, to ethnic, professional, and political divisions among the Belizean medical corps. Even if insurance companies desire to negotiate contracts with providers, there would be no group practice or partnership to turn to. Similarly, few links exist between physicians and employers. Some employers send employees with work-related injuries to solo practitioners. But these arrangements are informal and the firms pay on a fee-for-service basis.

4.5 PRIVATE PRACTICE IN PUBLIC FACILITIES

According to Law No. 2 of 1977, specialists are permitted to admit private patients to government hospitals as long as hospital services are unavailable in private facilities. Informants within Belize City Hospital, the country's principal inpatient facility, estimate that between 50 and 75 percent of elective surgery and maternity cases are private. Based on these estimates, in 1989, no fewer than 5,000 BCH discharges were private patients.

It is common knowledge that the quickest route to admittance to the BCH is through a specialist's private ambulatory clinic. In theory, private patients are required to pay special fees to the hospital for hotel, drug, and diagnostic services. In practice, these fees are not collected.[4] Physicians charge fees for surgical procedures (performed in the BCH) and for pre- and post-hospitalization consultations (performed in private clinics). In effect, the government subsidizes private practice through underwriting the cost of hotel, operating room, diagnostic, and administrative services of the BCH.

The use of public facilities for private practice appears to contribute to a fragmented and underdeveloped private medical sector. Most physicians are solo practitioners and practice in storefront settings. A majority of specialists practicing in Belize have government contracts, and most of these are assigned to the BCH. They have little incentive to organize group practices or to invest in plant and equipment necessary to establish a private hospital. From the specialists' standpoint, treating private patients in the BCH makes perfect sense as long as the government picks up the tab for capital and overhead costs.

Fully private physicians (i.e., those without public contracts) claim that the aforementioned failure of three private hospitals in Belize City was due in part to a low volume of patients. The high volume of private patients channeled through Belize City Hospital contributed to the low utilization of these facilities. As described in Section 4.2 above, there is a high demand for private hospital services, as evidenced by the large number of Belizeans seeking care in offshore facilities. These facilities offer "integrated services," e.g., hospitalization, laboratory, radiology, pharmacy, etc., under one roof. A comparable facility is absent in Belize. For those Belizeans who are unwilling to utilize the dilapidated BCH for non-emergency hospital care, offshore facilities are their only option.

5.0 THE POTENTIAL FOR EXPANSION OF MEDICAL COVERAGE TO LOW-INCOME POPULATIONS

5.1. PRODUCT DESIGN

Insurance company representatives recognize that the market for higher-end plans is rapidly becoming saturated. Future growth will be linked to developing low-cost products and extending them to full-time, blue-collar workers and other lower-income employees and their families that make up the majority of Belize society. However, experience has taught them that schemes that feature limited benefits, high copayments, and complicated administrative procedures are difficult to sell to employers and employees alike. Moreover, few employees can afford the up-front, out-of-pocket expenditures inherent in indemnity plans. Insurance companies maintain that the elements of a successful insurance product for low income groups would include: comprehensive coverage, low copayments, dependent coverage, a large employer contribution to premium payments, and effective cost-containment systems.

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[4]Private practice in government facilities is discussed in greater detail in the HFS report on cost recovery.

5.2 MANAGED CARE

Many insurance representatives have expressed the need to work with organized groups of providers in Belize to establish prepaid managed care plans (similar to HMOs or PPOs) that integrate the financing and service delivery functions. Indeed, these arrangements offer considerable promise in the Belizean context. First, such arrangements have the potential to offer comprehensive coverage for relatively lower premiums than indemnity products. Second, they would also eliminate the need for large out-of-pocket expenditures and claim filing. The latter process is looked upon unfavorably by many employees, in part because of their experience with the slow-moving Social Security claims system. Third, managed care offers the potential for reducing fraudulent claims practices by providers and enrollees that currently plague the Belizean insurance industry.

Finally and most importantly, a managed care system allows for more control over expenditures (and thus lower premiums) partly because physician fees and other rates are predetermined. Currently, physicians tend to charge the maximum allowable in an indemnity plan. A restricted number of providers also permits closer oversight by claims analysts.

A prepayment plan linked to a network of providers offers several advantages. First, it allows for a greater amount of expenditures to remain in Belize. In the short run, the plan could require members to use those services that are available in the country (such as primary care, some specialty services, maternity, and some secondary care). Anecdotal evidence suggests that most Belizeans prefer Belizean physicians to their Mexican and Guatemalan counterparts and would seek private services in Belize if more adequate facilities existed. However, initially at least, the plan should not exclude providers in Mexico. The network should include Mexican providers, but only through a referral system. In other words, the plan can permit more appropriate (and controlled) use of Mexican clinics for services unavailable in Belize (such as tertiary care and more sophisticated diagnostic services). Second, in the long run, the increased volume could contribute to an expanded market for private medicine and to local capacity building.

Of particular interest is a prepaid plan recently initiated by the only private hospital facility in Belize, the Myo'on Clinic. Although it is too soon to assess this experiment, the scheme does provide an example of a type of low-cost plan that could attract cost-minded employers and employees. For $15 per month, the plan covers a wide range of basic outpatient services, including immunization, physician consultations, diagnostic tests, and basic dental care. The plan also covers hospital expenses for simple surgical procedures (maximum of eight days). Small copayments are required for most services. For example, enrollees pay $3 for an outpatient consultation (compared to $25 for a solo practitioner). Several of the details of the scheme have yet to be developed.

Some insurance executives consider the managed care option too risky unless information can be obtained on utilization patterns and other characteristics (such as age, sex, mortality rates, etc.) of the potential enrollees. In Belize, basic data on labor force characteristics, such as number of employers and employees, salary levels, occupation, residence, etc., cannot be found. As suggested earlier, insurance companies set rates based on data from international

risk pools or on U.S. mortality and utilization trends. Others consider the limitations of private medicine in Belize an obstacle to any managed care arrangement. We conclude that, without such a scheme, it is unlikely that the private sector will attract sufficient volume to generate growth.

5.3 RISK POOLS

Strengthening the private sector as well as extending coverage to lower-income groups will depend on incorporating a large volume of the latter population into insurance schemes. There is a need to find organizational arrangements which group large numbers of these potential beneficiaries. Large employers are relatively scarce in Belize. In fact, few firms have more than 200 full-time employees. Trade associations and business organizations are a possibility, however. We met with two groups who are interested in serving as intermediaries to form a risk pool. For example, the Chamber of Commerce currently has over 200 member firms. Many of these are small companies with less than 10 employees. The Cane Growers Association (CGA) in Corozal represents approximately 2,300 sugar care producers in northern Belize. Most of these are small producers. During the harvest season, the farmers hire nearly 1,000 migrant laborers. Presently, neither farmers nor workers are covered by an insurance plan.

5.4 LOCAL SUPPORT

Interest is high among insurance executives, providers, and trade organizations in strengthening private medicine in Belize and designing alternative financing and delivery mechanisms that extend these services to the working uninsured. They respond favorably to the recommendation to establish managed care arrangements in Belize. One physician group, affiliated with the Myo'on Clinic, is in the process of initiating a prepayment scheme. In 1989, a group of doctors in Corozal established a group practice. Moreover, representatives of the clinics in Mexico are eager to enter into an agreement whereby they provide services (at a discounted price) that are unavailable in Belize.

6.0 PLANS FOR TECHNICAL ASSISTANCE

Based on the above findings, the Health Financing and Sustainability (HFS) team is proposing two types of activities: policy analysis and technical assistance. The purpose of these activities is twofold: to stimulate the growth of the private sector and extend private coverage to lower-income workers and their families.

- <u>Policy Considerations</u>: The policy activity will consist of an analysis showing the access and cost consequences of regulations that restrict the supply of physicians. The study will also demonstrate how the restrictions have stunted the development of medical practice in Belize. This has contributed to the growth of

offshore facilities and has compromised the country's foreign exchange balance. The paper will propose how to best ease restrictions and rework the current legislation.[5]

- **Promote Managed Care**: We will also provide technical assistance to insurance companies, service providers, and large group organizations (e.g., Chamber of Commerce, Cane Growers Association, etc.) to establish linkages for the purpose of designing and implementing low-cost managed care schemes. Because indemnity insurance is not well understood in Belize, it is too costly for most employers and employees, and it invites excesses. Prepaid schemes linked to a provider network may be a more promising means for expanding the insurance net to blue-collar workers. The above-mentioned Myo'on Clinic has already requested assistance regarding the design of their prepayment scheme. Moreover, referral linkages with the Chetumal clinics are worth exploring. Another group of general practitioners seek to establish a group practice catering to the health needs of low-income families. Of related interest, the Chamber of Commerce seeks to create a risk pool through its 200 member firms and their employees. The effort has the potential to attract a relatively large volume of enrollees that could be incorporated into a managed care arrangement. HFS is currently assisting the Chamber in the design of an employer survey.

- **Promote Tax Credits**: Employers are generally unwilling to foot the bill for the high-cost indemnity schemes offering comprehensive coverage to blue-collar workers. Some insurance executives see a need for employer tax credits for purchasing group insurance plans. Currently, the tax laws allow for a $1,400 income deduction for individuals who purchase life insurance (Chapter 46, Section 21 of Income Tax Ordinance).

  A case can be made for the government to grant tax credits to employers who contribute to health insurance plans for their employees. In addition to stimulating the insurance industry and extending coverage to lower-income groups, the measure will encourage expansion of the private medical sector. This could lead to additional tax revenues in the future. HFS proposes a cost-benefit analysis of the effects of a tax incentive.

- **Increase Investments in Low-Cost Private Health Services**: Finally, physicians and insurance executives recognize the need for sources of capital for private providers. A physician who desires to start a group practice estimates that he needs at least $10,000 to remodel a small building and purchase small instruments. Currently, lines of credit are limited. The absence of alternative insurance mechanisms and group practices, public sector domination of inpatient services, and foreign competition have contributed to the

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[5]Policy recommendations concerning the practice of private medicine in Belize City Hospital are discussed in the HFS cost recovery report.

reluctance of investors to provide credit to private providers. HFS recommends that Social Security could be a source of soft loans for providers seeking to upgrade or establish private facilities. This theme is taken up in the companion paper on Social Security.

APPENDIX 1: SCOPE OF WORK

Private Sector Participation

One of the objectives of Project -0045 will be to increase the participation of the private sector in the provision of health care services. To lay the groundwork for this initiative, HFS will provide a health care private sector specialist or a health economist for a three-week consultancy. There is a common perception in Belize that restrictive policies discourage increased private sector provision of curative health services. This consultant will be responsible for reviewing and analyzing eligibility requirements, regulations, and practices, all prior studies carried out by the Government of Belize and the donor community on private sector participation, and estimating current and future supply and demand under different scenarios.

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Volume V: Resource Allocation

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Bureau for Science and Technology
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The Other Volumes in the Compendium:

Volume I:	Summary Diagnosis, by Gerard La Forgia and Ruth Levine
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Volume IV:	The Private Medical Sector in Belize, by Gerard La Forgia, Harry Cross, and Ruth Levine
Volume VI:	Pharmaceuticals and Supplies Procurement in Belize, by James Rankin

ABSTRACT

The distribution of human and financial resources in Belize's public health sector is analyzed in this resource allocation study. The analysis provides information for planning health care reformations: the current and projected health needs of the Belizean population; the allocation of resources at the national level; the supply of manpower; and the demand and utilization of human and financial resources in public health services.

The data analyses conclude that the need for health services in Belize will grow. Recommendations to improve efficiency of health services delivery include: not increasing the supply of physicians in the public sector in Belize until greater management efforts are devoted to controlling physician behavior and increasing physician productivity; analyzing the cost-effectiveness of the distribution of services; transferring some responsibility for general medicine outpatient care to nurses; assembling a working group to discuss possible solutions to the problems associated with the nursing shortage; and, granting substantial amounts of autonomy to district medical administrators.

BELIZE COMPENDIUM

ABBREVIATIONS

ALOS	Average Length of Stay
BCH	Belize City Hospital
CDR	Crude Death Rate
CGA	Citrus Growers Association
CHI	Comprehensive Health Insurance
CHW	Community Health Worker
CMS	Central Medical Stores
CRDTL	Caribbean Regional Drug Testing Laboratory
CSO	Central Statistics Office
CWHC	Cleopatra White Health Center
DHS	Director of Health Services
DMO	District Medical Officer
EAP	Economically Active Population
EEC	European Economic Community
ECDS	Eastern Caribbean Drug Service
EDP	Essential Drugs Project
FORMED	Fondo Rotario de Medicamentos Esenciales
FPPM	Fiscal Policy Planning and Management
FY	Fiscal Year
GDP	Gross Domestic Product
GNP	Gross National Product
GOB	Government of Belize
HFS	Health Financing and Sustainability Project
HMO	Health Maintenance Organization
ILO	International Labour Office
IMF	International Monetary Fund
IMR	Infant Mortality Rate
IPC	Income per Capita
MIS	Management Information System
MMR	Maternal Mortality Rate
MOF	Ministry of Finance
MOH	Ministry of Health
MRHC	Matron Roberts Health Center
MSH	Management Sciences for Health
MSO	Medical Statistics Office
NTUCB	National Trade Union Congress of Belize
OPD	Outpatient Department
PAHO	Pan American Health Organization
PNO	Principal Nursing Officer
PS	Permanent Secretary
RN	Registered Nurse
SDD	Social Development Department
SI	Statutory Instrument
SSB	Social Security Board
SSCGDP	Social Security Costs as a Percent of Gross Domestic Product
SSDF	Social Security Development Fund
TBA	Traditional Birth Attendant
UNDP	United Nations Development Programme

UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
VEN	Vital, Essential, Necessary

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EXECUTIVE SUMMARY

This report presents the findings of a study on resource allocation in the health sector in Belize. The study was conducted by health financing specialists from the Health Financing and Sustainability (HFS) Project to provide both USAID/Belize and the country's Ministry of Health (MOH) with background information for their planning processes. For the purposes of this study, resource allocation is defined as the distribution of human and financial resources in the public health sector.

The report presents information on the current and projected health needs of the Belizean population, the allocation of resources at the national level, the supply of manpower, and demand for (or utilization of) health services. Though data are limited, the analyses support the following conclusions:

- The need for health services in Belize is likely to grow substantially in the coming years, because of a relatively high rate of growth of the population, particularly in the reproductive and elderly age groups, and because of immigration of refugees with special health needs.

- The MOH has an adequate supply of physicians as measured by utilization indicators.

- Despite the fact that there is no undersupply of physicians, it is apparent that there is an undersupply of some physician services in the public sector. The main constraint on physician service supply is the productivity of those currently in the public service, particularly the specialists at Belize City Hospital (BCH). It is likely that these physicians are diverting a substantial amount of their efforts (and the hospital's inpatient facilities) to patients from their private practices.

- A nursing shortage is approaching critical proportions, given the difficulties of recruiting and retaining nurses, both in training and in service.

- District facilities and Belize City health centers carry out high volumes of general medicine outpatient services. Many of the services provided by physicians in outpatient clinics require a very limited set of medical skills, and could be carried out by nurses.

- Lack of infrastructure and available specialists result in low utilization of district inpatient facilities and high levels of referral to BCH. Inpatient facilities at BCH operate at high capacity.

- Decisions about how resources should be allocated are made in an apparently haphazard manner within the MOH. There is inadequate record-keeping of utilization and productivity for informed decision making. New personnel are employed and equipment is added to MOH supplies with little analysis of demand. And medical administrators at the district level are given very little autonomy over spending of their allotted resources.

To improve the efficiency of the delivery of health services in Belize, this study suggests the following to MOH decision makers and USAID/Belize:

(1) Do not increase the supply of physicians in the public sector in Belize until greater management efforts are devoted to controlling physician behavior and increasing physician productivity. The MOH should consider options for employment of physicians, particularly specialists, including part-time contracts and rotation of specialists among district facilities.

(2) Analyze the cost-effectiveness of the distribution of services. Expansion of services at the district level implies high costs: it entails increasing availability of specialists (by increasing productivity and instituting a rotation program) and improving district hospital infrastructure substantially. This may not be warranted as long as the referral process functions adequately. Questions that could be addressed by such a study would include: (a) Would it be feasible and cost-effective to have specialists rotate among district facilities? (b) What are the relative costs of the current referral and transport system versus providing higher levels of services in remote areas? This type of analysis would be an appropriate activity for technical assistance.

(3) Transfer some responsibility for general medicine outpatient care to nurses--with corresponding increases in remuneration. This change could have several benefits, including a decrease in waiting time at health centers, a decrease in manpower costs, and an increase in nurse satisfaction.

(4) Assemble a working group to discuss possible solutions to the problems associated with the nursing shortage. The group should be composed not only of MOH administrators, but also of working nurses. This group would undertake a review of the structure of the nursing system and recommend changes in wages and working conditions to attract and retain nurses. A survey of working and retired nurses may be required for this review. Technical assistance can be provided for this activity.

(5) Grant substantial amounts of autonomy to district medical administrators, since these are the people most aware of the local needs. This also will be part of the cost recovery efforts, in which revenues will be kept at the local level, and will fit within the technical assistance that can be provided for cost recovery.

(6) Give careful attention to planning for the new Belize City Hospital. If the new hospital were to admit and maintain the current average stay, it would be operating at close to 95 percent occupancy--an unacceptably high rate. Either the admissions must be restricted, the lengths of stay shortened, or an alternative site for some inpatient services utilized. This implies that there should be a review of admissions and lengths of stay to identify ways in which to shorten hospital stays. Attempting to shorten lengths of stay is not for the purpose of lowering the standard of medical care, but to determine if day surgery or other methods could be more fully implemented. Again, technical assistance from a health planner could be provided for the required analysis.

(7) Investigate and plan for the cost of support services for the new hospital. As part of the overall program of cost recovery and cost containment, alternative methods of providing services should be considered. That is, a study should be undertaken to determine the most cost-effective method of providing ancillary services (e.g., contracting out of catering and laundry services, compared to in-house provision). A health financing specialist can carry out a small-scale cost-effectiveness study as input into decision making.

1.0 INTRODUCTION

1.1 PURPOSE OF THE STUDY

This report presents the findings of a study on resource allocation in the health sector in Belize, which was carried out to provide both USAID/Belize and the country's Ministry of Health (MOH) with background information for their planning processes. For the MOH, the analysis can be used to inform budgeting and manpower allocation decisions. Analysis of resource allocation can aid in identification of key limiting inputs, and means of achieving greater levels of efficiency in health service production. For USAID/Belize, the study will assist in highlighting key areas in which assistance could be provided to the MOH to improve the efficiency and effectiveness of health system operations, particularly under the Fiscal Policy Planning and Management (FPPM) Project. (See Scope of Work, Appendix 1.)

The work constitutes one of a set of five studies of health financing in Belize, sponsored by USAID/Belize and carried out by the Health Financing and Sustainability (HFS) Project. (Other topics studied include: the private sector, Social Security, cost recovery in the public sector, and pharmaceutical and medical supplies procurement.) The analysis depends primarily on published data from the Central Statistics Office (CSO) and the Medical Statistics Office (MSO), as well as unpublished information collected from the MSO, Belize City Hospital (BCH), health centers and district hospitals, and interviews with key personnel in the public health sector. Data were collected during two field visits by HFS health financing specialists--one in November 1990 by Dr. David Sencer, and the other in April 1991 by Gerard M. La Forgia and Ruth E. Levine.

For the purposes of this study, resource allocation is defined as the distribution of human and financial resources in the public health sector. No analysis was carried out of the distribution of equipment. The following list of fundamental resource allocation issues gives a sense of the scope of this theme. While these questions are not answered definitively in this report, analyses are presented to assist the MOH in finding the answers.

- Is budgeting within the health system based on meeting the health needs of the population?
  - -- Is the division between allocation for preventive/primary care programs and curative/hospital care programs appropriate, given the epidemiologic and demographic characteristics of the population?
  - -- Does the distribution of resources among regions correspond to health needs?
- Are physicians, nurses, and other skilled health workers available to fill needed positions in the public health sector? Is there an undersupply or an oversupply of trained personnel?
- Are there differences in productivity of health care workers in various facilities and districts?

- What type of health system does Belize seek to develop, and how can resource allocation plans help or hinder achievement of those goals?

Ideally, resource allocation constitutes the outcome of a careful planning process, in which the population's health needs are balanced against the government's (and individuals') ability to finance health services. In practice, in many settings--and certainly in Belize--the allocation of resources tends to be relatively unresponsive to health needs. That is, budgetary allocations and corresponding assignments of personnel to Belize City Hospital (BCH), districts, and other facilities are made based on previous years' budgets and staffing patterns, with little evaluation of the appropriateness of those decisions.

The Belize MOH faces a critical phase in the development of the nation's health services. Declining quality of care, including shortages of key pharmaceuticals and supplies, is leading to heightened political pressure for change in the health system. The MOH is considering implementing a regionalization program, in which facilities out of Belize City would provide higher-level services than they are currently able to supply. At the same time, with the approaching construction of a new Belize City Hospital, decisions must be made about appropriate staffing levels in the facility, and the financing of needed personnel and material. The MOH has stated a commitment to address key financing and planning issues, and take meaningful action to implement sound recommendations. This is a time to take stock of the information currently available on the distribution of health resources in the country, to assess the efficiency of that distribution, and to plan for future needs.

1.2 ORGANIZATION OF THE REPORT

The report is organized as follows: Section 2 provides an overview of key elements of resource allocation in health. Section 3 presents information on the current and projected health needs of the Belizean population: demographic and epidemiologic indicators. Section 4 provides an overview of the process of resource allocation and health funding at the national level, closing with a list of resource issues specific to Belize. Analysis of the supply of skilled health sector manpower in the country is presented in Section 5. Section 6 presents data on indicators of demand for services by necessity, depending on utilization information. Finally, conclusions and recommendations are presented in Section 7. Throughout, as stated above, primary consideration is given to resource allocation issues most closely linked to financing and manpower.

2.0 DIMENSIONS AND CONCEPTS IN RESOURCE ALLOCATION

2.1 DIMENSIONS OF ALLOCATION OF FINANCIAL RESOURCES

Allocation of financial resources can be considered on several distinct levels. First, we can examine the distribution of government resources in general terms. How much is the government spending on health and other social services versus other types of government-sponsored programs? How much is being spent on health versus other social services? Answers to these questions (and

comparisons with other settings) provide insight about the government's overall commitment to health. Second, we can analyze the relative allocation of resources within health--the expenditures and manpower assigned to preventive versus curative services and, within curative services, to primary versus higher levels of care. This information, in conjunction with information on the health needs and demographic characteristics of the population, gives clues about the extent to which health needs are being addressed by the health system. Finally, we can explore the similarities and differences in resources allocated to different geographical regions or other types of population sub-groups. Again, this information aids in assessing the match between services provided and services needed. Each of these levels of resource allocation is discussed in this report.

2.2 CONCEPTS IN MANPOWER ANALYSIS

Three key concepts are needed to analyze allocation of manpower in health. These are the concepts of need, demand, and supply. Need refers to a level of health services that is required during a given time period to achieve a desired health status, according to some professional standard. Demand, on the other hand, refers to the amount of goods and services which users of the health system are willing to purchase at given prices. For instance, demand for manpower refers to the number of people in specific occupations that consumers or employers will hire at various wage rates. While closely related, need and demand are not synonymous. The relevant distinction is "between social ideals (what people feel ought to be done) and economic realities (what people are able to pay for)." (Connecticut Institute for Health Manpower Resources, 1974).

Supply of manpower can be thought of as both the quantity of trained individuals and their productivity. The quantity of personnel can be disaggregated into the "stock" and the "flow." The stock of manpower is the number of trained individuals in specific occupations available for employment (either currently employed or in the labor market). The flow is the number of entrants into the occupations, through immigration and training, and the number of individuals leaving the occupation, through out-migration, retirement, and death.

Productivity is a more difficult quality to measure, though it can be defined in such terms as the number of patients seen per hour or the number of laboratory examinations completed per day. Productivity is measured by comparing the ratio of outputs to inputs between different services or facilities. Output, in this case, is considered to be units of service--visits to the doctor, days of inpatient care, X-rays, etc. Input is defined as numbers of full-time equivalent personnel--general practitioners or specialists, nurses, technicians, etc. Often, comparisons of utilization among facilities with similar staff resources may provide useful hints about differences in productivity.

Important factors affecting the demand for and supply of health manpower include:

- Population served: Size, rate of growth, and characteristics of the population are basic determinants of both need for health services and demand.

- Economic factors: Consumers' incomes, government tax revenues, and the costs of inputs into production of health services strongly affect both effective demand for manpower and, indirectly, its supply.

- Productivity: With a given demand for services, the output per worker directly determines the number of workers required.

- Health care technology: Available technology directly affects both demand for services and manpower needs. First, development and introduction of higher levels of health care technology tend to expand demand. Second, each technological advance implies greater training requirements.

- Characteristics of the health care system: The relative emphasis of outpatient versus inpatient care, the comparative attention to preventive versus curative components, and the financing mechanisms all greatly affect the number and types of physicians, nurses, and other health professionals required--and affect the fiscal constraints on meeting health needs.

3.0 HEALTH NEEDS IN BELIZE: A LOOK AT THE DEMOGRAPHY AND EPIDEMIOLOGY

3.1 POPULATION CHARACTERISTICS

The size, structure, and dynamics of the population are critical determinants of its current and future health needs. These are described in the following sections.

3.1.1. Population Size and Growth

Exhibit 1 shows the estimated population distribution in Belize by age group in 1980 and 1988, as well as indicators of the growth during that period. As shown in these data, based on estimates from the most recent census, Belize has a relatively young, rapidly-growing population, with nearly 45 percent of the population under the age of 15 years, and approximately 43 percent of the population in the reproductive ages, 15-49 years. Fertility rates have been consistently moderate to high during the past decade, with the total fertility rate ranging from 5.9 children per woman in 1980 to 5.4 in 1987, the most recent year for which estimates are available (CSO, 1988). Just as there has been only a slight decline in fertility rates, the pattern of fertility has remained constant during the past decade: approximately 13 percent of all births are to women between 15-19 years, and 50 percent of births occur among women in the most highly reproductive ages, 20-29 years (CSO, 1988).

EXHIBIT 1 AGE DISTRIBUTION OF THE POPULATION, BELIZE 1980 AND 1988					
AGE GROUP (years)	1980		1988		% CHANGE IN TOTAL, 1980-88
	Number	% of Total	Number	% of Total	
0-4	24,310	16.7	30,473	16.6	25.4
5-14	42,806	29.4	51,216	27.9	19.6
15-19	17,478	12.0	20,743	11.3	18.9
20-44	39,101	26.9	53,233	29.0	36.1
45-64	14,972	10.3	17,255	9.5	36.1
65+	6,686	4.6	10,280	5.6	53.7
TOTAL	145,353	100.0	183,200	100.0	26.0

Sources: CSO, 1989; based on estimates from the 1980 census
Note: These figures underestimate the population because of under-counting of immigrants, estimated at 15,000-40,000.

Migration is a powerful force in Belizean population dynamics. Immigration from other countries in Central America, primarily Honduras and El Salvador, constitutes an important--though under-counted--source of population growth. Estimates of the size of the refugee population range from 15,000 to 40,000 (the width of that range testifies to the difficulty of obtaining reliable data about this population). Belize also experiences high levels of out-migration: approximately 70,000 Belizeans are said to be living in the United States. Again, reliable current data are scarce, but there are reports that more than 12 percent of Belizean residents emigrated in the past decade (MSO, 1989).

3.1.2. Geographic Characteristics and Population Distribution

For administrative and political purposes, Belize is divided into six districts, each with a district headquarters in the major town or city. In general, health services are organized by district, as described in Section 5. Exhibit 2 (below) shows the estimated district populations and selected characteristics.

EXHIBIT 2 DISTRICT POPULATIONS AND OTHER CHARACTERISTICS, BELIZE				
DISTRICT (headquarters)	1990 POPULATION		% URBAN (1990)	MAJORITY ETHNIC GROUP (1980)
	Number	% of Total		
Belize (Belize City)	56,131	30.4	77.7	Creole
Corozal (Corozal Town)	28,217	15.3	25.8	Mestizo
Orange Walk (Orange Walk Town)	29,462	16.0	35.3	Mestizo
Cayo (San Ignacio)	35,194	19.1	47.0	Mestizo
Stann Creek (Dangriga)	18,061	9.8	37.8	Garifuna
Toledo (Punta Gorda)	17,275	9.4	15.0	Ketchi
TOTAL	184,340	100.0	47.3	Creole

Source: CSO, 1990; population estimates based on 1980 census.

The districts vary greatly in ethnic composition, as well as in population size and density. In 1989, the population density ranged among the districts from 8.4 persons per square mile in Toledo to 42.3 persons per square mile in Corozal. These differences may be reflected, to some extent, in access to health services.

District divisions are meaningful for comparisons of district facilities and personnel. However, given the pattern of referral from district facilities to Belize City Hospital, it is critical to examine the Belize public health system as a whole to draw conclusions about resource allocation.

3.2 EPIDEMIOLOGIC CHARACTERISTICS

Epidemiologic information is scarce in Belize. There is substantial concern that deaths, particularly of infants, go unreported in rural areas. Reporting of cause of death, which is vulnerable to being invalid even in settings with high levels of health service coverage, is of somewhat dubious value in Belize. And, unfortunately, there are no data available from surveillance studies, so morbidity data reflects health service utilization patterns (rather than incidence or prevalence of disease).

Despite these problems, clues about leading causes of morbidity and mortality can be garnered from existing statistics. And it should be noted that these statistics are what is currently available to the MOH for its planning and monitoring purposes.

Overall, the age pattern of mortality reported by the MSO is as expected: moderately high mortality rates among infants (21.3 per 1,000 live births); low rates among older children and young to middle-aged adults (0.5 to 6.9 per 1,000); and much higher rates (41.3 per 1,000) among the elderly. Life expectancy at birth was estimated to be 71.2 years in 1987 (MSO, 1988).

3.2.1. Infant Mortality

Exhibit 3 shows that infant mortality fell steadily between 1980-1988; in 1988 the infant mortality rate (IMR) was 32 percent lower than at the beginning of the decade. Overall (crude) mortality changed little, and maternal mortality fluctuated quite widely during that period (this fluctuation is probably due to small numbers of deaths).

EXHIBIT 3
MORTALITY RATES IN BELIZE, 1980-1988

YEAR	CDR[1]	IMR[2]	MMR[3]
1980	43.1	28.7	0.48
1981	39.0	27.8	0.52
1982	38.6	24.1	0.51
1983	39.1	21.4	0.33
1984	38.0	22.3	0.49
1985	36.7	21.5	0.33
1986	36.3	24.6	0.65
1987	38.7	21.3	0.44
1988	39.0	20.2	N/A
1989	42.0	19.4	N/A

Source: CSO, 1990; District Hospital Records; District Registrar's Records, reported by MSO, 1989. 1989 data are provisional.
Notes: 1. CDR = Crude Death Rate, per 1,000 population
2. IMR = Infant Mortality Rate, per 1,000 live births
3. MMR = Maternal Mortality Rate, per 1,000 live births
N/A means not available.

Differences in infant mortality among the districts exist (see Exhibit 4, below), though those differences are not statistically significant.

EXHIBIT 4
INFANT MORTALITY BY DISTRICT, 1989

DISTRICT	LIVE BIRTHS	INFANT DEATHS	IMR
Belize	2,175	55	25.3
Corozal	1,210	19	15.7
Orange Walk	831	17	20.5
Cayo	1,008	14	13.9
Stann Creek	595	12	20.2
Toledo	681	15	22.0
TOTAL	6,500	132	20.3

Sources: MSO, 1989; CSO, 1990

The infant mortality rate, typically a sensitive indicator of both socioeconomic status and access to health services, places Belize in a good light. Exhibit 5, which compares the IMR in Belize and nine neighboring countries, shows that Belize has among the lowest rates of infant death.

EXHIBIT 5
INFANT MORTALITY IN CENTRAL AMERICA AND THE CARIBBEAN

COUNTRY	IMR (per 1,000 live births)
Cuba	15
Jamaica	18
Costa Rica	18
Belize	**20**
Panama	23
Mexico	46
El Salvador	58
Guatemala	58
Nicaragua	61
Honduras	68

Source: UNICEF, 1990

3.2.2. Causes of Death

Among infants, causes originating in the perinatal period accounted for approximately 40 percent of deaths in 1987. Disease of the respiratory system caused about 21 percent of deaths, and infectious diseases accounted for about eight percent of infant deaths. Among children of ages 1-4 in 1987, major causes were diseases of the respiratory system (22 percent) and infectious diseases (17 percent). These figures are consistent with what would be expected in a developing country, in which communicable diseases are major causes of death.

On a positive note, according to the Medical Statistics Office (1989) measles, whooping cough, and tetanus currently are negligible causes of death in infants. In 1988, only 19 cases of measles were reported among children under five years; no cases of tuberculosis, diphtheria, pertussis, neonatal tetanus, or polio were reported.

Among older individuals, Belize appears to have relatively high mortality associated with heart disease, hypertension, diabetes, and cancer, as well as infectious diseases and accidents. Exhibit 6 presents the 10 leading causes of death in 1987, which had a pattern similar to other recent years. These causes represent 86 percent of all deaths.

EXHIBIT 6
LEADING CAUSES OF DEATH IN BELIZE, 1987

CAUSE	RANK	NUMBER	RATE (per 1,000)
Conditions originating in perinatal period	1	126	0.7
Diseases of the respiratory system	2	105	0.6
Heart diseases	3	83	0.5
All cancers	4	74	0.4
Cerebrovascular diseases	5	44	0.2
Accidents (excl. motor vehicle accidents)	6	42	0.2
Infectious diseases	7	31	0.2
Hypertensive disease	8	31	0.2
Diabetes mellitus	9	23	0.1
Diseases of the digestive system	10	20	0.1

Sources: MSO, 1989; CSO, 1990

3.2.3. Morbidity: Causes of Discharge

Although utilization data are far from ideal as indicators of morbidity in a population, given the influence of financial and physical access to care on use of health services, they can provide general suggestions of the morbidity patterns in a population. Exhibit 7 shows the 10 leading causes of hospitalization in inpatient facilities in Belize. Normal delivery is by far the leading reason for hospitalization, accounting for more than one-quarter of all causes. Maternity and other female-specific ailments accounted for a total of 38 percent of all discharges in 1989. Other major causes of hospitalization nationally include respiratory disease, gastrointestinal ailments, perinatal conditions, trauma, and hypertension. Not surprisingly, this picture matches well the leading causes of death in the country.

EXHIBIT 7
LEADING CAUSES OF HOSPITALIZATION IN BELIZE, 1989

CAUSE	RANK	NUMBER	% OF TOTAL
Normal delivery	1	4,375	26
Respiratory disease	2	1,314	8
Direct obstetric causes	3	1,444	7
Diseases of the digestive system	4	1,005	6
Abortion	5	815	5
Intestinal infectious diseases	6	704	4
Fractures, accidents, transport	7	632	4
Perinatal conditions	8	576	3
Endocrine, metabolic, immunity disorders	9	591	4
Hypertensive disease	10	569	3
TOP TEN		11,725	70

Sources: MSO, 1989; Public Health Supervisor

In outpatient services, common diagnoses reported by physicians are acute respiratory infections, acute gastroenteritis, urinary tract infections, and wounds of various sorts.

3.3 IMPLICATIONS OF POPULATION AND HEALTH CHARACTERISTICS FOR THE HEALTH SYSTEM

The demographic and epidemiologic information presented provides important clues about the current and future health service needs of the population:

Current Needs

- The large proportion of children implies a need for emphasis on child health programs--immunization, communicable disease control, and nutritional support. Similarly, the large number of women in the reproductive ages--and the high fertility levels--suggest that major efforts should be placed on appropriate prenatal care, birthing practices, and other aspects of reproductive health.

- The refugee population implies special health needs: fertility rates among the refugees are likely to be high, refugees may be more vulnerable to communicable diseases, and refugees face greater constraints in obtaining access to either public or private health care systems.

Future Needs

- The relatively high rate of growth of the population suggests that current levels of health service provision will be inadequate to cover the growing population in the near future. Under the reasonable assumptions of a slowly declining fertility rate and reduced net migration, the World Bank has projected that by the year 2035, Belize will have a population of one-half million; by that time, the population of Belize City could approach 200,000. This population will require significantly greater amounts of health services. (This issue is discussed at greater length in the companion report on private sector medical practice.)

- Over the next 25 years, it is expected that the number of women of childbearing age will be the fastest-growing age group in Belize, doubling by the year 2010. This implies disproportional increases in demand for maternity and reproductive health services in the future.

- Within about 20 years, the population over age 55 will double. The rapid growth of the elderly population warns of future challenges to the health care system--both in its physical capacity to cope with increased intensity of health needs, and its ability to finance more and different services for the elderly.

4.0 ALLOCATION OF FINANCIAL RESOURCES

While the subject of this report is resource allocation within the Ministry of Health, it is essential to examine the fiscal constraints within which the ministry and each of its entities operate. This section presents information on the process of fiscal decision making in Belize, and trends in government spending on health during the past few years.

Decisions about the allocation of public sector resources follow this process: The budget process is managed by the Office of Budget and Management in the Ministry of Finance (MOF). Each year, the MOF estimates expected revenues and financing, deducts pensions and debt, and uses the remainder as the basis for initial ceilings that are sent, as starting figures, to the various ministries. The ministries respond to these allocations, and their responses typically reflect expenditures in excess of the MOF estimates. The ministries each negotiate with the MOF to arrive at acceptable figures, which are presented for approval by the beginning of the fiscal year (April 1). Allocations are provided by the MOF to the other ministries on a quarterly basis.

Annex Exhibit 1 presents the distribution of the Government of Belize (GOB) expenditures by ministry for 1990. The Ministry of Health and Urban Development was allotted approximately $14.6 million[1] in FY1990/91--about 9.5 percent of all GOB expenditures. This can be compared to other countries in the region: Mexico spends 1.1 percent of the total government expenditure on health; El Salvador, 7.1 percent; Panama, 16.7 percent; and Costa Rica, 19.3 percent (World Bank, 1990).

Of public expenditures on health in Belize, some 68 percent were assigned to personnel costs (direct compensation, fringe benefits, Social Security payments, etc.). Compared to other ministries, the proportion of all expenditures going toward personnel costs falls in the middle range.

Overall, social spending (through the Ministries of Education and Culture, Health and Urban Development, and Social Services) constitutes approximately 34 percent of GOB expenditures. Health accounts for slightly more than one-quarter of all social spending.

Trends in MOH spending during the 1980s are presented in Exhibit 8. Both nominal and real spending on health have risen during the decade, and now have officially reached a level of approximately $79 per capita. It is worth noting that the expenditure figures exclude approximately $1.3 million in budget overruns during FY1990/91, so, even allowing for a probable underestimate of population size (due to undercounting of refugee and other sub-populations), this figure stands as a relatively large sum--larger than is spent in other countries of comparable size and level of development.

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[1] All figures in Belize dollars unless otherwise noted: BLZ$2 = US$1

EXHIBIT 8 TRENDS IN HEALTH SPENDING IN BELIZE, 1980s			
HEALTH SPENDING INDICATORS	1983/84 (actual)	1986/87 (actual)	1990/91 (budgeted)
Ministry of Health expenditures (thousands of current BLZ$)	9,043	10,256	14,596
Total government expenditures (thousands of current BLZ$)	90,500	105,600	153,857
MOH as percent of total GOB expenditures	10.0%	9.7%	9.5%
Population	162,052	170,382	183,000
MOH spending per capita (BLZ$--current)	56	60	79
MOH spending per capita (BLZ$--real; base year is 1980)	41	41	50

Sources: Norris et al., 1988; GOB, 1991

Within the MOH, budgeting appears to be based almost entirely on the previous year's appropriations, with some adjustments based on previous years' overruns and the establishment of new programs. That is, a given district hospital's allocation is simply the allocation from last year, plus a small increment to account for inflation and other cost increases. With rare exceptions, there is no evaluation of the revenue needs of the facilities. The number of positions available to be filled is based on the budget available (again, rather than being based on an estimate of need), and the movement (i.e., retirement, out-migration) of personnel during the previous year.

District Medical Officers (DMOs) are responsible for approving some direct financial outlays within their jurisdiction--but that responsibility is restricted to non-medical purchases. DMOs are assigned the responsibility for managing the budget (though they do not receive training or trained assistance in budgeting). No approval beyond the DMO is necessary for purchases of consumables; for purchases of durable goods--those costing over $1,000-- approval must be granted by the MOF.

Cost overruns are dealt with on an ad hoc basis. For instance, in FY1990, Central Medical Stores (CMS) chronically ran short of funds (and, therefore, the facilities ran short of drugs). Each time a shortfall occurred, the Permanent Secretary (PS) of the MOH had to seek additional funding through a supplemental appropriation from the MOF, often causing political strain between the ministries. The CMS budget overruns, despite increases in allocations, have tested this system to an extreme in recent years. As a result, the BCH Hospital Administrator recently has been informed that no overruns in non-medical supplies and equipment will be accepted.

According to the current budget estimates, as shown in Annex Exhibit 2, approximately 11 percent of MOH spending goes toward general ministry administration; 18 percent to preventive and primary care programs; 17 percent to staffing and other recurrent costs of district facilities; about 29 percent to recurrent costs at BCH; and 15 percent to Central Medical Stores. It is important to note that expenditures attributed to BCH include those for Cleopatra White (CWHC) and Matron Roberts (MRHC) Health Centers in Belize City.

Exhibit 9 shows that, overall, MOH allocations increased by nearly nine percent between 1989/90 and 1990/91. Orange Walk and Belmopan Hospitals

experienced relatively large increases, but the largest increase by far was given to CMS, which is responsible for pharmaceutical and medical supplies procurement and distribution in the country. (Weaknesses in the budgeting process for CMS are discussed in the companion report on pharmaceutical and supplies procurement.)

EXHIBIT 9
INCREASES IN BUDGET ALLOCATIONS FOR MOH ENTITIES, BELIZE, 1989-92

ENTITY	% INCREASE, FY1989/90-FY1990/91[1]
MOH (total)	8.8
Belize City Hospital	8.7
Corozal Hospital	7.8
Orange Walk Hospital	13.2
San Ignacio Hospital (Cayo District)	6.3
Belmopan Hospital (Cayo District)	11.0
Dangriga Hospital (Stann Creek District)	3.4
Punta Gorda Hospital (Toledo District)	10.1
Central Medical Stores	29.2

Source: GOB, 1990, 1991

Notes: 1. Figures for 1989/90 and 1990/91 are approved estimates.

5.0 SUPPLY OF MANPOWER IN THE BELIZEAN HEALTH SYSTEM

This section presents an overview of manpower--quantity of trained personnel and productivity--within the Belizean health system. Preliminary inferences are drawn about differences among districts in the allocation of human resources.

5.1 STRUCTURE OF THE BELIZEAN HEALTH SYSTEM

The MOH Health Department, headed by the Director of Health Services (DHS), is responsible for overall direction of public health services. The DHS is assisted by four medical officers of health and the Principal Nursing Officer (PNO). The four medical officers are responsible for Community-Based Health Care, Maternal and Child Health, Epidemiology, Communicable Disease Control, and Environmental Health. The BCH Administrator, Medical Chief of Staff, and matrons are responsible for management of the national hospital. A health educator leads the Health Education and Community Participation Bureau of the MOH. Dental and mental health programs are directed by the Chief Dental Surgeon and the Chief Psychiatrist, respectively.

5.1.1. Physical Infrastructure

Each of the six geographic districts has at least one hospital (Cayo district has two), urban and rural health centers, and health posts. Exhibit 10 shows the regional distribution of health facilities. Logically, Belize and Cayo districts have the largest number of urban health centers. Combining rural and urban health centers, the numbers of health centers per 1,000 inhabitants range from a low of .11 in Cayo district to a high of .44 in Stann Creek. Two districts (Belize and Corozal) have no rural health posts at all. Of the other

districts, the number of rural health posts per 1,000 rural inhabitants ranges from .10 per 1,000 in Corozal to 4.24 in Toledo.

EXHIBIT 10
HEALTH FACILITIES BY DISTRICT, 1990

DISTRICT	INPATIENT	URBAN HEALTH CENTER[1]	RURAL HEALTH CENTER	RURAL HEALTH POST[2]
Belize	1	3	5	0
Corozal	1	1	4	0
Orange Walk	1	1	3	1
Cayo	2	2	2	2
Stann Creek	1	1	7	3
Toledo	1	1	3[3]	11
TOTAL	7	9	24	17

Note:
1. Urban health centers in all districts except Belize are located on hospital grounds.
2. Stand-alone facilities only.
3. One facility is closed.

5.1.2. Staffing in District Facilities

The District Medical Officer (DMO), stationed at the district hospital, is responsible for all health-related activities in the area. Typically, he is assisted by another medical officer, a Sister-in-Charge, and other health workers (staff nurses, practical nurses, midwives, public and rural health nurses, public health inspectors, malaria control workers, etc.). In total, this group constitutes the district health team.

Summaries of the job requirements and responsibilities for several key district-level personnel follow. They are taken from the National Primary Health Care Manual (MOH, 1987):

District Medical Officer: A physician with at least one year of working experience with an orientation in preventive and curative, as well as working knowledge in administration. He supervises all district health-related activities, provides physician services, and is the chief health administrator in the area.

Sister-in-Charge: A registered nurse/midwife with at least five years' experience in nursing management and administration. She is responsible to the PNO for the organization and efficient functioning of all hospital nursing personnel and to the DMO for the health care services provided by nursing and auxiliary personnel in the hospital.

Public Health Nurse: A registered nurse/midwife with a post-graduate course in public health. She is responsible for the planning and implementation of community-based health programs, including provision of primary health care services and education programs through rural health centers, mobile clinics, home visits, school visits, and community group meetings. She supervises rural health nurses, midwives, traditional birth attendants (TBAs), and community health workers (CHWs).

Rural Health Nurse: A licensed practical nurse/midwife with an orientation in community health. She is responsible for the provision of primary health care services in rural areas through rural health centers, mobile clinics, home visits, and the activities of CHWs.

Hospital Pharmacist: Registered pharmacist responsible for ordering and distribution of drugs and medical supplies in the district (for hospital, health centers, and rural health nurses).

Dental Surgeon: Qualified dental surgeon, responsible to and supervised by the Senior Dental Surgeon for all dental and related activities within the district.

Community Health Worker: A minimally-trained individual, chosen by the Village Health Committee, who provides basic levels of primary health care, including health education. Typically, this individual works as a volunteer from his or her home.

5.2 LEVEL OF STAFFING IN HEALTH FACILITIES

Exhibits 11 and 12 show the distribution of health personnel in each district. Each district, with the exception of Stann Creek, has two medical officers (a DMO and an additional medical officer). All facilities, with the exception of San Ignacio Hospital in Cayo district, have the services of at least one specialist, typically a pediatrician or gynecologist. Two-thirds of the facilities have a dentist on-site. Again, only Cayo district has no professional dental services in the public sector (at San Ignacio or Belmopan Hospitals),

EXHIBIT 11
PUBLIC SECTOR HEALTH PERSONNEL BY CATEGORY AND DISTRICT, 1990 -- CURATIVE SERVICES

CATEGORY	BCH	BEL HC	COR	OW	SAN IGN	BELM	ST CRK	TOL	TOT
Medical officer	18[1]	2	2	2	2	2	1	2	31
Specialist	14	0	1.5	2.5	0	5	3	2	28
Dentist	1	0	1	1	0	0	1	1	5
Sub-total medical	33	2	4.5	5.5	2	7	5	5	64
Staff nurse	54	2	6	3	5	5	6	6	87
Practical nurse	63	2	5	4	3	5	0	6	88
Auxiliary nurse	29	2	4	5	0	5	0	0	45
Practical midwife	4	0	2	0	2	0	2	3	13
Sub-total nursing	150	6	17	12	10	15	8	15	233
Lab technician	13	0	0	2	0	2	1	1	19
X-ray technician	4	0	1	1	0	1	1	0	8
Dispenser	13	2	0	1	0	1	1	0	18
Dental asst/aux	2	1	1	1	0	2	1	0	8

Sources: District hospital and health center records
Note: 1. Five medical officers are on study leave. Includes seven Cuban physicians, in Belize for a limited period.

although a dental assistant is available at Belmopan Hospital. With respect to nursing services, Dangriga Hospital in Stann Creek has the lowest levels--.44 nurses or auxiliaries per 1,000 inhabitants versus the average in all districts (except Belize district) of .60 nurses or auxiliaries per 1,000.

EXHIBIT 12
PUBLIC SECTOR HEALTH PERSONNEL BY CATEGORY AND DISTRICT, 1990 -- PREVENTIVE/PRIMARY CARE SERVICES

CATEGORY	BEL HC	COR	OW	SAN IGN	ST CRK	TOL	TOT
Public health nurse	6	1	1	2	2	2	14
Rural health nurse	15	4	7	4	8	6	44
TBA	16	23	22	16	15	10	102
CHW	5	44	58	39	9	27	182

Sources: Primary Care Program officials

Exhibit 13 (below) shows the manpower/population ratios in Belize (and by district) for several key professions in the public sector--physicians, registered nurses, practical nurses, and auxiliaries. As shown, the physician/population ratio in the public sector (assuming that the public health care system is designed to cover the entire Belizean population) is 0.32 physicians per 1,000, overall.

EXHIBIT 13
PUBLIC HEALTH SERVICE MANPOWER/POPULATION RATIOS IN BELIZE, 1990, PER 1,000

DISTRICT[1]	PHYSICIAN	RNs	PRAC. NURSES	PUBLIC HEALTH NURSES	RURAL HEALTH NURSES
Corozal	.12	.21	.18	.04	.14
Orange Walk	.15	.10	.14	.03	.24
Cayo	.30	.34	.24	.07	.14
Stann Creek	.22	.33	0	.11	.44
Toledo	.23	.35	.35	.12	.35
National Average (including BCH personnel)	.32	.47	.47	.08	.24

Note: 1. Belize district is omitted because many personnel in that district provide services to the country's entire population.

Comparing Belize to other settings (see Exhibit 14), we have to take into consideration the fact that the Belize figures only include the public sector, and therefore underestimate the physician and dental surgeon ratios to some extent. In the case of physicians, it is estimated that there are approximately 98 physicians working in Belize, with 60 percent in the public sector.

EXHIBIT 14 HEALTH MANPOWER/POPULATION RATIOS, SELECTED COUNTRIES		
COUNTRY	PHYSICIANS PER 1,000 POPULATION	NURSES PER 1,000 POPULATION
Belize (public sector only)	**0.3**	**1.6**
Belize (all)	**0.5**	**1.6**
Costa Rica	2.0	2.0
El Salvador	0.4	1.1
Guatemala	0.4	1.1
Honduras	0.7	1.4
Jamaica	0.5	2.0
Mexico	0.8	1.1
Nicaragua	0.7	2.0
Panama	1.0	2.5
Guinea	0.02	0.2
World Average	0.3	0.5
United States	2.0	10.0

Source: UNDP, 1990.

5.3 PROBLEMS IN THE SUPPLY OF MANPOWER IN BELIZE

Key problems identified in supply of manpower are: (1) availability of physicians in the public sector, (2) physician productivity in the public sector, and (3) availability of trained nurses.

5.3.1. Availability of Physicians in the Public Sector

Belize is in the unusual position of having no medical training within its borders. Therefore, all physicians in Belize are either Belizeans who went abroad (typically to the University of the West Indies) for training, or non-Belizean physicians (also trained abroad). Among the issues that this situation implies are:

(1) Belize has little control over the supply of physicians, except to the extent that it can influence the number of Belizeans who seek medical training and then return home.

(2) Belize must carefully evaluate the quality of training of physicians who seek to practice in the country.

With respect to the first issue--the supply of physicians--it is useful to keep in mind the factors that would attract physicians to return (or come) to Belize, and to remain in practice there. These include:

- Licensing requirements: The ease with which academic credentials are accepted as evidence of ability to provide quality care. Currently, licensing requirements are both stringent and provisional: a physician may be licensed for government service, but then not allowed to practice privately.

- Government service requirements: The required two-year government service can serve as a strong disincentive to physicians considering returning to (or entering) Belize.

- Labor market opportunities: The ability to enter into a government post and/or into private practice compared to other settings being considered (the United States, other nations of the Caribbean and Latin America, etc.). If the government service is nearly saturated, there is little chance the physicians will wait for a post; rather, they will seek employment elsewhere.

- Economic differentials: Income potential from practice in the public or private sectors compared to other settings being considered, and relative to the costs of living.

- Conditions in the health sector: Availability of trained nurses and assistants, health care infrastructure, and financing mechanisms all enter as incentives or disincentives to establishing practice in Belize.

- Proximity to family: Despite the potential disincentives--fewer labor market opportunities, poor health infrastructure, etc.--Belizean physicians are likely to wish to return to their country of origin.

5.3.2. Physician Productivity in the Public Sector

Productivity of professional personnel in MOH facilities is difficult to assess. Data limitations, absence of production norms, non-specific job descriptions, and chaotic medical care organization prohibit in-depth analysis. Ideally, productivity analysis requires several types of data: production unit (e.g., outpatient visit), personnel category (e.g., physician by specialty), location (hospital, health center, etc.), time period (workweek, workday, morning/afternoon clinic, duration of consultation or surgical procedure, etc.), some measure of treatment or intensity of care (diagnosis, type of surgery, case mix, etc.), and, if possible, an indicator of waiting time (e.g., for outpatient specialist appointments and surgery). Although some of these items require direct measurement (e.g., time duration of an outpatient visit), most data can be obtained from appointment books, daily physician registration forms, statistical registers, and surgical ledgers.

Unfortunately, these records are irregularly maintained and tabulated at MOH facilities. Specific problems include: outpatient visits per medical officer in district facilities are unavailable; appointment and waiting lists for surgery in the BCH are unattainable; irregular registration of outpatient consultations provided by specialists in district facilities; and the daily registration of outpatient visits in several facilities is aggregated across weekday (morning and afternoon) and Saturday sessions. Of equal concern, with the exception of some public health services, there is little tabulation and analysis of morbidity data, even though this information is available from the physician's daily registration form.

Despite these problems, we obtained sufficient data to conduct a preliminary analysis of some services: (1) specialist outpatient and surgical activities in the BCH, and (2) outpatient consultations provided by medical officers (general practitioners) in all facilities. We turn first to BCH specialist services.

5.3.2.1. BCH Specialists

As elsewhere in the Caribbean, specialists contracted by the MOH have considerable autonomy in setting work schedules and patient loads. They determine the number of outpatient clinics held per week, and the volume of new and former patients seen. Since they also determine non-emergency admissions through their control of the operating theatre schedule, specialists indirectly control bed availability in the BCH wards. It is common knowledge that to obtain an appointment slot for elective surgery in the BCH, a prospective patient should consult with a specialist in the latter's private clinic. The alternative is to wait one or two months for an outpatient consultation and an undetermined amount of time to gain hospital admission.

Exhibit 15 shows schedules and production indicators from 1990 for 10 BCH specialists. The data demonstrate wide variation in the number of sessions (clinics) and patient loads among the specialists. One specialist (no. 7) holds four clinics a week and sees more than 150 patients per month, while six specialists conduct a single weekly clinic and see less than 50 patients per month. The sessions or clinics are of short duration, lasting two or three hours. Most specialists see three to four patients per hour. Significantly, the number of new patients seen per month appears quite limited. Most provide consultations to less than 18 new patients per month, and two see only four new patients. This is particularly alarming for gynecologists and pediatricians. One would expect a higher ratio of new to old patients for these specialties.

EXHIBIT 15
SPECIALIST OUTPATIENT SCHEDULES AND PRODUCTION, BELIZE CITY HOSPITAL, 1990

SPECIALIST	SESSIONS PER WEEK	HOURS PER SESSION	PATIENTS PER SESSION (average)	PATIENTS PER MONTH		WAITING TIME (weeks)[1]
				NEW	OLD	
no. 1	2	4 hrs	15	20	76	4 wks
no. 2	3	1-3 hrs	9	15	45	2 wks
no. 3	1	3 hrs	12	9	31	4 wks
no. 4	1	3 hrs	12	18	31	4 wks
no. 5	1	2 hrs	8	18	23	6 wks
no. 6	2	4 hrs	9	11	45	8 wks
no. 7	4	3-4 hrs	14	18	136	7-9 wks
no. 8	1	N/A	9	4	28	6 wks
no. 9	1	2 hrs	10	4	30	8 wks
no. 10	1	3 hrs	8	16	16	4 wks

Source: MSO, specialist appointment book.

Notes: 1. 1991
N/A means not available.

As is evident from the last column, patients must wait from six to eight weeks for an appointment with a number of specialists. The availability of appointment slots is determined by the individual specialist. According to the appointment book maintained by medical records clerks, most specialists allow for no more than five new patients per session, or similarly, 20 new patients per month. This monthly figure is confirmed in Exhibit 15. More disturbingly, even those specialists who conduct two or more sessions per week also see, on average, 20 or fewer patients per month. The difference between scheduled appointment slots and real visits are new patients who failed to observe the appointment. Although a number of reasons may underlie a patient's failure to keep an appointment, long waiting time is one plausible explanation. The long waiting period suggests that there may be considerable demand for these services or the supply of these services--e.g., weekly clinics and appointment slots--is restricted. The scheduling and production data point to the latter explanation.

Finally, it is interesting to note that one of the 10 specialists listed in Exhibit 15 is contracted on a part-time basis. As measured by the average number of clinics held and consultations provided during 1990, this specialist's productivity is indistinguishable from that of several of his full-time colleagues.

Turning to inpatient care, sources within the hospital claim that most specialists spend little time in the wards. Each morning they conduct a one-hour ward round. One small group of specialists also conducts a teaching round on a weekly basis. For the most part, there is little training of medical officers in the BCH.

As observed in Exhibit 16, each surgical specialist is assigned one operating day per workweek. A session can last from two to six hours. Nevertheless, most surgical specialists perform operations during two or three days per week. Some, but not all, of these operations are emergencies. We recall from a previous discussion that nearly two-thirds of all surgeries are elective. Thus, it appears that few specialists abide by the operating theatre schedule. Elective surgeries scheduled for one surgeon are sometimes canceled to make room for elective cases for another surgeon.

EXHIBIT 16
SPECIALIST OPERATING THEATRE SCHEDULE AND PRODUCTION, BELIZE CITY HOSPITAL, 1990

SPECIALIST	SCHEDULED OPERATING DAYS/WEEK	AVERAGE NUMBER OF:		
		OPERATING DAYS/WORK WK	SURGERIES/ WORKWEEK	SURGERIES/ WEEKEND
no. 1	1	3	6	1
no. 2	1	3	7	1
no. 3	1	2	5	1
no. 4	1	2	8	1
no. 5	1	3	7	1
no. 6	1	1	4	0
no. 7	1	1	2	0

Source: Operating theatre register.
Note: Based on four-month sample.

Based on a sample of surgeries during a four-month period in 1990, we found that an average of nine operations are performed per workday and three for a weekend. Most of these operations are simple surgeries such as D&Cs, tubal ligations, caesarian sections, herniorrhaphies, appendectomies, simple biopsies, etc. Moreover, 20 percent of all surgeries are performed by medical officers without specialist participation. These are usually minor procedures (e.g., D&Cs and tubal ligations). Exhibit 16 shows that most surgical specialists perform four to eight operations per workweek and one per weekend.

5.3.2.2. Medical Officers

In contrast to specialists, general practitioners, known as medical officers, who staff MOH health centers, hospital outpatient, and casualty departments, are instructed to provide consultations to all persons seeking care. In many health centers, clinics, known as sessions, are held twice a day during weekdays (normally from 8 AM to 12 PM and 1 PM to 4 PM) and on Saturday mornings. In most health centers, patients must queue early and often must wait a couple of hours before seeing the physician. In addition to assisting the physician, health center nurses provide curative services, usually in the form of first aid, dressings, and injections.

Exhibit 17 displays 1990 productivity data for medical officers regarding morbidity visits.[2] In comparison to BCH specialists, medical officers in Belize City and district health centers appear overwhelmed with outpatients. This is particularly the case for the two Belize City health centers. Each is staffed with one physician who provides consultations to an average 60 patients per day during two four-hour sessions.

Daily per-session patient loads in the districts range from 22 in Mopan to 36 in Stann Creek. Although most district facilities have two medical officers, the number of sessions held varies. However, due to irregular registration practices, the number of sessions and visits per doctor cannot be determined. Apparently, some specialists conduct outpatient clinics that are registered as general practitioner clinics.

The large variation in per-session patient volume probably is the result of a combination of supply and demand factors. Without a household survey, it is difficult to determine demand for medical services. Due to differences among catchment area populations, we can expect some variation across facilities. However, per-session utilization may be affected by service availability. For example, in some outpatient clinics, medical officers are restricting the number of visits per clinic session. In other words, they instruct clerks to limit the number of "slots," which are issued on a first-come, first-served basis.

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[2]Although medical officers should oversee preventive and public health services provided at the health center, they rarely participate in these activities. For the most part, non-curative services are managed by nurses.

EXHIBIT 17 MEDICAL OFFICER SCHEDULES AND PRODUCTION, DISTRICT HEALTH CENTERS, 1990			
FACILITY	AVG. NO. SESSIONS /WEEK	USUAL DURATION /SESSION	AVG NO. PATIENTS /SESSION
Belize City[1]			
CWHC	11	3-4 hrs	29
MRHC	11	3-4 hrs	28
OPD/BCH	10	3-4 hrs	18
DISTRICTS[2]			
Punta Gorda	10	3-4 hrs	25
Corozal	10	3-4 hrs	25
Stann Creek	9	3-4 hrs	36
Orange Walk	10	3-4 hrs	31
San Ignacio	9	3-4 hrs	24
Belmopan	10	3-4 hrs	32
Mopan	9	3-4 hrs	22

Notes: 1. Sessions in each facility conducted by single physician.
2. Sessions in each facility conducted by unknown number of physicians.

5.3.2.3. Are There Enough Public Sector Physicians?

According to MOH officials, during the next few years, a number of Belizean physicians will return home and seek public sector employment. It is often assumed that there is an undersupply of physicians in Belize and the extra manpower is desperately needed to meet demand. Our preliminary study demonstrates that the MOH should assess physician productivity before contracting additional physicians, particularly specialists. The data presented here suggests that, given the current chaotic nature of medical care organization, increasing the supply of physicians may not raise the level of service production, but this measure definitely will increase unit costs. Contracting additional specialists without restructuring medical care organization may lead to the paradoxical situation in which an oversupply of specialists is coupled with an undersupply of specialist services.

Medical officers who provide general medicine outpatient visits in MOH health centers often mention that a significant proportion of morbidity cases can be handled by staff nurses. The HFS team examined the preliminary diagnoses listed in physician daily registration forms from several facilities. Contact dermatitis, respiratory ailments, ill-defined intestinal illness, and wounds requiring first aid are typical of the cases treated at outpatient clinics. As in the case of public health services, many of these illnesses can be treated effectively by well-trained nurses. The nurse can refer the patient to the medical officer as appropriate. HFS recommends that the MOH analyze the morbidity profile of the health centers before assigning additional medical officers to these facilities, particularly in the districts. Nurses may be able to manage a significant number of morbidity cases at health centers, acting as lower-cost filters for higher-cost physician services.

Finally, medical officers also claim that a number of outpatient visits are for patients who seek drugs or a doctor's signature on a sick-leave certificate. Often, these people display no symptoms. Consonant with HFS cost recovery recommendations, charging for outpatient visits would reduce frivolous utilization. In turn, this may reduce waiting time and congestion at outpatient clinics.

5.3.3. Availability of Trained Nurses

Both the entry of nurses into the profession and the retention of nurses within the public health system have been identified as key constraints to adequate manpower supply in Belize. In contrast to physicians, who must be "imported" from abroad, the difficulty with nurses is in the extent to which they are "exported." Problems exist at all points in the nursing supply, i.e., both recruitment and retention of qualified students and trained nurses. The system of nursing training, designed to ensure an adequate supply of nurses, currently is not serving that purpose.

Three main categories of nurses are trained at the Belize School of Nursing: practical nurses (a one-year program), rural health nurses (a two-year program), and registered nurses (a three-year program). In addition, there are various specialty programs that nurses can pursue after finishing their basic training. Currently, these include psychiatric nurse practitioner and nurse/midwife. A practical midwife program no longer is offered. Requirements vary according to the training program. For example, practical nurses require a primary school certificate and two years of high school, as well as a pre-entrance examination. Of the 100 to 200 who apply, approximately 30 are chosen for each class, though class size depends on the number of budgeted posts available in government service. Registered nurses, on the other hand, require completion of high school and of post-high school examinations in biology, English, and mathematics. It is reported that, in recent years, it has been very difficult to fill the approximately 20 slots in the registered nurse class; many potential nursing students with appropriate educational backgrounds find easier and more lucrative work in banks and retail establishments.

Within the School of Nursing, retention of students has been a problem. In 1990, the school graduated 17 staff nurses; in 1991, only four are expected to graduate. Ten to 15 practical nurses graduate in each class.

Nearly all individuals trained at the Belize School of Nursing receive government scholarships for tuition. In return, they are officially "bonded" into government service for a duration equal to their time in training: three years for a registered nurse, one year for a practical nurse, one year and 10 months for a practical nurse/midwife, etc. If the trained nurse fails to fulfill her government service, she must repay the government for the amount of the costs of her education. This regulation is rarely enforced, however, and there apparently is little disincentive to emigration of nurses. Out-migration of nurses, particularly practical and registered nurses, is causing major problems in the Belize health system--problems so acute that nurses were requested from Cuba and Nigeria to fill some of the gaps left by nurses who had emigrated. While firm figures are unavailable, the PNO estimated that some 30 nurses left government service from the beginning of 1989 through the first quarter of 1991.

This figure is unusually high, according to the PNO, and cause for considerable concern. Belize, like Jamaica, Trinidad, and other countries, is finding that it is exporting nearly as many nurses as it is training--at the government's expense.

Exhibit 18 shows the number and percent of resignations of nurses at BCH during the past two years. Fifteen nurses and auxiliaries left BCH service in 1990, representing approximately 13 percent of the number on staff. With low (and diminishing) numbers of entrants to the profession--particularly at the level of staff (or registered) nurse--and high levels of emigration and other types of resignation, the prospects for adequate staffing of nurses in Belize are grim.

EXHIBIT 18
RESIGNATIONS OF NURSES, BELIZE CITY HOSPITAL, 1989/90

LEVEL OF NURSE	1989		1990	
	NUMBER	%	NUMBER	%
Staff Nurse (RN)	5	11	5	17
Practical Nurse	7	14	3	7.3
Practical Midwife	1	8	2	17
Auxiliaries	0	0	5	17
TOTAL	13	10	15	13

Source: BCH officials.

The primary reason cited for emigration of nurses is, not surprisingly, economic opportunities. Recent graduates from the Belize School of Nursing can expect to earn a salary that could be increased by an order of magnitude in the United States. In addition, poor working conditions, lack of differentials for evening and night shifts, and lack of continuing education programs make retention of trained nurses extremely difficult. Direct mail recruiting of nurses is common. U.S. nursing agencies write directly to nurses at BCH, offering specific positions in U.S. facilities.

According to the PNO, the greatest shortage is among registered nurses, then practical nurses. The result is felt in quality of care: nurses with less training are asked to take on greater levels of responsibility. In many cases, the shortage implies that many patient care tasks simply are not getting done.

It is important to note that Project HOPE made efforts to try to identify factors that complicate the recruitment and retention of nurses. The information Project HOPE provided to the MOH was apparently not adequately reviewed, however, and recommendations were not implemented. The MOH can expect continued difficulty with recruitment of nurses and high levels of emigration unless a large share of the following issues are addressed:

- Low student stipends
- Low nurses' salaries
- Inadequate allowances for uniforms, transportation, etc.
- Lack of differentials for night shifts
- Physicians' expectations that public sector nurses will provide services for their private patients

- Lack of availability of physicians in the hospital (see physician productivity section, above)
- Lack of delivery packs and other supplies

6.0 DEMAND FOR PUBLIC SECTOR MEDICAL SERVICES: INFERENCES FROM UTILIZATION DATA

As stated earlier, utilization data reflect not only the demand for services, but also the supply of those services--and the effect of the supply (e.g., the availability of medical personnel or particular technologies) on the demand. However, utilization data--comparisons among facilities, population groups, or over time--can suggest the relative levels of use of health services. For example, we can learn which facilities are under-utilized, and which are overburdened and, in some cases, obtain a measure of potential demand.

In Belize, utilization statistics are limited, but improving. For inpatient services, tallies are made by the MSO of the discharge forms at BCH, with coded diagnostic data. District inpatient statistics are reported monthly to the MSO, and then compiled on an annual basis. Outpatient, laboratory, and drug distribution data are compiled in a less organized and apparently less complete fashion. However, new forms recently have been instituted for the purposes of tracking epidemiologic patterns. These forms solicit information on each patient seen at district outpatient clinics and Matron Roberts and Cleopatra White Health Centers, noting sex, age, and preliminary diagnosis. Once they are received on a regular basis and compiled by the MSO, they can serve as a valuable source of information on level of utilization.

6.1 INPATIENT UTILIZATION

Data on inpatient utilization clearly shows the effect of supply. District facilities offer very limited inpatient services--nothing more than minor surgery can be performed at the district level. Consequently, utilization is low. Conversely, BCH is the only facility in the country to offer higher levels of care, and demand is challenging existing resources.

6.1.1. Utilization of District Facilities

Exhibit 19 shows statistics for utilization of inpatient facilities in each of the districts. The annual number of discharges, even in the largest hospital (Belmopan) does not exceed 1,600, with an average of 32 percent of those classified as maternity discharges. No major surgery was performed in any of the hospitals. Nearly 10 percent of all inpatients were transferred to Belize City Hospital.

EXHIBIT 19 UTILIZATION OF INPATIENT SERVICES BY DISTRICT, 1990						
INPATIENT	COROZAL[1]	ORANGE WALK	CAYO		STANN CREEK	TOLEDO
			SAN IGNACIO	BELMOPAN		
Beds	28	28	28	47	28	30
Discharges	1,434	1,673	1,025	1,593	1,523[3]	1,291
Maternity discharges	458	814[2]	502	446[3]	334[3]	204
Patient days	4,254	4,282	2,243	5,049	3,466[3]	4,488
Minor surgery	454	243	7	399	609[4]	336
Patients transferred to BCH	112	247	117	63	188[3]	112
Deaths	36	27	15	35	37	26
ALOS (days)	3.0	2.6	2.2	3.2	2.3	3.5
Occupancy (%)	41.6	41.9	21.9	29.4	33.9	41.0

Notes:
1. Estimate based on a six-month sample.
2. Estimate based on a 10-month sample.
3. Estimate based on an 11-month sample.
4. Estimate based on a nine-month sample.

The short length of stay--approximately three days, on average--corresponds to the relatively uncomplicated procedures that can be treated at the district level. Cases requiring more complex diagnosis, medical treatment, or surgery must be transferred to BCH. Similarly, occupancy rates are low, ranging from 22 to 42 percent of bed capacity.

Small facilities and low occupancy mean high costs per patient day. Cost per patient day ranges from about $73 in Belmopan to more than $172 in Dangriga Hospital, Stann Creek.

From these data, it appears that there is unmet demand for higher-level services that currently are unavailable at the district level, and an oversupply of the low-level services currently available. On the one hand, higher occupancy rates can only be achieved by expanding the level of care available in the district. On the other hand, this change, which would involve movement of additional specialists to districts (most likely through some type of rotation program), upgrading of facilities to allow for more complex treatment (surgeries, diagnostics), and augmentation of nursing and ancillary personnel, would be extremely capital-intensive and difficult to achieve, given existing budgetary and human resource constraints. Given current information, it is not possible to determine the most cost-effective distribution of services. A study (outside the scope of the current work) would have to be undertaken to weigh the advantages and disadvantages of substantially increasing the level of care available at the district level.

6.1.2. Utilization of Belize City Hospital

Exhibit 20 shows corresponding inpatient utilization statistics for BCH. In contrast to district facilities, only 16 percent of the discharges are classified as maternity, and there are more major surgeries than minor surgeries performed. Average length of stay is more than four and a half days, and BCH operates at relatively high--75 percent--occupancy. Approximately six percent of patients come through transfer from district hospitals.

EXHIBIT 20 UTILIZATION OF BELIZE CITY HOSPITAL, 1990	
INDICATOR	
Beds	184
Discharges	11,104
Maternity discharges	1,732
Patient days	50,672
Minor surgery	1,160
Major surgery	1,184
Admission via district referral	676
Deaths	266
ALOS	4.6 days
Occupancy	75.4 %

Source: MSO records.

This figure indicates that the demand for public services in the country, at least as measured by BCH occupancy rates, are close to the limit of the supply of those services. BCH, as the one full inpatient facility in the country, is close to becoming overburdened. This will be a critical factor to consider in planning for the new Belize City Hospital.

6.2 OUTPATIENT SERVICE UTILIZATION

Turning to the use of outpatient services, we present data on use of urban health centers and the outpatient facilities at BCH in Exhibits 21 and 22. Volume of outpatient services at the district level is high (as suggested earlier by data on productivity in district facilities). Use of specialist services corresponds to availability of specialists, and suggests that if specialists were present in the other facilities, their services would be utilized and the number of referrals would be cut substantially. However, since it is unlikely that specialists would be used to capacity in any one district, a logical alternative is to contract physicians to "rotate" among district hospitals, following a regular schedule.

EXHIBIT 21
UTILIZATION OF OUTPATIENT CLINICS IN URBAN HEALTH CENTERS BY DISTRICT, 1990

INDICATOR	COROZAL	ORANGE WALK	CAYO		STANN CREEK	TOLEDO	MOPAN
			SAN IGNACIO	BELMOPAN			
Gen'l medicine visits	11,854	13,957	10,505	14,394	17,455[2]	12,387	8,870
Specialist visits	2,346	705	0	0	0	6,217	0
Minor surgery	292	196	567	N/A	3,848[5]	330	88[2]
Dressings	2,722	8,369	2,027	1,730	1,095[3]	1,874	316[2]
Injections	2,654	2,946	2,722	1,541	4,179[3]	6,236	500[2]
Dental visits	1,942	1,564	812[1]	979[4]	N/A	1,181	190[2]
TOTAL	21,810	27,737	16,633	18,644	26,576	28,225	9,964

Notes:
1. Estimate based on six-month sample.
2. Estimate based on 11-month sample.
3. Estimate based on nine-month sample.
4. Estimate based on 10-month sample.
5. Estimate based on seven-month sample.

EXHIBIT 22 UTILIZATION OF OUTPATIENT FACILITIES, BELIZE DISTRICT, 1990				
INDICATOR	BCH OUTPATIENT DEPARTMENT	BCH CASUALTY	CLEOPATRA WHITE HEALTH CENTER	MATRON ROBERTS HEALTH CENTER
General medicine visits	9,359	28,522	16,048	15,240
Specialist visits	0	0	0	0
Minor surgery	4	147	217	16
Suturing	N/P	1,390		
Dressings	3,129	2,032	6,946	4,578
Injections	2,762	4,835	4,343	1,444
Real emergencies	N/P	539	N/P	N/P
Dental visits	5,027	N/P	N/P	N/A
Dental referrals	107	--	--	--
TOTAL	20,281	38,465	27,554	21,278

Notes: N/P means service not provided.
N/A means data are unavailable.

In Belize City, the two health centers and the BCH casualty department carry out a tremendous volume of services--probably approaching the maximum capacity of the facilities. It is worth noting that only a small share of the health problems treated at the casualty department were classified as "real" emergencies. This implies that patients are seeking routine outpatient care--perhaps because of the long waiting lines at the urban health centers. The outpatient department at BCH does considerably less volume. Again, this corresponds to the productivity issues presented above, and should be addressed by enforcing stronger management controls. It is likely that the majority of cases seen in the casualty department could (and should) be seen in the outpatient department, and a system should be instituted to refer patients appropriately. It also would be highly advisable to extend hours of the outpatient department.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS

Information was presented in this report on the current and projected health needs of the Belizean population, the allocation of resources at the national level, the supply of manpower, and demand for (or utilization of) health services. Though data are limited, the analyses support the following conclusions:

- The need for health services in Belize is likely to grow substantially in the coming years, because of a relatively high rate of growth of the population, particularly in the reproductive and elderly age groups; and because of immigration of refugees with special health needs.

- Belize is not undersupplied with physicians, either in comparison with other countries of similar geography, demography, and economic development, or by utilization indicators.

- Despite the fact that there is no undersupply of physicians, it is apparent that there is an undersupply of some physician services in the public sector. The main constraint on physician service supply is the productivity of those currently in the public service, particularly the specialists at Belize City Hospital. It is likely that these physicians are diverting a substantial amount of their efforts (and the hospital's inpatient facilities) to patients from their private practices.

- The nursing shortage is approaching critical proportions, given the difficulties of recruiting and retaining both nurses in training and in service.

- District facilities and Belize City health centers carry out high volumes of general medicine outpatient services. Many of the services provided by physicians in outpatient clinics require a very limited set of medical skills, and could be carried out by nurses.

- Lack of infrastructure and available specialists result in low utilization of district inpatient facilities and high levels of referral to BCH. Inpatient facilities at BCH operate at high capacity.

- Decisions about how resources should be allocated are made in an apparently haphazard manner within the Ministry of Health. There is inadequate record-keeping of utilization and productivity for informed decision making. New personnel are employed and equipment is added to MOH supplies with little analysis of demand. And medical administrators at the district level are given very little autonomy over spending of their allotted resources.

To improve the efficiency of the delivery of health services in Belize, this study suggests that the following recommendations should be considered by Ministry of Health decision makers and USAID/Belize.

(1) There should be no large-scale effort made toward increasing the supply of physicians in the public sector in Belize until greater management efforts are devoted to controlling physician behavior and increasing physician productivity. The MOH should consider options for employment of physicians, particularly specialists, including part-time contracts and rotation of specialists among district facilities.

(2) Expansion of services at the district level implies high costs: increasing availability of specialists (by increasing productivity and instituting a rotation program) and improving district hospital infrastructure substantially. This may not be warranted as long as the referral process functions adequately. An analysis should be carried out to determine the most cost-effective distribution of services. Questions that could be addressed by such a study would include: (a) Would it be feasible and cost-effective to have specialists rotate among district facilities? (b) What are the relative costs of the current referral and transport system versus providing higher levels of services in remote areas? This type of analysis would be an appropriate activity for technical assistance.

(3) The Ministry of Health should consider transferring some responsibility for general medicine outpatient care to nurses--with corresponding increases in remuneration. This change could have several benefits: decrease in waiting time at health centers; decrease in manpower costs; increase in nurse satisfaction.

(4) A working group should be assembled to discuss possible solutions to the problems associated with the nursing shortage. The group should be composed not only of MOH administrators, but also of working nurses. This group would undertake a review of the structure of the nursing system and recommend changes in wages and working conditions to attract and retain nurses. A survey of working and retired nurses may be required for this review. Technical assistance can be provided for this activity.

(5) Substantial amounts of autonomy should be given to district medical administrators, since these are the people most aware of the local needs. This also will be part of the cost recovery efforts, in which revenues will be kept at the local level, and will fit within the technical assistance that can be provided for cost recovery.

(6) Careful attention should be given to planning for the new Belize City Hospital. If the new hospital were to admit and maintain the current average stay, it would be operating at close to 95 percent occupancy--an unacceptably high rate. Either the admissions must be restricted, the length of stay shortened, or an alternative site for some inpatient services utilized. This implies that there should be a review of admissions and lengths of stay, to identify ways in which to shorten hospital stays. Attempting to shorten lengths of stay is not for the purpose of lowering the standard of medical care, but to determine if day surgery or other methods could be more fully implemented. Again, technical assistance from a health planner could be provided for the required analysis.

(7) Planning for the new hospital provides an opportunity to investigate the costs of support services. As part of the overall program of cost recovery and cost containment, alternative methods of providing services should be considered. That is, a study should be undertaken to determine the most cost-effective method of providing ancillary services (e.g., contracting out of catering and laundry services compared to in-house provision). A health financing specialist can carry out a small-scale cost-effectiveness study as input into decision making.

APPENDIX 1. SCOPE OF WORK

Personnel and Services Allocations

The MOH has indicated a strong commitment to the improved allocation of personnel and services. This commitment reflects general acknowledgement that efficiency must be improved by increasing the amount and quality produced from resources which are devoted to the production and delivery of health services. A long-term objective under Project -0045 will be the development and rationalization of administrative policies within the MOH for the allocation of human and financial resources. As a first step toward this objective, HFS is to provide a health planner/administrator for a period of five weeks. This individual will analyze and assess current staffing and utilization patterns of district hospitals in view of developing and implementing a regionalization strategy which maximizes the efficiency of human and financial resources.

ANNEX EXHIBITS

ANNEX EXHIBIT 1 DISTRIBUTION OF EXPENDITURES, GOVERNMENT OF BELIZE, 1990			
MINISTRY/DEPARTMENT	TOTAL BUDGETED 1990 BLZ$	% TO PERSONAL EMOLUMENTS	% OF TOTAL GOB EXPENDITURES
Governor General	235,153	54.1	0.15
Judiciary	1,012,738	77.7	0.66
Legislature	697,425	66.4	0.45
Public Service Commission	111,622	89.6	0.07
Director of Public Prosecution	147,352	88.1	0.10
Solicitor General	416,127	86.7	0.27
Office of the Prime Minister and Cabinet	250,821	50.7	0.16
Ministry of Finance	44,975,568 (14,975,568)[1]	8.8 (26.4)[1]	29.23
Ministry of Health and Urban Development	14,596,198	68.2	9.49
Ministry of Foreign Affairs	3,205,929	61.6	2.08
Ministry of Education, Sports and Culture	35,481,191	73.4	23.06
Ministry of Agriculture	5,387,015	64.3	3.50
Ministry of Industry and Natural Resources	6,172,421	74.9	4.01
Ministry of Home Affairs	10,133,799	79.6	6.59
Ministry of Labor, Public Service and Local Government	3,765,242	30.8	2.45
Ministry of Energy and Communications	3,911,570	63.7	2.54
Ministry of Social Services	1,976,109	63.7	1.28
Ministry of Trade and Commerce	414,218	77.6	0.27
Ministry of Works	8,352,366	67.9	5.43
Ministry of Defence	9,681,047	67.0	6.29
Ministry of Tourism and the Environment	1,348,369	64.3	0.88
Ministry of Economic Development	538,259	84.2	0.35
Ministry of Housing and Cooperatives	1,046,832	67.0	0.68
TOTAL	153,857,371	51.7	100.00

Source: Budget of the Government of Belize, 1990/91, Appendix C.

Note: 1. Figures exclude debt service of BLZ $30,000,000.

ANNEX EXHIBIT 2 DISTRIBUTION OF MOH EXPENDITURES, BELIZE, FY1991/92 (budgeted)		
ITEM	EXPENDITURES BLZ$	% OF TOTAL
ADMINISTRATION		
Central Administration	777,689	4.49
Direction of Health Services	1,146,329	6.62
Subtotal	1,924,018	11.11
PUBLIC/PREVENTIVE HEALTH		
Vector Control	739,038	4.27
Community Health	1,239,824	7.16
Environmental Health	404,138	2.33
Dental Health	246,041	1.42
Communicable Disease Control	72,378	0.42
Epidemiological Surveillance	52,911	0.30
Health Education	124,655	0.72
Primary Health Care	291,881	1.68
Subtotal	3,170,866	18.30
DISTRICT HOSPITALS		
Belmopan	608,447	3.51
Corozal	423,548	2.44
Punta Gorda	489,513	2.83
Orange Walk	556,343	3.21
Dangriga	521,412	3.01
San Ignacio	423,419	2.44
Subtotal	3,022,682	17.44
NATIONAL HOSPITALS		
Belize City	5,155,692	29.77
Psychiatric	593,252	3.42
Subtotal	5,748,944	33.19
CENTRAL STORES	2,613,116	15.09
BELIZE SCHOOL OF NURSING	510,240	2.95
MEDICAL LABORATORY SERVICES	327,083	1.89
GRAND TOTAL	17,316,949	100.00

Source: GOB, 1991

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HEALTH FINANCING AND MANAGEMENT IN BELIZE: AN ASSESSMENT FOR POLICYMAKERS

A Compendium of Technical Notes

Volume VI: Pharmaceuticals and Supplies Procurement

Submitted to:

Health Services Division
Office of Health
Bureau for Science and Technology
Agency for International Development

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The Other Volumes in the Compendium:

Volume I:	Summary Diagnosis, by Gerard La Forgia and Ruth Levine
Volume II:	Health Sector Cost Recovery in Belize: Current Situation and Prospects for Change, by Gerard La Forgia and Charles Griffin
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Volume IV:	The Private Medical Sector in Belize, by Gerard La Forgia, Harry Cross, and Ruth Levine
Volume V:	Resource Allocation in the Public Health Sector in Belize, by Ruth Levine and Gerard La Forgia

ABSTRACT

An analysis of the current public sector pharmaceutical and medical supplies procurement and distribution system provides technical input for the health financing component of USAID/Belize's Fiscal Policy Planning and Management (FPPM) Project. This report documents the major problems in public sector drug management in Belize and presents options to resolve the problem. The author collected data on procurement, budgeting, distribution, and monitoring. Three major problems found in public sector drug management include: first, the annual budget is too low to cover the population's medical needs; second, procurement is ineffective; third, the distribution system is sound in theory but dysfunctional in practice. The annual budgetary allocations are consistently insufficient to cover the costs of pharmaceuticals and supplies in Belize, and the budgeting process is haphazard.

This report presents a framework for forecasting the quantity and cost of necessary drugs and supplies to be used to estimate financial needs. The report also identifies several options to improve the procurement programs managed by the Pan American Health Organization/Fondo Rotario de Medicamentos Esenciales (PAHO/FORMED). Poor warehousing, facilities, management, and lack of appropriate management information capabilities are identified as the primary deficiencies in the central distribution system.

BELIZE COMPENDIUM

ABBREVIATIONS

ALOS	Average Length of Stay
BCH	Belize City Hospital
CDR	Crude Death Rate
CGA	Citrus Growers Association
CHI	Comprehensive Health Insurance
CHW	Community Health Worker
CMS	Central Medical Stores
CRDTL	Caribbean Regional Drug Testing Laboratory
CSO	Central Statistics Office
CWHC	Cleopatra White Health Center
DHS	Director of Health Services
DMO	District Medical Officer
EAP	Economically Active Population
EEC	European Economic Community
ECDS	Eastern Caribbean Drug Service
EDP	Essential Drugs Project
FORMED	Fondo Rotario de Medicamentos Esenciales
FPPM	Fiscal Policy Planning and Management
FY	Fiscal Year
GDP	Gross Domestic Product
GNP	Gross National Product
GOB	Government of Belize
HFS	Health Financing and Sustainability Project
HMO	Health Maintenance Organization
ILO	International Labour Office
IMF	International Monetary Fund
IMR	Infant Mortality Rate
IPC	Income per Capita
MIS	Management Information System
MMR	Maternal Mortality Rate
MOF	Ministry of Finance
MOH	Ministry of Health
MRHC	Matron Roberts Health Center
MSH	Management Sciences for Health
MSO	Medical Statistics Office
NTUCB	National Trade Union Congress of Belize
OPD	Outpatient Department
PAHO	Pan American Health Organization
PNO	Principal Nursing Officer
PS	Permanent Secretary
RN	Registered Nurse
SDD	Social Development Department
SI	Statutory Instrument
SSB	Social Security Board
SSCGDP	Social Security Costs as a Percent of Gross Domestic Product
SSDF	Social Security Development Fund
TBA	Traditional Birth Attendant
UNDP	United Nations Development Programme

UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
VEN	Vital, Essential, Necessary

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EXECUTIVE SUMMARY

At the request of USAID/Belize, the Health Financing and Sustainability (HFS) Project undertook an analysis of Belize's public sector pharmaceutical and medical supplies procurement and distribution system. Between October 23 and November 17, 1990, James Rankin, a drug management specialist, visited Belize to collect data on procurement, budgeting, distribution, and monitoring. Analysis of the information and report preparation subsequently were carried out in the U.S. This report describes the major problems in public sector drug management in Belize, and presents a set of options for consideration by the Government of Belize (GOB) and USAID/Belize.

Three major problems were found in public sector drug management: first, the annual budget is too low to cover the population's medical needs. Second, procurement is ineffective, with many purchases occurring at unnecessarily high prices. Third, the distribution system is sound in theory but dysfunctional in practice, with frequent and prolonged stockouts. The Ministry of Health (MOH) gives high priority to solving these problems.

The annual budgetary allocations are consistently insufficient to cover the costs of pharmaceuticals and supplies in Belize, and the budgeting process has been haphazard. This report presents a framework for forecasting the quantity and cost of necessary drugs and supplies, which can be used to estimate financial needs. The framework is evolving. Preliminary results have been provided to the MOH, but revisions in forecast quantities will be required before the method is completely functional.

Procurement is divided between the Pan American Health Organization/Fondo Rotario de Medicamentos Esenciales (PAHO/FORMED) Program, and local and regional suppliers. While the PAHO Program has been valuable, several problems exist. In particular, PAHO communications are often weak and lead times are long. The MOH has been lax in making prescribed contributions to the revolving drug fund, upon which the PAHO program depends. Efforts by the MOH and PAHO will be needed to improve the program. This report identifies options to strengthen or substitute for the PAHO/FORMED Program.

Central Medical Stores (CMS) will need a new warehouse if it is to continue as the hub of the public procurement and distribution system. This report suggests appropriate specifications for a new facility, as well as options if a new facility cannot be constructed. The private sector in Belize can assist with public sector storage and distribution. Firms in Belize have the necessary capabilities, and can be called upon if the public sector cannot provide warehouse space or requires an alternative procurement system.

Poor management and lack of appropriate management information capabilities have been identified as the primary deficiencies in the CMS distribution system. Recently, CMS management personnel has been changed, and the new Supplies Manager would benefit from training and technical assistance to become acclimated to and implement necessary reforms. Installation of computerized database inventory and procurement programs are recommended for use by CMS; this will also require technical assistance and training. It is desirable for USAID/Belize and PAHO to cooperate, if they choose to provide this technical assistance in coming years.

1.0 INTRODUCTION

This study was one of several activities carried out by the Health Financing and Sustainability (HFS) Project to provide background technical inputs for the health financing component of USAID/Belize's Fiscal Policy Planning and Management (FPPM) Project. The scope of work included review and analysis of current public sector pharmaceutical and medical supplies procurement and distribution practices (see Scope of Work, Appendix 1).

The field work took place between October 23 and November 17, 1990. The two primary foci of the scope of work were: (1) to evaluate the relevant public sector systems and prepare recommendations for improving those systems; and (2) to consider how the forthcoming FPPM Project can provide assistance to improve supplies and pharmaceuticals management.

The work on which this report is based built on significant prior experience, since PAHO has been sponsoring the Belize Essential Drugs Project (EDP) since 1985, and has been assisting with drug purchases through FORMED since 1987. Fortuitously, PAHO had scheduled the second national Essential Drugs Workshop for November 15, 1990; the HFS consultant was able to participate in the workshop, thanks to the cooperation of John Turnbull, the PAHO Essential Drugs Consultant, and Dr. Cesar Hermida, the local PAHO Director.

One unanticipated result of the workshop was the development of a quantification exercise to rationalize the budget process. At the request of the Ministry of Health (MOH), the HFS consultant spent considerable effort after the workshop producing a spreadsheet that shows projected requirements by institution and that analyzes budget requirements based on international market prices in comparison with current local pricing. These analyses are incorporated into this report; a preliminary report on budget needs has been transmitted separately to the MOH.

Despite the five-year-old EDP, there currently is a crisis in the public sector drug supply system in Belize. Although the MOH has significantly overspent its budget for drugs and supplies for the past few years, there are shortages of vital items in the public facilities. These problems can be resolved only if significant logistics and management deficiencies are recognized and addressed.

The Government of Belize (GOB) has stated explicitly that solving the problems in the drug supply system are of paramount importance, and that all necessary actions will be taken. This report is offered with the hope that it will aid the GOB in developing a sustainable public sector supply system.

The following section of the report presents the laws and regulations governing the drug supply system. Section 3 provides information on the current status of MOH procurement and distribution systems. In the interest of brevity and clarity, these two sections discuss only the current situation in Belize, describing systems in place, with their strengths and weaknesses. Section 4 provides an overview of the PAHO EDP in Belize, which is a critical component of the entire drug management picture in the country. Again, only those features relevant to this study are noted; a complete discussion can be found in the many

reports and workshop proceedings which have been developed by PAHO. Finally, Section 5 presents recommendations and suggested next steps for the GOB and USAID/Belize. The appendix contains copies of the budget forecast spreadsheets, comparisons of local versus PAHO drug prices, lists of suggested additions to the national formulary, and copies of materials from the last EDP workshop.

2.0 LAWS AND REGULATIONS GOVERNING PROCUREMENT AND DISTRIBUTION

Several laws and regulations of the GOB are relevant to this study, including those which address import and registration, medical and pharmacy practices, narcotics and dangerous drugs, duties and price controls, and eligibility for free government services.

No formal law governs registration of drugs and chemicals; however, the Chemists and Druggists Act of 1958 is still in force. This law restricts the sale of drugs to shops under the immediate control of a registered chemist. It also provides that a Board of Pharmacy Examiners should register druggists and chemists (though there is no current functioning Board). It restricts the sale of drugs without a prescription, except certain preparations (most now obsolete). The law does not require that pharmacies keep any records other than a Poisons Book. In sum, the law itself is obsolete and has little impact on drug procurement and distribution (or on pharmacy practice), given its outmoded scope and language.

Under the provisions of Statutory Instrument 134 (SI 134), certain drugs are exempted from a standard 15 percent duty charged on all other drugs and supplies. Since the law has not been updated since 1960, the list of exempt drugs is now archaic, but the law allows an importer to petition the GOB Chief Pharmacist for exemption. Reportedly, this is routinely granted.

SI 40 of 1987 provides exemptions for certain ointments and antibiotics from the 12 percent Stamp Duty, which applies to all other drugs. Again, the importer must obtain exemption from the Customs Department, appealing to the Chief Pharmacist in disputed cases.

Standard markups are provided in SI 30 of 1987. This law allows wholesale suppliers to mark up 10 percent on invoice value when selling drugs to retail pharmacies. In turn, the pharmacy is allowed to mark up the price 25 percent over wholesale when selling to the public. It is unclear how strictly this law is enforced. In many countries, vendors are able to get around laws such as these by making arrangements for inflated invoices from the overseas supplier. Whether this practice occurs in Belize is unknown.

The government limits eligibility for free prescription services to a degree. Only those patients seen at government facilities by physicians working for the government are eligible for free prescriptions. These prescriptions must be written on the standard government prescription form, and are honored only at government dispensaries. If a private patient brings a prescription to a government facility, he or she should pay for the drugs. As noted in the companion report which studies the feasibility of cost recovery, it is uncertain how stringently these regulations are applied.

The most modern drug-related legislation in Belize is the act governing import and distribution of narcotics and dangerous drugs. This law is the standard act which has now been passed by most countries in this hemisphere. It provides serious penalties for illegal use of controlled drugs, and requires that the government and private sector keep detailed records on purchases and disbursements of these items. The act addresses no other aspects of the drug supply system.

The laws governing private medical practice (discussed in detail in the report on the private sector) do not attempt to regulate physicians' activities with pharmaceuticals, other than controlled drugs.

It is recommended that the Chemists and Druggists Act be updated to reflect current conditions, and that the laws relating to duties and exemptions be revised to reflect current requirements; these recommendations are explained in Section 5. If the GOB begins to study cost recovery, it will be useful to concurrently investigate the degree of compliance with price control acts and with regulations which govern eligibility for free government prescriptions.

3.0 STATUS REPORT ON MOH PROCUREMENT AND DISTRIBUTION SYSTEMS

This section provides an overview of the current status of public sector pharmaceutical and medical supply procurement and distribution. It covers the positions in the public sector related to drug management; the budget experience; the public formulary; the procurement system, including the PAHO/FORMED procedures and local procurement; and the CMS facilities and management systems.

3.1 CURRENT STRUCTURE AND STAFFING OF THE PUBLIC SECTOR SUPPLY SYSTEM

The MOH is responsible for purchasing and distributing drugs and medical supplies to public sector facilities, although the Ministry of Finance (MOF) is taking a larger role than it has previously. A new MOF Procurement Officer, Mr. Maxwell Samuels, has recently been appointed, who will have at least nominal control of all procurement contracts.

The MOH, located in Belmopan, is directed by Dr. Theodore Aranda, the Minister of Health. Routine management is handled by Mr. Fred Smith, the Permanent Secretary (PS) of Health, and Dr. Gregorio Pott, Director of Health Services. Dr. Kurella Rao is the national Director of Primary Health Care, and Mr. Edward Smith is the MOH Finance Officer.

The primary health facility in the country is Belize City Hospital (BCH), providing most of the inpatient care by volume and accounting for the largest portion of expenditures on drugs and supplies. The BCH Administrator is also responsible for overseeing MOH drug and supply procurement. The BCH Chief Pharmacist, Mr. Kenneth Arthurs, is also the country's Chief Pharmacist.

There are six districts in the country with facilities for inpatient and outpatient services. At each District Hospital are a District Medical Officer and District Pharmacist. Two additional public health centers providing outpatient care are located in Belize City.

All districts order (or, more accurately, request) drugs and supplies directly from Central Medical Stores (CMS), located on the grounds of BCH. The Supplies Manager is in charge of CMS and has two storekeepers, along with ancillary staff. This officer is responsible for purchasing and distributing all drugs and consumable medical supplies used by the public sector. At the time of the visit, the Supplies Officer was Mr. Raymond Lashley; he has since taken early retirement.

Three standing MOH committees nominally are responsible for overseeing specific aspects of the public sector drug supply system, as shown in Exhibit 1. The operations and status of these committees are discussed later in this report. Appendix 2 presents a list of positions that are relevant to the drug supply system, with the names of incumbent officers.

EXHIBIT 1
MOH COMMITTEES RESPONSIBLE FOR DRUG SUPPLY SYSTEM

COMMITTEE	RESPONSIBILITY	CHAIRMAN
Procurement	Review of purchase requests from CMS; make appropriate procurement recommendations	Mr. Wayne Usher
EDP	Oversight of Belize Essential Drugs Project	Dr. Lizarraga
Formulary	Revision of the National Formulary	Dr. Cawich

3.2 THE PUBLIC SECTOR BUDGET FOR DRUGS AND MEDICAL SUPPLIES

Approximately 11 percent of total annual government expenditures are for health. The actual cost of drugs and medical supplies has been as much as 20 percent of the annual health budget.

The GOB budget process involves submission of budget requests from the MOH to the Cabinet for approval. At least in the case of drugs and supplies, the requested amount usually is reduced before approval. In recent years, the MOH has argued for budget increases (for example, BLZ$ 2.6 million were requested for 1990/91), but they have not been granted, probably because of inadequate documentation and concurrent skepticism concerning resource management in the MOH.

Exhibit 2 (below) illustrates the relationship between the MOH budget for drugs, consumable supplies, and actual expenditures. (All amounts are expressed in Belize Dollars (BLZ$), which have a fixed two-to-one exchange rate with the U.S. Dollar.)

EXHIBIT 2 BUDGETED AND ACTUAL EXPENDITURES FOR DRUGS AND SUPPLIES		
YEAR	BUDGETED EXPENDITURES FOR DRUGS AND SUPPLIES	ESTIMATED ACTUAL EXPENDITURES FOR DRUGS AND SUPPLIES
1988/89	N/A	2,415,731
1989/90	1,443,345	2,828,000
1990/91	1,881,220	2,445,000

This picture reflects the reality of artificially low budgets, with regular cost overruns from one budget year to the next, leaving fewer funds than planned for the next year.

Over the last several years, there has been no period when the CMS was fully stocked, and, thus, the real annual needs for drugs and supplies cannot be estimated accurately based on past consumption. Likewise, although Belize does have a comparatively good health reporting system, data are insufficient to allow budget forecasting based on morbidity statistics. Thus, it is difficult to know how large the budget for drugs and consumable supplies should be.

Given Belize's population of about 185,000, actual (not budgeted) per capita public sector expenditures for drugs and supplies were US$6.49 in 1988/89 and US$7.57 in 1989/90. Although it is difficult to compare budget needs from country to country, two of the more populous countries in the Eastern Caribbean manage to keep relatively full supply pipelines with comparable per capita expenditures. Dominica, with 80,000 people, budgeted US$5.46 per capita for drugs and consumable supplies in 1990/91. Grenada, with 110,000 people, budgeted US$5.72 per capita for the same period.

On the surface, this suggests that more effective procurement and supply management might allow Belize to fulfill its needs if the budget were set at the level of actual expenditures over the past few years (or about BLZ$12.00 per capita). It must be noted, however, that both Grenada and Dominica operate only one large inpatient hospital, while Belize has one small hospital in each district. This implies an increased per capita need for medical supplies and other inpatient items, due to the need for duplicated inventories at each institution. Additionally, there are an undetermined number of refugees in Belize, many of whom are high consumers of health care.

3.2.1. Relationship Between MOH and MOF in Drug and Supplies Procurement

As noted previously, the MOH is responsible for submitting annual budget requirements for approval by the Cabinet. During a budget year, the funds are released on a monthly basis by the MOF.

The MOF reportedly has reservations about how wisely the MOH has managed procurement in the past. It is argued that if the MOH had full access to funds at the beginning of the budget year, the MOH could more easily negotiate reduced

prices from the non-PAHO suppliers. This would allow the MOF to hold the MOH to its estimates, and make it much more difficult to get additional allocations during the year.

The MOF regulates access to foreign exchange, and there are reported problems in obtaining foreign exchange in a timely fashion. This forces the MOH to purchase on the local market at a higher unit price but with payment in local currency. This is one reason that the PAHO/FORMED revolving drug fund (described in Section 3.4.1., below) has been very beneficial; it has allowed the MOH to ensure itself of access to predictable amounts of foreign exchange for drugs and supplies.

3.2.2. Development of a Forecasting Procedure for Drug and Supplies Expenditures

To bring more organization and staff participation to the Belize MOH budgeting process, the MOH requested in August 1990 that each hospital and district pharmacist prepare a handwritten list of annual drug requirements. This activity was in process at the time of this consultancy. There were inconsistencies in the lists: some pharmacists were including consumable supply forecasts and others were not. Since the forecasts had not been completed by late October, a revised plan was suggested to make collation and use of the data easier.

As part of preparation for the National Workshop on Essential Drugs held November 15-16, 1990, a printed list of all formulary drugs and standard medical supplies was prepared for the MOH and sent to each facility. All District Pharmacists and the Chief Pharmacist at BCH were instructed to estimate their annual requirements for each listed item, along with current inventory; they also were asked to list additional unlisted items that are routinely needed. The pharmacists were asked to bring the completed lists to the workshop for collation on computerized spreadsheets, and creation of a budget forecast using a computer model (developed by this consultant and other specialists at Management Sciences for Health (MSH)). The collation process became lengthy, due to variability in completeness and legibility of the original lists, and subsequent need for clarification.

Each item was priced at the estimated best available price to Belize. The first draft of the aggregate budget forecast was ready in early January 1991. Since the combined forecast totalled more than BLZ$6 million, it was obvious that some quantities had been overestimated.

The collated forecast lists were returned to Belize, with supporting data comparing the new forecasts with actual past consumption and the Supplies Officers' 1990 budget estimates. The Chief Pharmacist (and Acting Supplies Manager) arranged meetings with each pharmacist to review and revise forecasts.

The revised set of forecast quantities and items was then entered in the computer model. Unfortunately, the revisions made by pharmacists in Belize did not reduce the overall budget forecast. In fact, the revised total for forecast quantities was still larger, at BLZ$6.6 million. A preliminary smoothing of quantities yielded a forecast of BLZ$4.5 million. However, it will be necessary

to further reduce forecast quantities to yield realistic results. Recommendations for further manipulation of the data are provided in the last section of this report.

3.3 THE BELIZE DRUG FORMULARY

To ensure sound pharmaceutical procurement practices and good public sector supply management practices, an effective formulary, or list of approved drugs, is essential. As part of the EDP, the Belize Government National Formulary was published in December 1987. (Though it was entitled the sixth edition, it was the first published manual.)

It was intended that the National Formulary Committee would meet regularly to review changes in medical requirements for drugs, and to revise the formulary as needed. The committee has had difficulty organizing this process, and no revisions have been made to the list since 1987.

Medical practitioners' preferences have changed, resulting in regular purchases by CMS of items not listed on the formulary. Officially, purchase of items not on the formulary must be approved by the Director of Health Services (DHS), but the process has occasionally been ignored; in any case, approval has in the past been routinely given when the procedure is followed. As part of the forecasting exercise described above, pharmacists submitted lists of drugs that they believe should be considered for addition to the formulary. It is recommended that the Formulary Committee consider the combined list of these suggestions, and make necessary revisions.

Since the formulary can be a valuable tool in pharmaceutical procurement and supply management, as well as in providing medical practitioners with information on what should be available, it is important to maintain the integrity of the formulary process. To aid in this, the MOH has named a new Formulary Committee Chairman, and it is hoped that the Committee will be revived. The recent workshop on the EDP produced several practical recommendations to get the formulary process moving (see proceedings of the workshop in Appendix 3).

3.4 PUBLIC SECTOR PROCUREMENT OF DRUGS AND SUPPLIES

This section describes the various pharmaceutical and medical supplies procurement procedures currently followed in Belize, including the PAHO/FORMED Program, and direct procurement from local and off-shore sources. Also presented are procurement options for consideration by the MOH.

CMS, with oversight from the MOH Procurement Committee, is responsible for procurement of all drugs and consumable medical supplies used in the public sector. Individual hospitals do not regularly purchase these items directly. CMS has two means of purchasing: through the PAHO/FORMED Program, and through a combination of local and international commercial vendors.

As of November 1990, the Procurement Committee members included the BCH Hospital Administrator; CMS Supplies Manager; Chief Pharmacist; BCH Hospital Accountant; BCH Matron; and BCH Medical Officer. The Permanent Secretary (PS)

has recommended that the MOF Procurement Officer sit on the Procurement Committee, but this has not yet been implemented officially.

The MOH procurement system is intended to operate as follows: first, the CMS Supplies Manager prepares a schedule of proposed orders, and brings information on stock levels and monthly usage of the items to a meeting of the Procurement Committee. The committee then reviews each item, and recommends quantities, along with preferred source for items not purchased through PAHO. Then the Supplies Manager prepares a purchase order for approval by the PS or DHS, and transmits the order to PAHO, or to the local or international vendor. PAHO orders are placed with a typed purchase order; they are sent to the local PAHO office for transmission to Washington by mail. Local orders are handwritten on a small book of order vouchers and sent to the MOH for approval. Once approved, they are given directly to the vendor, and no further record entries are made until the invoice is received and sent to BCH for payment.

From information obtained during this consultancy, it appears that work is needed to increase the effectiveness of the Procurement Committee. For example, on October 26, 1990, the committee sent a letter to the MOH expressing their concern that purchases had been made without the committee's approval. Reportedly, the Supplies Manager, rather than the committee, usually chooses the vendor for non-PAHO purchases. The DHS mentioned one specific instance in which the committee recommended one source for surgical gloves, but the order was placed with another vendor.

It is unclear how frequently the committee meets. One member stated that there had been only one meeting in the past three months, although other sources said that the committee did meet frequently.

It is expected that under the direction of the new BCH Hospital Administrator, the MOH Procurement Committee will more effectively oversee MOH procurement of drugs and supplies.

3.4.1. The PAHO/FORMED Procurement Program

The FORMED revolving drug fund for pharmaceutical procurement was intended to provide Belize (and other Central American countries) with access to a revolving fund of hard currency, which could be used to order essential drugs and supplies through the PAHO procurement office in Washington, D.C.

The financial structure of the fund is simple. The Belize fund initially was capitalized with donor funds to US$100,000; this was later increased to US$150,000. The GOB provides a fixed sum to the fund monthly--initially US$20,000, and now US$25,000. Assuming that these payments were always current and that subsequent purchases were not to exceed the available balance (which is enforced by PAHO), this would bring the fund to US$450,000 after one year and the fund would rotate in subsequent years.

The PAHO/FORMED Program has provided approximately 60 percent of public sector drugs. Few medical supplies are available through the program, but vaccines are ordered under a separate revolving fund.

Orders are placed by CMS, through the Belize office of PAHO, to the PAHO purchasing office in Washington. This office, in turn, solicits competitive bids on the items ordered, and procures the drugs from the supplier who offered the lowest price. This process was originally intended to provide lead times of about four months.

Unit cost prices for the drugs purchased through PAHO are competitive with those available from other international procurement agencies. The 1990 edition of the International Price Comparison List, available from MSH, includes PAHO list prices. While they are not the lowest source for most items, they also are not the highest.

PAHO charges both freight and handling charges: a three percent handling fee is added to each order, and the average freight charge for 77 shipments from PAHO vendors was 20 percent (see Appendix 4 for an analysis of PAHO/FORMED handling charges). Belize could contact many of the PAHO vendors directly and get the same price, saving the three percent handling fee. The freight charges would still be applied, however. In addition, direct purchasing from the vendors would require that foreign exchange be available.

The PAHO office in Washington is supposed to send regular statements of account, through the Belize PAHO office to the MOH, to document all disbursements from and reimbursements to the fund.

In the past, the PAHO/FORMED revolving fund and procurement scheme has served Belize well. However, serious problems now exist. First, Belize has fallen behind in payments into the fund. As of November 15, 1990, the GOB had not made the payments for July, August, September, October, or November of that year (a total of US$125,000); payments for May and June had been made in mid-October.

Second, communications between the MOH and the PAHO procurement office have been inconsistent, and no account statement had been received from PAHO since mid-1989. For instance, a large order (US$247,600) was placed to PAHO in July 1990. Due to the delayed payments from MOH, far too little was in the account to cover the order. At the time of this consultancy, there had been no communication to CMS or MOH from the PAHO procurement office, and it was uncertain whether or not any of the orders had been placed. If the orders had not been placed with vendors, the Belize CMS would begin to run out of essential drugs and supplies in February 1991, thus triggering another round of ruinously expensive local purchases.

This consultant tried to obtain information on the status of the PAHO/FORMED order for Belize. In January 1991, Mr. Walter Umstead, Chief of the PAHO procurement office, was contacted directly. He reported that all but 16 of the items had been ordered, and the rest were in process; the orders were to begin arriving in Belize by February 1991. He did not mention that the Belize PAHO/FORMED account had not been current at the time (or adequate to cover the full order). He said that communications concerning the Belize orders had been sent to the PAHO office in Belize. These notices could not be located at the Belize office.

Apparently, the potentially large-scale shortage will not immediately occur. However, from the perspective of the MOH, problems of lead times and communications must be resolved if the PAHO/FORMED program is to continue to serve Belize.

The lead times for receiving orders through the PAHO/FORMED system have increased steadily. Originally, the lead times were three to five months, which are marginally acceptable, given the limited public sector storage capabilities. In the last few years, the lead times have averaged five to seven months (and more than a year in one case when the orders were misfiled). These long lead times lead to shortages, which, in turn, lead to duplicate purchases on the local market at prices much higher than the PAHO/FORMED list.

In theory, an expert CMS Supplies Manager with a good management information system, could make the system work even with six-month lead times by closely monitoring stock levels and staggering orders. Though systems and personnel may be expected to improve, it is unlikely that such management expertise will be available to overcome long lead times in the foreseeable future.

Umstead of PAHO has said that they can deliver within four months, and they should be held to this by the MOH. Of course, the MOH will need to make sure that the accounts are current to avoid delays due to inadequate fund balances.

Another prominent problem with the PAHO/FORMED program is lack of communication. The MOH had no PAHO account statement more recent than 1989, and is not regularly informed about the status of orders once they have been sent to the local PAHO office. While representatives in the Washington office of PAHO have said that statements were sent to the Belize PAHO office, that documentation could not be located in Belize in November 1990. The MOH should insist on more effective communications if the PAHO/FORMED program is to be continued.

Nevertheless, as previously stated, the PAHO/FORMED program offers very real benefits to the MOH, and should not be discontinued unless every effort to improve it has been exhausted.

3.4.2. Local Procurement of Drugs and Supplies

Local procurement is used here to mean all non-PAHO procurement. This includes both routine procurement of goods unavailable through the PAHO/FORMED Program, and emergency procurement of items carried on the revolving fund list.

As noted, only some of the drugs and supplies needed for MOH facilities are available through the PAHO/FORMED Program; the remainder must be purchased independently. The Supplies Officer, assisted by the MOH Procurement Committee, is responsible for locating sources and negotiating prices. Many of these purchases are made either from vendors in Belize or from salesmen who represent jobbers, usually in Miami or Mexico.

Although figures were unavailable on total local and regional purchases for the year, they are estimated at BLZ$1 million. These purchases are not made on a formal competitive tender basis, and CMS has no records to show comparative

prices available for non-PAHO items. Though it is unclear how much the MOH could save on these items, experience in other countries has shown that savings of 15-20 percent probably could be achieved merely by comparison shopping on the local/regional market, without a formal international tender.

Emergency purchases of drugs on the PAHO/FORMED list frequently are made, due to the long lead times, lack of storage, and inadequate management described elsewhere. For these purchases, it is possible to compare the PAHO/FORMED prices with those of local vendors. Appendix 5 compares the local prices paid for 42 items in August 1990 with the list prices from PAHO for the same items. On average, the local prices were 1.78 times higher than PAHO. If one relatively expensive drug (Amikacin) is excluded from the analysis, the average ratio was 2.15:1. Many local prices were four and five times more expensive than they would have been if ordered through PAHO; the prices of four items were more than ten times higher. The MOH paid a total of BLZ$152,920 for the 42 items. At PAHO list they would have totalled BLZ$85,678. Thus, the MOH could have saved up to BLZ$67,242 if the items had not been purchased through the revolving fund program.

As noted, these are often emergency purchases, and the local suppliers are providing the drugs off the shelf (or directly from Mexico) rather than from a stock ordered specifically for the government. The payments are usually made in Belize dollars, and frequently payment is delayed (as of November 16, 1990, more than BLZ$150,000 was outstanding). Given these circumstances, a premium price can be expected.

If the local purchase is made through a "middle man" rather than an importing firm, that individual goes to Mexico, buys the needed item, and resells it to the MOH (at what seem to be greatly inflated prices). The "middle men" reportedly do not accept delayed payment.

It is clear that it is highly advisable to control these high-price local and regional purchases of PAHO list items. No matter which system or combination of approaches becomes the ultimate public sector procurement system, some local purchases will probably be needed. It is recommended that the MOH Procurement Committee conduct mini-tenders involving all of the local importers and known regional suppliers each time a non-PAHO purchase is needed; tendering should be made for generics, when feasible. This competition is expected to reduce some of the difference between international and local pricing. The MOF reportedly is tendering for some items such as soap and various sundries. This experience can be incorporated into the MOH Procurement Committee efforts.

Discussions have been held with the Mexican government to arrange large-scale purchases directly from Mexico. It is unclear whether any price quotations have been received but, if so, they were unavailable at the time of this consultancy. Therefore, no comment can be made on the potential utility of this purchasing option. Before embarking upon large-scale purchases from Mexico, it would be important to compare prices carefully and ensure product quality.

3.4.3. Direct Procurement by the Ministry of Finance

During the course of this consultancy, it was suggested that the MOF plans to take direct responsibility for procurement of all items, including drugs and medical supplies. Discussions with the MOH and with the new MOF Procurement Officer confirmed only that the MOF planned to have ultimate control of tenders, including those for drugs and supplies. If the MOF does intend to directly purchase consumable supplies, the MOF can be expected to maintain close control of the budget for these items.

There were also some indications that the MOF proposed to buy all items through Crown Agents. Based on recent experience in the Caribbean, this would have extremely negative consequences for Belize, if the lead times are as long as they have been in the Caribbean. (See Appendix 6 for a letter on this matter.)

3.4.4. The Private Sector as Potential Procurement Source

Interaction between the public sector procurement system, private sector importers, and wholesale suppliers has to date been limited to irregular purchases of limited quantities of drugs, usually at very unfavorable prices.

In the future, particularly if the PAHO/FORMED program in Belize is not improved significantly, the private sector could be an important resource for public sector procurement and distribution. Options for using private sector services are discussed below.

During this consultancy, five firms were identified that potentially could participate in public sector procurement; they all are active in importing pharmaceuticals and supplies, and have warehouse capacity. The five firms visited were: James Brodie Associates (Pharmaceuticals Division); Drug Wholesale Depot; Trade Belize; Discount Drugs; and Farm-I-Ceuticals. The managers of these firms expressed strong interest in working with the MOH procurement program, assuming that the program would be well-structured, with guarantees for prompt reimbursement.

As noted, each of these firms maintains a warehouse. The largest warehouse seen was at James Brodie, and it was the only site with enough current capacity to stock the entire range of public sector needs at an acceptable level (three to four months' worth of stock at all times). All of the firms offered assurances that space could be obtained if needed to participate in a public sector procurement program. None of the warehouses visited was air-conditioned, but storage conditions in all were acceptable. The records and management information systems (MIS) varied, but all of the firms visited gave the impression that they could provide acceptable stock management and accountability.

The two firms that seem to have the broadest experience in the field of pharmaceutical and supply procurement and distribution are James Brodie and Drug Wholesale Depot. Either firm undoubtedly could serve as a so-called "Prime Vendor" for the public sector procurement program, if necessary.

3.5 CENTRAL MEDICAL STORES AND THE MANAGEMENT OF DRUGS AND SUPPLIES

3.5.1. The CMS Physical Facility

CMS is located on the grounds of BCH. It also uses two condemned buildings at Kings Park for bulk storage and junk. Considered as a whole, the current physical facilities for CMS are inadequate in capacity and are in fairly bad physical condition.

The CMS warehouse storage area is about 800 square feet; the floors and walls are cracked, and the ceiling leaks. The shelving is wooden, but adequate given the limited overall space which is available. There is one chest refrigerator which has no thermometer, but which reportedly has a tendency to freeze. CMS also has an office, a cool room (100 square feet), and a clerical/waiting area. The total area of the main CMS building is about 1600 square feet.

PAHO provided an IBM-AT computer, which is stored in the office area, but not used by CMS staff. It has only 512k RAM memory, so it cannot run large spreadsheets or use most database programs (including those used for inventory management).

In its present space, including the two extra buildings at Kings Park, CMS can store no more than five months' worth of stock. It is debatable whether even five months can be stored if a full line of needed items is in stock at any given time. This means that CMS cannot manage lead times of more than four months if even a minimal safety stock (at least one month's stock) is maintained. This requires four PAHO/FORMED orders per year; stockouts occur any time the lead time is five months or longer.

Any purchasing system that relies on shipments from vendors under contract to international agencies, such as the PAHO/FORMED Program, will struggle to achieve three- or even four-month lead times consistently. CMS must manage the procurement and distribution process more closely than currently is the case to order all items four times a year, even if these lead times can be achieved, or it must divide the items between scheduled orders. The entire procurement system would be greatly facilitated by additional CMS space.

The PAHO EDP Advisor, Turnbull, submitted a sketch of a proposed 3600-square-foot warehouse in 1987. This design could be modified, and probably should be increased to 4000 total square feet of space given increases in utilization since 1987, but it is a basically sound design for a new CMS.

The location of the CMS on the BCH grounds has led to problems with tracking stock accurately as it moves between CMS and hospital departments, and, as noted, the CMS structure is unsound and too small. Unfortunately, no financing is readily available for a new CMS facility, and it would not be worth spending much money trying to renovate any of the current CMS buildings.

There has been discussion at the MOH of moving CMS to Belmopan. However, BCH is, and will continue to be, the largest customer of CMS. Not only is the main hospital in Belize City, but so are the international airport, the seaport,

and the main highway to Mexico. It would not be cost-effective from a logistics standpoint to move goods from Belize City to Belmopan, and then bring most of them back to Belize City. In addition, the two old vehicle garages, which would be the Belmopan site, would need a lot of work before they would be suitable to store drugs for human consumption.

If a new CMS cannot be built, and space cannot be found at the new hospital, it may be preferable to consider private sector options for storing public sector drugs. The various possibilities for a solution are evaluated in the final section of this report.

3.5.2. CMS Management Systems

The distribution of pharmaceuticals and medical supplies from CMS to BCH and the districts is done through a pull system, (that is, the facilities send in requests for supplies based on local assessment of needs; these requests are then filled by CMS and usually delivered by the CMS driver.)

CMS inventory records are in two forms: the Bin Card and the Site Ledger. The Bin Card is a perpetual inventory record of each item in CMS stock. All orders, receipts, and disbursements are recorded on the Bin Card. The Site Ledger is maintained for each facility; it is a chronological record of all items shipped to the facility.

The currentness and accuracy of these records reportedly vary. At the time of this consultancy, records were within one week of current status. There have been reports that the BCH Site Ledger, in particular, is of questionable accuracy, since BCH often picks up supplies before a written order is submitted. CMS (reportedly) assumes that when discrepancies are found in stock, the item has been taken by BCH, and so writes the missing quantity on the BCH Site Ledger. Both of these practices, if true, lend themselves to possible abuse.

The Bin Card is used to forecast order quantities, and a purchase order tracking form theoretically is used to monitor the status of outstanding orders. At the time of the site visit, these tracking forms were not in use, and it was difficult to ascertain which items were actually on order, either for PAHO or non-PAHO items. The Vital, Essential, Necessary (VEN) system was originally set up to prioritize orders, but this is not used regularly.

CMS receives donations, but no records are kept of them. If they are formulary items, they are put into stock (but not on Bin Cards); if non-formulary, they are sent out to districts for use (or disposal). The design of the manual records system called for records of these donated items, but this is not followed.

Once shipments are received, port clearing is usually not problematic, taking three to four days if documents have been received. If the item is low in the CMS warehouse, it is put on the shelves; if it is a bulk item, it is taken to the Kings Park buildings for storage. It is unclear how closely CMS monitors the stock in these bulk buildings.

There is no formal system being used to monitor expiration dates or to inspect CMS inventory for junk stock. The practice is to check as requisitions are filled. This rarely applies to the inventory in buildings at Kings Park.

Product quality assurance is not formally monitored by CMS. There is no registration or enforcement agency, and no formal reporting system from pharmacists or practitioners to CMS or the MOH. Products rarely are tested. The Supplies Manager reported that the Caribbean Regional Testing Lab had not been used to check a product in six to eight months, and that there had been problems with long delays in receiving reports.

CMS has a prescribed routine for issuing supplies to facilities. Facilities submit handwritten orders on the standard form (in some cases indicating their stock on hand, but not always) according to the following monthly schedule:

First Friday--Corozal and Orange Walk Districts
Second Friday--Belmopan and Cayo Districts
Third Friday--Toledo and Stann Creek
Fourth Friday--Rural health centers

BCH is scheduled for orders every two weeks, but in practice orders at least weekly and often places multiple orders in a week. CMS notes the quantities shipped on the requisition form and returns one copy with the shipment. The requisitions are not normally priced by CMS.

When supplies of an item are low, the Supplies Manager allocates quantities below those requested by facilities, giving priority to BCH. In practice, these reductions are made routinely. Most orders reviewed showed quantity reductions (or no shipment).

The Supplies Manager said that the target service level (that is, percentage of requests filled) was 80-90 percent, and that this was largely maintained. In fact, the Supplies Manager expressed the opinion that although there were current stock problems due to delays in PAHO shipments, there were few real chronic problems with CMS service to health facilities. He said that most of the supply shortages at the district level are caused by inappropriate ordering by the pharmacists.

Visits to the BCH and three districts told another story. Corozal District reported acute shortage or stockout for 33 items, including common oral antibiotics such as tetracycline and penicillin. On their September order, they had received only 32 of 87 line items ordered (and quantities were reduced on most of the items which were received). The pharmacist reported that this was routine with the last several orders.

Orange Walk District reported many shortages, including oral tetracycline and common symptomatic medications such as cough mixture and antacid (these are compounded by the pharmacist, and the bulk supplies were out of stock). Orange Walk also reported several cases of short shipments, where the CMS invoice showed one quantity of an item, but a lesser quantity was received by the pharmacist. The pharmacist reported that complaints to CMS were not productive. CMS said

that the problems were caused when the driver left the shipment at the hospital at night when no staff were present.

Belize City Hospital was out of stock for 25 common items, including the most commonly prescribed oral antibiotic suspensions. Again, the opinion was expressed that this situation was the rule rather than the exception in recent months. Reports of frequent stockouts and long stockout durations were emphatically brought forward at the November EDP workshop by all of the district pharmacists and medical officers.

In general, the impression gained during the review of CMS systems was that stockouts are in part due to long lead times and lack of space, but that there are real problems with the CMS management of stock and information, and with communications between CMS and the facilities.

The manual stock management and information system at CMS is a well-designed system, but it is not being completely followed. Even if all procedures were carried out faithfully, it would not be easy to extract useful information to forecast order quantities, monitor shipments, or manage disbursement to facilities.

An earlier PAHO-funded study recommended that a computerized information system be installed, but it was never forthcoming. If an inventory management system were installed on the CMS computer, and personnel were trained in its effective use, CMS could have the capacity to manage stock more effectively and avoid many of the stockouts that now occur.

It is critical for CMS to improve its communications with districts. Regular reports on stock and order status would help pharmacists understand and cope with fluctuating CMS stock levels. Again, these reports are not easily prepared from a manual system, but could be automatic with a database system.

In the past, CMS reportedly visited districts quarterly to check stock, remove junk, discuss needs and stock status with pharmacists and doctors, and trade stock when overstocks were found. This practice has been discontinued, and should be reinstituted.

4.0 THE PAHO/USAID ESSENTIAL DRUGS PROJECT IN BELIZE

4.1 OVERVIEW OF THE PAHO/USAID ESSENTIAL DRUGS PROJECT (EDP)

The Belize EDP began in 1985 with a situation analysis by John Turnbull, which became the blueprint for EDP activities. The EDP was formally launched at a one-week workshop (sponsored in part by USAID) in June 1987; the proceedings were published under the title "Toward a New Drug System."

Some main features of the EDP relevant to this review are discussed in the following paragraphs.

- The PAHO/FORMED Procurement Program: The PAHO/FORMED Procurement Program is discussed in depth earlier in this report. It is worth

reiterating that this has been a very useful program for Belize, and it should not be discarded without real attempts at resuscitation from both PAHO and Belize. The problems with excessive lead times must be solved if the program is to be of long-term benefit.

- Rehabilitation of Physical Facilities: The EDP has been very active in renovating and enhancing the CMS warehouse storage capacity, as well as providing renovation at the district-level dispensaries. Equipment such as compounding machines, refrigerators, and air-conditioners (not at all locations) was provided, and shelving installed. The facilities were cleaned, so that space could be best used.

  A computer was provided at CMS, but it has been used primarily by Turnbull. Some spreadsheets were installed that could be used to analyze CMS operations, but this has not happened. Although installation of a full-fledged computerized inventory program has been discussed, this never occurred. As noted, the RAM memory on the computer is inadequate to operate a database inventory program.

- New Manual Inventory Management System: In 1985, a new manual record system was implemented, featuring Bin Cards for each item, and Site Ledgers to document distribution from CMS to facilities. The system, if maintained, is quite adequate to track stock movement. However, as with any manual system, effort is required to extract information in a useful format.

- The Belize Formulary: The EDP, and particularly Turnbull, was instrumental in helping develop and publish the Belize National Formulary. Once the MOH Formulary Committee comes up with a new formal revision, it is probable that PAHO will be able to support its publication.

- PAHO Technical Assistance: Since 1985, Turnbull has served as the PAHO Essential Drugs Advisor to Belize, and has written 12 reports documenting the evolution of the Belize EDP. These reports all are available at the Belize PAHO office, and provide great insight into the many project successes, along with the problems which remain to be solved.

- Workshops on the Essential Drugs Project: Two workshops have been held in connection with the EDP. The first, entitled "Toward a New Drug System," was sponsored by PAHO and USAID in June 1987. The proceedings include abstracts of presentations by 15 invited speakers, along with reports of working groups on formulary development, financial issues, and management issues.

  If all of the plans made at this workshop could have been fulfilled, the second workshop in November 1990 might have had a different title than a "Problem Solving Workshop." Many of the recommendations from the workshop are similar to those found here.

- Future PAHO Assistance to Belize: It is unclear what level of help PAHO can give the Belize EDP in the future, but the PAHO Washington and Regional EDP staff have said that PAHO hopes to provide continued assistance. If the USAID health financing component of the FPPM Project comes to fruition, it would be very useful if PAHO and USAID/Belize could cooperate in providing technical assistance.

  Turnbull has recommended that PAHO fund a long-term advisor to help reinvigorate the EDP and the supply system in Belize. If this can be done, the USAID project should attempt to work with that advisor in implementing improved supply management systems. If only intermittent technical assistance is possible from PAHO, there still can be overlap and cooperation with USAID-provided assistance.

5.0 RECOMMENDATIONS AND CONCLUSION

The following recommendations are made based on the information provided in this report.

Recommendation 1: Revise Chemists and Druggists Act and Duty Schedules

The Chemists and Druggists Act should be revised to reflect changes in pharmacy practice in the last 35 years. A formal mechanism for monitoring and registering pharmaceutical imports should be included, along with provisions relating to required records, dispensing requirements, prescription versus non-prescription drugs, generic substitution, etc. Both PAHO and USAID/Belize may be able to provide resource material to help with format and language. In addition, the list of drugs in the acts relating to duties and exemptions should be updated to reflect current practices. Once the acts have been revised, they should be enforced.

Recommendation 2: Review and Use Forecast and Budget Worksheets

The most recent updates to the spreadsheets are included in Appendix 7 of this report. The spreadsheets included are:

- **Forecasts and Budget Requirements for BCH and District Hospitals** (sorted alphabetically by class and through ABC analysis, with consultant's suggested reductions in forecast quantities)

- **Comparison of BCH Drug Forecasts with Actual CMS Issues to BCH**, which can be used to check validity of BCH forecasts

- **Comparison of District and Facility Forecasts** with stock on hand against CMS projections from July 1990, which can be used as a rough reality check of district forecasts, but CMS projections should be interpreted cautiously.

Since the total forecast budget requirement after the first phase of reductions by the pharmacists is still over BLZ $6.5 million, the consultant has now taken a preliminary pass at smoothing the forecasts. The basic methodology was as follows:

1. When one district forecast was much higher than others, reduce it to the next highest forecast.

2. For most items, particularly supplies, it was assumed that no district would need more of an item than BCH, so forecasts were reduced to BCH levels.

3. Districts were very roughly weighted on the basis of known (or presumed) comparative prescription load.

The total requirement, if these suggestions were accepted, would be about BLZ $4.5 million. It is recognized that the districts are, in some cases, starting with empty cupboards for many items and that forecasts would be reduced naturally in subsequent years once the supply pipeline is full. Even so, many of the forecast quantities still look much too high, particularly in the medical supplies category.

Due to pressure for a budget figure to send to Cabinet, Arthurs has submitted an estimate of BLZ $4,000,000 to the MOH, for an opening budget submission. Based on past years' experience, it is unlikely that this level of funding will be granted, unless the MOH can fully document need. The spreadsheets supplied will help to document needs, but it must be emphasized that they need further review and reduction in many of the forecast quantities, if they are to have the necessary validity to be used in budget negotiations.

It will be difficult to reduce the projection below BLZ $4,000,000 without holding further individual discussions with district and hospital pharmacists, and with those responsible for estimation of medical supply quantities. It is possible that this can be facilitated by the PAHO consultant if a visit occurs in March, otherwise the MOH will need to take this responsibility. It is suggested that the MOH use comparative patient visit and prescription data to help in these discussions.

A copy of the budget spreadsheet file has been sent to the MOH and to Turnbull. To allow use of the spreadsheet on computers with little memory, it has been divided into one spreadsheet for drugs and one for medical supplies.

There is the alternative of arbitrarily slashing projections by a set percentage to reach target levels. This is not recommended, because it would defeat the purpose of participatory budget development. It would be much better if MOH staff work with hospital and health center staff to review these forecasts together and bring them down to realistic figures.

Recommendation 3: Increase Available Resources

The budget for drugs and supplies should be increased above the 1990-91 levels. Given the routine occurrence of overruns, it would seem reasonable to do this even if the MOH could not document actual requirements.

It will be impossible to estimate precisely how much of an increase in the current drug and supply budget is needed until the current forecast and quantification exercise has been completed, including further discussion and revision of forecast quantities.

It is expected that the MOH could provide necessary drugs and supplies with a budget somewhere between BLZ $3-4 million. This level of funding will still only provide a full supply pipeline if the budget is properly managed and if procurement and distribution systems are improved substantially. The prices on the budget projection spreadsheet assume that purchases will be made at the best possible price.

It must be noted that more effective procurement is unlikely to reduce budget needs below current projections. It will, however, allow the system to avoid the frequent stockouts that now occur.

Recommendation 4: Provide Budget Authority to MOH

Assuming that the MOH will continue to be responsible for routine procurement of consumables, it is recommended that more responsibility for managing the budget be given to the MOH. If at all possible, the MOH should have access to the entire budgeted amount at the beginning of the financial year, so that favorable purchasing agreements can be negotiated and commitments fulfilled. If this is not possible, six months' allocation should be released on a semi-annual basis.

Once budgets are increased to realistic levels, and allocations are available on an annual or semi-annual basis, the MOH should then be held to budgeted amounts. If the budget is running dry, the MOH should be required to document reasons for the excess and get Cabinet approval to commit further funds.

A related issue is access to foreign exchange. If the MOH does not have foreign exchange to purchase at international prices, it can be expected that local procurement will continue from vendors who charge high prices but who will accept payment in Belize currency. It is recommended that the MOH be given a foreign exchange allocation, based on its budget for drug and supply procurement, and that the allocation be available on the same suggested annual or semi-annual basis.

If it is determined at any point that the current PAHO/FORMED revolving drug fund will not be continued, it is recommended that a replacement revolving fund be set up through the MOF or the Belize Central Bank to ensure that funds are always available for essential medicines and supplies. This would be an appropriate vehicle for managing foreign exchange allocations.

Even if the PAHO/FORMED program continues, it would be useful to establish a second revolving fund to deal with non-PAHO purchases. The revolving fund issue will be considered more fully in a separate consultancy looking at the many aspects of cost recovery.

Cost recovery through charges for drugs and supplies could supplement the MOH budget, and perhaps reduce the gap between demand and supply. Experience suggests that this would only be useful if a method is in place to retain the recovered funds and reserve them for replenishment of supplies. These issues are further explored in the HFS companion report on cost recovery.

Recommendation 5: Improve the PAHO/FORMED Procurement Program

To ensure that the PAHO/FORMED procurement program can return to its early successes and provide good service to Belize, the following changes are suggested:

1. Reduced lead times (i.e., three to four months) are essential.

2. Regular monthly statements of account must be provided.

3. PAHO must provide notification of order sources and quantities, ideally, a duplicate copy of the original order, showing the source, price, and expected delivery date for each item. This should be provided to the CMS as soon as the tender has been adjudicated.

4. Communication should occur directly between the PAHO procurement agency and CMS, with copies sent to the local PAHO office, rather than filtering all documents through the local office.

All of these suggestions should be easily manageable, except perhaps the lead times, given the rather circuitous PAHO tendering process. However, PAHO has said that they can routinely deliver in three to four months.

If the improved services are forthcoming, it is recommended that Belize continue with the PAHO/FORMED program. The PAHO system provides one great advantage in that the revolving fund ensures at least a reasonable amount of foreign exchange, if the regular monthly US$25,000 payments are made into the fund by the MOH.

As documented on the MSH 1990 International Price List, PAHO prices are comparable to those of other international procurement agencies. Belize could obtain equivalent prices on the international market (and, in so doing, save the PAHO three percent handling charge), but with a full-scale tendering program for the MOH, and without the PAHO/FORMED revolving fund, there would be the real risk of foreign exchange shortages at inopportune times.

Recommendation 6: Limit Local Procurement of Drugs and Supplies and Use Tender System

Based on the extreme price differences for the same items between PAHO and local vendors, these items should rarely be ordered outside the PAHO system. If acute shortage makes a local order for a PAHO item necessary, the MOH Procurement Committee should conduct a mini-tender for the item among local and regional suppliers.

For example, if ampicillin capsules are in danger of stockout, obtain prices and lead times from all local importers, and from Apotex and Novopharm in Canada. It is often possible to buy the items directly from Canada (or the U.S. or Europe) quickly, at a competitive price.

Obviously, if the price is higher than PAHO's, the order quantity should be limited to cover only the time remaining until expected receipt of the next PAHO order. If the item is not on a current PAHO order, an order should be placed with PAHO simultaneously.

For non-PAHO items, the committee should ideally conduct annual tenders, estimating annual requirements and requesting a year's contract price (where feasible), and comparing prices and lead times from all local and regional vendors, as described above. These tenders can be readily managed if a computerized information system is installed in CMS (as described below).

An alternative to local mini-tenders for non-PAHO items is a modified international tender as described in the next section of the report, using local private sector agents as intermediaries. It would be useful to investigate comparative costs with the two options for a sample range of items.

Recommendation 7: Consider Alternatives to the PAHO/FORMED Procurement System

If PAHO can solve current logistics problems, and if the MOH can maintain revolving fund payments, the FORMED system, supplemented by local competitive tenders, can return to its former level of success. In many respects, this is the best choice, and a big advantage is that the system is in place. Every effort should be made to resolve current problems on both sides of the system.

If, however, the problems with the PAHO/FORMED program cannot be solved, there are several potentially viable alternatives for MOH procurement. The tendering components of any of these methods could be managed from either the MOH or the MOF.

The following paragraphs discuss five procurement options which could be considered if the PAHO system fails or is discontinued. They could also be considered for procurement of non-PAHO items. The options are listed in descending order of suggested preference, followed by a discussion of local private sector firms which might be interested in participating in an alternative procurement scheme.

1. A modified international tender, soliciting quotations from international, regional, and local vendors, with the condition that

all items must be stocked and delivered through a local wholesaler. This would reduce the need for more space at CMS, since the local agent would be responsible for stocking a three- to four-month supply of the drug at all times. The local agents could ship to CMS or could even ship directly to facilities. Some vendors might need encouragement and assistance to get a local agent relationship.

The local agent could be compensated either through his negotiations with the principal supplier (fee as part of the contract price) or with a standard fee paid to all agents by the government, in addition to the contract price, which was negotiated with the principal.

This method might yield acceptable prices (though higher than the direct shipment tender). A potential disadvantage is that one

category of low cost-supplier--the international procurement agents--may not be able to work with a local agent requirement.

This system could potentially offer better service than the current system, assuming the local agents will fulfill their contractual responsibility. If the CMS space problem becomes intolerable, this system could easily operate without a public sector CMS. It is possible that local agents would accept payment in Belize dollars, depending upon their need for foreign exchange.

2. The <u>prime vendor</u> is a system popular with U.S. purchasing groups. It can operate in different ways, but this is common: the purchaser manages a competitive tender, negotiating with international suppliers, and negotiates separately with a local wholesaler to stock and distribute all of the items in exchange for a flat percentage fee (usually about five percent in the U.S., but probably higher in Belize).

   This system may be somewhat more costly than the first alternative, but if properly managed, it can eliminate the need for a central warehouse, since the prime vendor is responsible for all procurement, storage, and delivery directly to health facilities. One disadvantage is that the health system is totally dependent on the performance of one supplier.

3. A <u>standard international tender</u> could be used by the MOH, for all items used in sufficient quantities, with delivery directly to the CMS based on orders three to four times per year. Some vendors might choose to tender and supply through local wholesalers, but no additional fee would be paid by GOB to the local agent. Those items which are used in relatively low quantities would be purchased through local tenders. Prices would be negotiated for a one- or two-year period, with orders placed at least three to four times yearly, due to space limitations at CMS.

This is essentially the system in place in the Eastern Caribbean. It probably would produce the best prices, perhaps lower than current PAHO prices, but it could only survive if a continuous and guaranteed supply of foreign exchange were on hand to pay the vendors quickly and surely. It would also be essential to choose vendors with comparatively short lead times, not necessarily the low bidder, and to closely manage the system.

4. Variants of tender/prime vendor systems bypass international tenders and deal directly with local suppliers. One would be a local competitive tender dealing only with local suppliers. The prices would almost certainly not be as good as any of the above systems, but a mock tender conducted by CMS in 1988 (with PAHO assistance) indicated that the local vendors would compete for the government business.
   A variant on the prime vendor is bypassing international suppliers and negotiating directly with local wholesalers, selecting one to provide all items to CMS (or directly to the facilities). This would be more costly than a prime vendor/international tender combination, but it would be simple to manage.

5. Another option is direct private sector service, in which all drugs and supplies are provided directly to government patients by the private sector vendor or vendors. The government negotiates only with competitive private sector providers. The successful bidder is responsible for purchasing and distributing stock, and provides dispensing services in addition to warehousing. The payment is usually on a per capita or a fee-for-service basis. The cost of drugs and supplies is often higher with these systems, but personnel and overhead costs are reduced or eliminated (which has advantages and disadvantages in a civil service system). Given the commitment by the MOH to public sector services, this is the least viable option at this time.

As mentioned above, if the GOB needs to move away from the PAHO/FORMED system, or if it becomes clear that adequate space for CMS cannot be obtained, it is recommended that Options 1 and 2 be investigated for comparative advantages in Belize.

Option 1 has the advantage of involving more firms in the process and reducing the risk of default by a single supplier, but it is a more complicated management process (although well within the capability of the MOH, given good personnel and a better management information system). It may be desirable for the MOH to obtain technical assistance from either USAID/Belize or PAHO to help evaluate the options and implement new systems.

There are at least five local wholesale suppliers interested in providing service to the MOH, and who have a reasonable capacity to warehouse and deliver items for the MOH: Drug Wholesale Depot, Discount Drugs, Farm-I-Ceuticals, James Brodie, and Trade Belize.

Recommendation 8: **Use Ministry of Health for Direct Procurement**

In November 1990, there were suggestions that the MOF would take over direct procurement of drugs and medical supplies. This is not recommended, mainly because of the need for technical involvement in procurement decisions for these items (but also because simply moving the system to another ministry would not solve the basic problems).

As noted in the body of the report, it was also rumored that the MOF would order drugs and supplies exclusively from Crown Agents. This is not recommended, based on recent experiences of the Eastern Caribbean Drug Service (ECDS) in St. Lucia.

A letter from the ECDS assistant director, appended to this report (see Appendix 6), documents the service problems which ECDS has had with Crown Agents, including many partial shipments and unacceptably long lead times (routinely at least six months and, on occasion, as much as nine months). This has occurred in spite of assurances from Crown Agents that their lead times would be 45-90 days.

It is recommended that the MOF be represented on the MOH Procurement Committee, and it is reasonable that the MOF approve contracts that result in financial commitments (such as tenders and resulting purchase agreements). If the MOF does eventually take over procurement for the MOH, it will be essential that the MOH Procurement Committee have a deciding voice in procurement decisions.

Recommendation 9: **Improve Maintenance of the Belize National Formulary**

The recent PAHO-sponsored workshop on the Belize EDP made useful suggestions to reconstitute the Formulary Committee. These suggestions should be considered quickly, and a new, more active Formulary Committee should be formed.

As noted, the district forecasting process has produced a list of recommended additions to the Belize National Formulary. This list is found in Appendix 8. Additionally, CMS can provide the committee with a list of items which are regularly purchased, but are not on the formulary. The Formulary Committee should consider these two lists of possible formulary additions, and, considering the cost as well as therapeutic implications, revise the National Formulary as soon as possible. In most cases, when a new drug is added to the list, an old drug should be considered for deletion. Once the revision is completed, a new manual could be published, possibly with PAHO or USAID assistance.

Recommendation 10: **Improve and Increase CMS Space**

All observers agree that a new CMS location with more space is needed if the procurement system is to rely on CMS-based storage (rather than contracting to the private sector for the service).

The two problems are location and financing. There has been talk of moving the warehouse to Belmopan, but this would be logistically inefficient. In addition, if the supplies for BCH are separated at the port, before delivery to CMS, the recordkeeping and tracking systems become complicated, and there is a greater potential for leakage.

It is not apparent that the climate is much drier or cooler in Belmopan, so the demand for climate control would be similar. From a logistics standpoint, it would be preferable to build a new warehouse in the Belize area, perhaps in the space now occupied by the two obsolete buildings used for CMS bulk stock. Although there is the potential for flooding at that site, the new building could be raised two or three feet. This should solve the problem, barring a major hurricane. It seems advisable to separate the CMS from BCH, to allow better stock control in both facilities, but the separation need not be great in terms of distance.

A CMS of approximately 4,000 square feet is needed. Assuming that a block warehouse, properly constructed, can be built for US$50 per square foot, this would demand approximately US$200,000 for construction, plus shelving and equipment costs, which might total another US$50,000.

As noted, Turnbull, the PAHO consultant, previously submitted a sketch for a 3,600-square-foot CMS. Turnbull has resubmitted his proposal in the hope that it might attract funding at an upcoming gathering of donors. He expects that total cost of the building, including equipment, would be about US$400,000. It is possible that his higher estimate of construction cost is more realistic in Belize, given his extensive experience.

In either case, a substantial amount of capital is needed to finance a new CMS. If this latest proposal does not succeed, it is unclear where or when donor money will be located to fund a CMS.

It seems at least possible that a simple concrete building of 3,500-4,000 square feet could be built for much less than US$250,000, if the GOB were interested and promoted the idea. It is also possible that the GOB could locate the necessary funds locally to build a new CMS if it is decided no donor can be found, assuming it is a high enough priority.

Other options are possible in Belize City, as listed below:

1. The new BCH: In the latest plan for the new hospital (the Fabricam International design), there is an area designated for Material Management. This space of 466 square meters (more than 4,000 square feet) seems a bit large for the hospital supply department, but might be suitable for CMS use. This would leave the problem of separation of CMS and BCH unsolved, but better management and information systems would likely prevent most of the discrepancies.

2. The private sector: If funding for a new facility does not look possible at all, and space at the new BCH cannot be allocated to CMS, the arguments for a revised procurement strategy using private

sector storage capacity become stronger. In this case, the MOH is advised to consider the procurement options listed above.

3. The old BCH building: Once the new hospital is built, it is possible that additional space for CMS could be found in the current hospital building. Given the dilapidated state of the facility, this seems like a last resort, and probably more expensive than new construction if the warehouse is to be made structurally sound. The flooding risk in that location is clear.

Recommendation 11: Improve Central Medical Stores Management Information Systems

The manual information system installed at CMS by PAHO can be used to track inventory flow if it is properly maintained. It is difficult, however, to pull information out of the records. This becomes a real problem when attempting to order each of several hundred items four times a year (or more), and makes it unlikely that reports will be regularly prepared.

A computerized inventory system has been recommended previously by both PAHO and independent consultants, and PAHO has installed a computer at CMS. Unfortunately, a database inventory system was never developed, and the system of spreadsheets has never been used by CMS staff. Also, the computer has only 512K of RAM memory, which is inadequate for modern inventory programs.

It is recommended that a database system be implemented at CMS, and that the computer memory be upgraded to 640K (a cost of about US$400). This sort of system would allow the CMS manager to quickly determine order requirements, while maintaining perpetual inventory records and offering the ability to track and report on order status, usage, inventory flow, and financial status.

A database inventory system (called INVEC) was developed for the Eastern Caribbean Regional Pharmaceuticals Management Project; this system would be suitable for use in Belize with only minor modifications. It provides perpetual inventory, purchase order and requisition management, and automatic monthly, semi-annual, and annual reports. It also would use pre-printed order forms for districts and hospitals, and provide these facilities with feedback on the cost of each item and requisition.

A related program used in the Eastern Caribbean manages the tendering and procurement process. This program (ECPRO) would also be useful in Belize, either at CMS or in the office responsible for managing tenders. If this is done at both CMS and the MOF, a separate program could be installed in both locations.

The MOH has received copies of the user manuals that describe the recommended programs. Both of these programs can be installed in Belize at relatively low cost, once the computer memory is upgraded. There is no charge for the programs, and it is possible that technical assistance could be provided for modification and training.

These programs are written in Clipper, using D-BASE files, for ease of maintenance. There are at least three local computer firms who may be able to

provide maintenance for the programs; Mrs. Myrtle Palacios at Glessima Computers does D-BASE programming and is interested in learning about the recommended software. If more expert program repair is needed, it can be done by modem and exchange of diskettes.

Recommendation 12: Undertake Efforts to Ensure Product Quality

CMS needs to develop an appropriate quality assurance program for products purchased locally and internationally. The Caribbean Regional Drug Testing Laboratory (CRDTL) has provided good service to the Eastern Caribbean Drug Service. CMS should consider testing new and suspect products at the CRDTL, since Belize is eligible to use the service as a member of CARICOM. The Social Security Laboratory in Costa Rica can be used to test vaccines and other biologicals.

The MOH should implement a product quality surveillance system, using simple reporting forms. The forms could be provided through technical assistance from either USAID/Belize or PAHO.

Recommendation 13: Train and Orient the New CMS Manager

Management improvements are needed at CMS, as documented above. A new Supplies Manager will soon be appointed, and it will be essential that the new manager be thoroughly trained before assuming full responsibility. It is recommended that once a new manager is appointed, he or she be provided with external training in supply management as soon as possible. If a computer system is to be installed at CMS, it is recommended that the CMS manager also be trained in managing information with computerized systems.

One option that would satisfy both needs is the eight-week MSH training programs which begin March 18, 1991 in Boston. Course brochures were provided to the MOH. Alternative supply management courses are held periodically in Jamaica and Colombia. USAID/Belize and the PAHO office may be able to suggest courses available soon. At least one local training course in computer use is offered in Belize, by Glessima Computers, and there may well be others.

Whatever the location, a training course, if well done, will provide the knowledge needed to manage the CMS and will also instill self confidence in the new manager. It is uncertain how this training would be funded. However, it is possible that this could be supported by USAID/Belize or PAHO.

Recommendation 14: Provide Technical Assistance to CMS and the Supplies Manager

When the new Supplies Manager is appointed, it will be crucial that technical assistance be provided during the first year, particularly if new procurement and information systems are introduced. It is also recommended that training be provided to hospital and district personnel who are involved in supply management, either at their site or at a one-week seminar, which was included in the original project design submission.

A proposal has gone to PAHO to place a long-term advisor in Belize for a period of one to two years. It is very uncertain whether this can be funded, but PAHO will probably continue to provide at least intermittent technical assistance.

Working together, USAID/Belize and PAHO could provide more frequent and more valuable help during the next two years than would be likely with separate efforts. If a PAHO long-term position is eventually funded, cooperation should still be pursued. If such a joint program were to be successful, it would be essential that the two organizations work closely together and that they agree on the program to be followed. If Turnbull is the PAHO advisor, cooperation would definitely be feasible.

Assuming that the Supplies Manager will receive external training, and that a new computer management information system (MIS) will be installed at CMS, the following schedule is suggested:

<u>1991</u>	
March - April	External training for Supplies Manager
April - May	USAID Advisor (six weeks) and computer expert (two weeks) install new computer programs and work with Supplies Manager at CMS. Training program for hospital and district staff.
June	PAHO Advisor works with Supplies Manager (overlap with USAID Advisor - one week)
July	USAID Advisor works with Supplies Manager and maintains computer programs as needed
August	PAHO Advisor at CMS
September	USAID Advisor at CMS
October	PAHO Advisor at CMS
<u>1992</u>	
January	USAID Advisor at CMS
April	PAHO Advisor at CMS
July	USAID Advisor at CMS
October	PAHO Advisor at CMS

This schedule would provide adequate support to the new Supplies Manager and would ensure that new systems are installed and all personnel are trained in their use. If the long-term PAHO advisor position is finally approved, the need for USAID technical assistance can be reduced to one or two visits per year throughout.

APPENDIX 1: SCOPE OF WORK

Procurement of Supplies and Pharmaceuticals

A long-term objective under Project -0045 will be the revision and streamlining of regulations and procedures relative to the procurement and distribution of MOH supplies, as it is commonly recognized that the present system is inefficient and, consequently, not cost effective. To lay the groundwork for this objective, HFS will provide a health planner with extensive experience in procurement systems for a period of four weeks to review and analyze the current procurement practices for supplies and, most importantly, pharmaceuticals. This review will include a description of the procurement process, weak links, areas of inefficiency and potential abuse, and recommendations for short- and long-term action.

APPENDIX 2: SUMMARY OF POSITIONS RELEVANT TO DRUG SUPPLY SYSTEM IN BELIZE

Ministry of Health

Minister of Health - Dr. Theodore Aranda
Permanent Secretary - Mr. Fred Smith
Director of Health Services - Dr. Gregorio Pott
Director of Primary Care - Dr. Kurella Rao
Finance Officer - Mr. Edward Smith

Ministry of Finance

Minister of State for Finance - Mr. Raoul Fonseca
Permanent Secretary - Mr. Keith Arnold
Procurement Officer - Mr. Maxwell Samuels

Belize City Hospital

Hospital Administrator - Mr. Wayne Usher
Accountant - Mrs. Belial
Chief Pharmacist - Mr. Kenneth Arthurs
Pharmacy Tutor - Mr. Jonathan Dartnell (VSO)

Central Medical Stores

Supplies Officer - Mr. Kenneth Arthurs (Acting)
Pharmaceuticals Storekeeper - Mr. Victor Miguel
Supplies Storekeeper - Mr. Gilbert Palacio

District Hospitals and Health Centers

District	Medical Officer	Pharmacist
Corozal	Baldomino Barboza	Alberto Paquil
Orange Walk	Victor Lizarraga	Noreen Kerr
Cayo	Armando Bethancourt	Ruth Galvez
Stann Creek	M. Kishore	Jeffrey Zuniga
Toledo	B. Raju	Pamela Genus
Belmopan	Victoriano Valdez	Sidney Codd

Belize City Health Centers

Health Center	Medical Officer	Pharmacist
Cleopatra White	David Heredia	Maggie Williams
Matron Roberts	Michael Pitts	Anna Coye

APPENDIX 3: PROCEEDINGS OF THE BELIZE ESSENTIAL DRUGS PROBLEM SOLVING WORKSHOP

BELIZE
ESSENTIAL DRUGS: PROBLEM SOLVING WORKSHOP

Ministry of Health
with PAHO/WHO
Belize City
November, 1990

SUMMARY OF PROCEEDINGS
OF
AN INTERPROFESSIONAL SEMINAR/WORKSHOP

"BELIZE ESSENTIAL DRUGS SYSTEM: SOLVING PROBLEMS AND CONSTRAINTS"

NOVEMBER 15 - 16, 1990

BELIZE CITY, BELIZE, C.A.

****

The Belize Office of the Pan American Health Organization (PAHO/WHO) is pleased to present this Summary of Proceedings of the Seminar/Workshop "The Belize Essential Drug System: Solving Problems and Constraints" convened November 15-16, 1990, in the Chateau Caribbean Hotel, Belize City, Belize, Central America.

This interprofessional participatory Workshop of the Ministry of Health was sponsored and organized by the ongoing PAHO Essential Drugs Project in Belize which began in 1985. The emphasis of the Workshop was two-fold: (a) to review the recommendations and business arising from a similar Seminar/Workshop convened June 9-12, 1987, and accomplishments to date, and (b) to give constructive consideration to current constraints and perspectives.

This publication presents abstracts of the speakers' presentations and the Reports of the Working Groups and the result of the Plenary Session.

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JCT(90-11-27)

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ACRONYMS

BCH.....Belize City Hospital

BDS.....Barbados Drug Service

BGNF.....Belize Government National Formulary

CRDRL.....Caribbean Regional Drug Testing Laboratory

C.A. .....Central America

CMS.....Central Medical Stores

DHS.....Director of Health Services

DMO.....District Medical Officer

ECDS.....Eastern Caribbean Drug Service

FORMED.....Fondo Rotario de Medicamentos Esenciales

MIS.....Management Information System

MOF.....Ministry of Finance

MOH.....Ministry of Health

MSH.....Management Sciences for Health, Inc.

NGO.....Non-Governmental Organization

OECS.....Organization of Eastern Caribbean States

PAHO.....Pan American Health Organization

PHC.....Primary Health Care

RDF.....Revolving Drug Fund

USAID.....U.S. Agency for International Development

VEN.....drugs classified as Vital-Essential-Necessary

WHO.....World Health Organization

AGENDA of SEMINAR/WORKSHOP

"BELIZE ESSENTIAL DRUGS SYSTEM: SOLVING PROBLEMS AND CONSTRAINTS"

****

CHATEAU CARIBBEAN HOTEL, BELIZE CITY

NOVEMBER 15 - 16, 1990

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Thursday, November 15

Morning Session--Chairman: Dr. Kurella Rao

0915hrs - Registration

0945hrs - Call to Order
-- National Anthem
-- Prayers

1000hrs - Welcoming Remarks from DHS: Dr. G. Pott

1010hrs - Greetings from PAHO: Dr. C. Hermida

1020hrs - Feature Address: Hon. Dr. T. Aranda, Minister of Health

1100hrs - Coffee Break

1120hrs - Assignments to Working Groups (& Chairmen & Reporters)
(A) Drug Selection, Formulary, and Rational Use
(B) Financial Issues of Essential Drugs System
(C) Procurement and Distribution Systems

Chairman's Introduction of Seminar Speakers
(Discussion period follows each speaker)

1130hrs -"Belize E.D. Project: Background Paper": John Turnbull
---includes Case Study re ECDS: Jim Rankin

1215hrs -"The Sub-Regional C.A.Project": Kees de Joncheere

1230hrs - Lunch

----cont'd.....

Afternoon Session -- Chairman: Mr. Wayne Usher
(Discussion period follows each Speaker)

1330hrs -Call to Order

1335hrs -"Formulary & its On-going Management": Dr. Eugenio Morice

1425hrs - Open Discussion: (a)Problems and Constraints
'til and
1700hrs - (b)Projections..Short & Long Range

Evening: 2000hrs-- Reception with Private Sector

****

Friday, November 16, 1990

Morning Session-- Chairman: Mr. Raymond Lashley

0830hrs -Call to Order & Opening Remarks

0835hrs -"Rational Prescribing & Use": Dr. Eugenio Morice

0910hrs -"New BCH Ward Drug Services": K. Arthurs & J. Dartnell

0945hrs -"Financial Issues of a Drug Service": Mr. Edward Smith

1045hrs -Working Groups' Discussions

1215hrs -Lunch

Afternoon Session:--Chairman: Dr. Kurella Rao

1330hrs -Working Goups continue

1515hrs -Presentation of Reports of Workshop Groups:
(A) Drug Selection, Formulary, and Rational Use
(B) Financial Issues of Essential Drugs System
(C) Procurement and Distribution Systems
--and Plenary discussion of Reports as a whole

1645hrs - Naming of Action Committees:
-- Drugs Project Committee
-- Formulary Committee

1700hrs -Chairman's Sum-up

1730hrs -Closing Remarks
-Adjournment

****

INTRODUCTION OF INVITED SPEAKERS

(in the order of their appearance on the Seminar program)

JOHN TURNBULL is a Canadian administrative pharmacist who has specialized in pharmaceutical logistics and drug services programs in several countries but particularly in the Caribbean Region. He was founding Director of the Barbados Drug Service and later was involved in the organizational work of the Eastern Caribbean Drug Service. As a parttime PAHO/WHO Consultant, he has worked with the Belize project since mid-1985.

JIM RANKIN is Director of the Drug Management Group of MSH in Boston. He has an extensive background in drug and medical supply and procurement. Most recently, he was a member of the Technical Assistance team working with the ECDS which is headquartered in St. Lucia. He is currently in Belize as part of an USAID Project Team formulating possible assistance plans respecting health care services.

KEES DE JONCHEERE, a Dutch pharmacist, has worked with PAHO/WHO in Central America for over five years respecting Essential Drugs Services. He is Subregional Drug Advisor presently headquartered in Costa Rica. In that capacity, he has visited and assisted the Belize project particularly in relation to its BCH Pharmacy program.

EUGENIO MORICE comes to the Belize Worshop from the Ministry of Health of Costa Rica where he is Director of Essential Drugs Services. A physician clinical pharmacologist, he counts several African and Central American countries among those he has assisted under USAID and World Bank as well as PAHO/WHO auspices.

KENNETH ARTHURS and JONATHAN DARTNELL team-up to inform the Seminar about a new program developing in BCH's Pharmacy Department to assist the wards with their drug control and better drug therapy.

Mr. Arthurs is Chief Pharmacist. Mr. Dartnell is an Australian pharmacist, in Belize under Britian's Volunteer Services Overseas program. He is Pharmacy Tutor in the University College of Belize's Health Sciences Course.

EDWARD SMITH is finance Officer of the Ministry of Health with offices in Belmopan. He is new in the job, having been transferred from another Ministry but he is vigorously attacking that important end of our problems and constraints. The Seminar will listen to his words attentively!

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----cont'd.....

"BELIZE ESSENTIAL DRUGS SYSTEM: SOLVING PROBLEMS AND CONSTRAINTS"

ABSTRACTS OF SPEAKER PRESENTATIONS

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WELCOMING REMARKS FROM DIRECTOR OF HERALTH SERVICES

(Dr. Gregorio Pott)

"These two days pf lectures and discussion should focus on what should be done; and what is, in fact, being done concerning the procurement, distribution and rational utilization of pharmaceuticals in the Ministry of Health. Because of the presence of a wide cross section of Ministry of Health personnel and a key representative of the Ministry of Finance, we should be able to discuss and understand the difficulties that we experience and come up with viable proposals to correct or overcome the difficulties. May I suggest that several alternatives be put forth for each problem area so that the working document that is produced from this Workshop will not be too rigid and inflexible.

My hope is that we shall have a useful two days of a meeting of minds to produce and not just criticize."

****

"GREETINGS FROM PAHO-BELIZE"

(Dr. Cesar Hermida)

I am pleased to extend to you the greetings of the Pan American Health Organization and in particular my personal wishes from its Belize Office that you will enjoy a productive problem-solving meeting. This is important to all of us --- you who have the responsibility of constructive involvement in the day-to-day health care of Belizeans and we in PAHO who have the privilege of assisting you in these programmes.

As you know, the present PAHO Essential Drugs Project began in Belize as part of a larger regional project a few years ago. Over the years, much progress has been made but there is still much that can be done to better the way in which drug services are available to the public. The work continues and I am sure that the Consultants and my office will benefit from the information and knowledge coming from your discussions at this Workshop.

PAHO is pleased to provide sponsorship of these important two days. I wish you success.

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---cont'd....

FEATURE ADDRESS
by
HONOURABLE THEODORE ARANDA, PhD, MINISTER OF HEALTH

The Honourable Dr. Theodore Aranda, Minister of Health, presented the feature address at the opening of the Seminar/Workshop on Thursday morning, November 15.

He said it was "very satisfying to see the many representatives of the health care profesionals coming together to find solutions to problems which weigh heavily upon all of us. This Workshop s very timely as it will, in accordance with its agenda, discuss current constraints andseek to improve and correct and surmount shortages besetting the drug supply system".

He felt that the problem may be "less than that of quantitative shortage than it is of maldistribution and internal situations that demand corrective measures". Too, he spoke of a "'Revolving Deficit' situation with carry-overs in financing which destroys national planning. But, regardless of the history of the problem, it must be corrected. Hence, while having certain awareness of the on-going PAHO support given to drug management enhancement and the specific consultancies over the past five years, the Ministry of Health has entered into a bilateral agreement under which USAID is conducting research studies respecting the provision of health care generally and pharmaceuticals in particular."

"To some", he continued, "it appears that the Ministry utilizes an excessive amount of finances on drugs while fallinf short of providing basic pharmaceutical needs. Public confidence diminishes and mistrust of the calibre of all services creeps in. People travel from Belize to seek health care --- for example, Belizeans represent 18,000 visits to one hospital in Mexico; and approximately $4 million per year is spent for such services and those of hotels and dining places. Correction of all this requires a lot of 'political will' (not just that of governments but also on the part of individual citizens) to not tolerate a lack of medicines, of vaccines, of hospital supplies and the like which can areate life-threatening situations".

"Belize has the resources and capability to answer the sources of current constraints", the Minister emphasized. "It must serve preventative as well as curative needs and in drug supply put an end to crisis purchasing which is excessively costly in terms of health treatment and dollars".

At the conclusion of his address, Dr. Aranda entered into open discussion with the Seminar attendees. He returned for the afternoon Session and through active participation brought considerable information and established a background understanding by the Assembly as a whole before it broke into its three Working Groups the following day.

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----cont'd.....

"THE BELIZE ESSENTIAL DRUGS PROJECT: A BACKGROUND REVIEW PAPER"

(John C. Turnbull)

This paper follows-on from the 1987 Interdisciplinary Participatory Seminar/Workshop, "Toward a New Drug System in Belize". It updates the topics of that Seminar and reviews the Belize undertaking by briefly discussing in five 'chapters':

1-- the PAHO regional project,
2-- WHO Essential Drugs activities,
3-- general aspects of local Drug Supply Management,
4-- abbreviated Case Studies of the Barbados Drug Sevice and of the Eastern Caribbean Drug Service
5-- the Belize Essential Drugs Project

For some, it represents a refresher paper while providing a background review for others.

[Note:-For this publication, the first four chapters are abstracted but Chapter 5 is presented in full inasmuch as the Chairman specifically referred it for study by the Working Groups (each participant was provided with a copy of the Paper which is available from the PAHO-Belize Office)]

Chapter 1--REGIONALLY, the program, "Priority Health Needs for Central America and Panama", was launched in 1985 by the Central American countries co-ordinated by PAHO/WHO. It was an integrated plan responding to the wishes stated earlier by the governments of the region. Seven priority projects were established, one of which the Essential Drugs Project with major support from the USAID and, later, the financial participation of several countries including The Netherlands, France, Norway, Sweden and others.

Chapter 2-- GLOBALLY, the World Health Organization (WHO), created in 1946 and headquartered in Geneva, established six regional offices ....one being the Pan American Health Organization (PAHO) which had been serving the Americas since 1902 as the International Sanitary Bureau mainly respecting health matters that affected international trade.

WHO's activities respecting drugs concentrated on technical and scientific aspects of drugs in the 1950's and 1960's ...the golden period of research, development and marketting of new and more powerful drugs. Then, beginning in the 1970's, focus changed to the socio-economic aspects as governments felt the pressure of increased expenditure on drugs. Thus, price, quality and availability of pharmaceuticals became major issues.

In 1977, WHO published its first Model List of basic pharmaceuticals which should be available at all times to meet the needs of a

---cont'd....

majority of a country's population. The most recent list is the Sixth Revision published 1989 in WHO's Drug Information Bulletin.

Then, in 1981, WHO established its Action Programme on Essential Drugs to strengthen all aspects of pharmaceutical activity. A particular aim was to develop national drug policies.

To succeed, a nation's drug policy requires a critical mass of motivated, well-informed and educated persons serving professionally. A Revised Strategy, arising from the 1986 Nairobi Conference of Experts on the Rational Use of Drugs, delineates the responsibilities of governments, of the industry, of prescribers, teaching institutions, consumers and the mass media.

At the local level, in all countries, including Belize, the Action Programme coupled with the revised implementation Strategy requires the mobilization of all those concerned with these issues and their willingness to work to achieve a common goal: better health for all the people ...that is, WHO's stated goal of "Health for All by the Year 2000" .

Chapter 3 -- DRUG SUPPLY MANAGEMENT, is a topic that embraces Selection, Procurement, Warehousing, Distribution and Use--all parts of the Logistics Cycle.

-- the Paper included certain explanatory diagrams and charts referenced from "Managing Drug Supply" published in English, Spanish and French by Management Sciences for Health, Boston, which made courtesy copies available.

A careful selection of efficacious pharmaceuticals economically and continuously available are vital to all levels of health care to support competent practitioners and management and operative staff. Sound logistical procedures must be involved in this, the science of procuring, maintaining, transporting and the ultimate use of supplies. Pharmaceutical logistics systems are true "systems" in that they can require the coordinated efforts of responsible Government Ministries and of the private sector. The more these units lack recognizable leadership and political will, and operate separately and disjointedly, the more costs rise, shortages become commonplace, management becomes frustrated and patients suffer. There are many potential pitfalls to be found in (1) Drug Selection, (2) Procurement, (3) Distribution, (4) Use of Pharmaceuticals.

Reflected in positive actions to surmount these pitfalls is a range of goals for programmes of pharmaceutical logistics -- all related to health, to economics, to national development.

----cont'd.....

Strong managerial intervention coupled with specific expertise is vital to successfully address the problems of availability, cost, quality, use---

This Consultant expands this to his **"5A's" (the Five Abilities) of inputs of tangibles and activities into each segment of the Logistics Cycle:**

-Acceptability
-Affordability
-Availability
-Accessability
-Accountability

with the formula for the undertaking being:

SUCCESS = POLITICAL WILL +PROFESSIONAL/MANAGERIAL INTEGRITY
(create & 'sell')+(work efficiently & effectively)

Typically, and regrettably, severe losses are experienced in the various procedures and the supply dollar is depleted by high prices, poor quality, theft, improper storage, expiries, irrational prescribing and misuse.

These are reversed by improved purchasing, quality assurance measures, security systems, better storage, inventory control, altered prescribing habits and more effective dispensing practices.

Funding of supply constitutes a universal constraint in every drug logistics system, be the country big or little, rich or poor.

An inescapable fact is that health care is not free. Someone must pay for each and every service offered. Virtually no country --no country-- is successful in providing universally free care --and everyone suffers to a greater or lesser degree. The ultimate cost of "free" drugs is scarcity, stock-outs and disillusionment with the health care program as a whole.

Ironically, people in the even poorest rural areas are found to spend their money on drugs, often the most valued health commodity. Yet, in the more populated centers, persons in every income strata "freeload" on the public system which, quite rightfully, Governments created for the purpose of providing help to those who cannot help themselves.

A realistic solution to funding lies in establishing a creative equitable partnership between Government's responsiblity to organize and regulate the availability of basic supply and the individual's responsibility to pay within his means for what is truly needed and valued.

Nations in which the consumers participate in the cost of their drug therapy are realizing successful on-going and increasingly better pharmaceutical care.

A thoughtful review of financing policies is, therefore, a prerequisite to successful intervention respecting pharmaceutical supply.

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Chapter 4---CASE STUDY #1:

THE BARBADOS DRUG SERVICE (BDS)---

The foregoing considerations --problems, situations, objectives-- were confronting Barbados when, in 1978, its new Government activated its promised studies to design and implement a National Drug Plan and proposed a subsequent National Health Service.

Specific management strengthening and intervention, Barbados decided, was necessary to address their problems of availably, cost, quality, use----

---brought into being through application of my stated "5 A's" (above) coupled with very significantly applied Political Will om the part of the Minister and Government as a whole.

The Barbados Drug Service (BDS) set-aside the non-structured procedures and miscellaneous activities of the past indulged in by the Ministry of Health, the Ministry of Finance and the Central Purchasing Department.

Formulary: In 1979, recognizing the well-placed political will of the Government and the newly-placed management system as well as the obvious need, the professions readily participated in refining past listings which, in 1980, became the first official Barbados National Drug Formulary (BNDF). Soon after, this Formulary Committee was officially constituted under the new Drug Service Act to meet regularly (not less than three times each year) to update the Formulary listings and its information as a Guide to Prescribing. Published annually in handy pocket size, the BNDF also contains the latest contractually established prices.

Supply: Arising from decisions of the Formulary Committee, expressed in the official generic terminology of WHO, comes the need to ensure a continuous supply of quality pharmaceuticals at reasonable prices.

BDS established a tendering system in which bids from manufacturers and local distributors are invited and exclusive annual contracts are awarded. At start-up, contracts were for shorter periods. Non-contracted pharmaceuticals remain freely available in Barbados, subject to supply and demand, but only the accepted Formulary 'brand' enters Barbados free of the 15% Custom Duty.

Overnight, with the new open competition, the first contract, effective September,1980, saw the price of some popular brands fall 75% and BDS achieved an overall average costing reduction of 20%. That downward trend continued each year in spite of inflationary pressures.

Everyone worked at making everything work. Within a year or so there were seldom stock-outs, no over-stocks, and expired and other obsolesence situations dropped to almost zero.

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Dispensing Sites: Consumer access to drug services is the "name of the Game" --the raison d'etre of an Essential Drugs Program. The public of Barbados was kept informed by newspaper ads, by TV and radio, posters and pamphlets as the Service took shape.

Private patients may choose to obtain their prescription services from a governmental Dispensary (..Formulary items only). The price is the same as that agreed upon with retail pharmacies .

A new confidence in the health care system in Barbados was achieved by its comprehensive Drug Service --good supply and consumer access.

Management Information Systems were designed to embrace procurement and distribution, drug selection and publication of the Formulary, usage reviews, and funding. Today, the BDS operates its own in-office computer hardware.

Financial strain on the nation's economy and the private Barbadian's personal resources was immediately reduced in the opening program which also solidified a continuous supply of pharmaceuticals and brought an increased level of service.

From the beginning in 1980, a co-pay system assisted the very young, the elderly and certain chronic situations (diabetes, hypertension, cancer). The indigent and the social assistance recipients were provided services free of charge, of course.

Consumer financial participation facilitated nationwide comprehensive availability without burdening the public program.

However, recent changes have required higher budget levels. The BDS "beneficiary program" changed to one being totally `free' in 1986 and there was a significant increase in the number of presciptions ...from 807,954 in 1984-85 to 1,258,768 in 1988-89 .and public expenditure for drugs jumped to BD$11.9 million in 1987-88 from BD$4.5 million in 1983-84! (...BD$2=US$1; population 250,000) [Source:"Cost Containment of Pharmaceutical Programmes", Seminar, Barbados, October 29,1989]

CASE STUDY NO.2:

EASTERN CARIBBEAN DRUG SERVICE (ECDS)---

In 1984, studies were reported which spearheaded the formulation of a comprehensive Drug Management Project embracing the seven Island-nations (now eight) of the Organization of Eastern Caribbean States (OECS). Individually, their situations were not unlike those that confronted Barbados...nor those on-going in Belize today.

---cont'd....

The OECS, headquartered in St. Lucia, created the Eastern Caribbean Drug Service (ECDS) in mid-1986 and contracted a Technical Assistance organization to bring into being a stable, well trained, self-financing Service within four years. Personnel training was a large part of the Project which emphasised economical procurements and systems (on a revolving pay-in pay-out basis) as well as facility and equipment upgrading.

A thoughtful selection of drugs (and adherance to it!) in a regionwide Formulary (tempered nationally) and successful contracting have brought results which, percentage-wise, exceeded those of Barbados.

Interjected at this point of the Paper's presentation was a brief discussion by Mr. Jim Rankin who expanded upon the workings of the ECDS. He presented supporting statistics and reviewed its ongoing positive results which ensure continuous supply at best regionwide prices while bettering the atmosphere for economical and rational use of drugs.

Chapter 5--THE BELIZE ESSENTIAL DRUGS MANAGEMENT PROGRAM

This brings this paper to the Belize Essential Drugs Project which, as mentioned in the opening paragraphs, is a country-entity of the larger health enriching undertaking ....the **"Puente Project"--Health as a Bridge to Peace, Solidarity and Understanding.**

Its objective is to bring about the means through which Belize will enjoy a continuous supply of a selection of quality pharmaceuticals and drug-related items of known therapeutic effectiveness at the best possible prices and within the financial capability of society as a whole and of the individual consumer.

This requires strengthened procedures and a strengthened infrastructure. It requires strong people-participation ...capable, knowledgeable, energetic people doing an effective on-going job. Hence, this participatory 1990 workshop to which this review paper is presented ... our input is vital; but, as the two case studies illustrate, it cannot stop here ..therefore, let's consider this section as a third case study.

Beginning with PAHO's September,1985, situational study and project proposal reported by this writer, the most urgent matters were addressed on a first-things-first basis. This included an emergency purchase of vital drugs via a newly devised local Revolving Drug Fund (RDF) structure (which was later replaced by an ongoing Regional RDF, known by the acronym "FORMED").

----cont'd.....

Soon, a Drugs Project Committee, formed under the DHS's chairmanship, was formed to guide and problem-solve. It was active in programming the 1987 Seminar and implementing 'solutions' arising from it but, then, a couple of years ago it tapered-off and no meetings were held.

Central storage and redistribution facilities (Central Medical Stores in the Belize City Hospital compound and its rather delapitated and distant Kings Park overload satellite) were first 'de-junked' of accumulations which crowded its shelves and frustrated all concerned. By early 1986, a short range crash program of reconstruction according to a new 'band-aid' space plan doubled the shelving capacity and provided improved administrative areas.

> **A more adequate purpose-designed facility, to house and manage the drugs and related items of every health care program was sketched and costed some time ago but, to date, the financing and construction of this sorely needed structure has not received the serious consideration that it deserves.**

In the meantime, other possibilities, including some existing spaces far from Belize City, have been explored by the Ministry but they present serious logistical difficulties.

Redistribution of supplies became monthly when, in 1986, a new CMS transport provided by the Project released the District ambulances from this trucking role. That first heavy duty vehicle served well for over 250,000 Km. It has recently been 'retired' in favour of a new acquisition by the Ministry.

It has long been planned that items requisitioned by the individual dispensing sites be separately cartoned by CMS for pick-up at District Hospitals rather than the double-handling which still 'crowds' the work of District pharmacists. When this happens, forecasting and other needs of the Management Information System will also benefit.

Inventory renewals, a priority objective, gave progressive attention to items categorized as 'Vital', 'Essential', 'Necessary (Non-Essential)' respectively ...that is, the VEN categories.

While it may now take a few years of careful, conservative procurement **and** rational use to establish a comfortable active and reserve inventory (...or a large infusion of big money!), it was possible to briefly attain at least minimum stocks-on-hand of every Formulary item by early-1987. Regrettably, this was short lived.

---cont'd....

The continuing excessive number of stock-outs are a very real burden. The battle to attain a viable supply of pharmaceuticals is seemingly being lost ...we must not lose the war!

Procurements from Overseas sources for many years suffered long internal inter-departmental paper-shuffling delays (back and forth between offices of Health and Finance) and, too, Belize's poor credit rating denied it access to best prices.

High priced purchases from local sources, (data compilations exhibit prices of 5 to 8 to 10 times Overseas procurements), were an extremely expensive drain on the much-too-small budget (and, lately, this adverse situation has returned in full force!).

Early on, with a PAHO Line of Credit which arose from the RDF devised in September, 1985, a regular sequence of ordering began. Soon after, that RDF was replaced by the Project's "FORMED", capitalized by the Dutch Government. It embraces about twenty high-use items in all participating C.A. countries but relates to all items required by Belize which pays-in US$25,000 monthly against its purchases which revolve its US$150,000 allocation (originally $100,000).

Regrettably, processing by the Purchasing Office of PAHO-Washington suffers many delays and leadtimes have become overly long to the point where a new methodology seems demanded.

Rules were established by the Project Committee (additional to those of the Financial Rules and Supply Regulations) to restrict purchases to Formulary items only, except for specifically ruled-upon Specially Authorized Drugs. Strict quantitative and dollar limits were placed on local non-contractual procurements.

These guidelines didn't "stick", however, and, today, many of the old undesirable situations have returned.

A Belize National Formulary in interim format, distributed in mid-1986 to gain the interest and input of practitioners, served as the 'springboard' for discussion of a Working Group of the 1987 Seminar / Workshop and consequent concerted effort by an erstwhile Formulary Committee. The first official Edition (called the Sixth Edition in recognition of previous lists distributed in BCH) was printed and distributed in early-1988.

Seemingly, the Formulary has not received the ongoing authoritative attention and management that a Formulary must be given.

A carefully prepared and suitably presented Formulary is the cornerstone of sound drug management (...rationalizing prescribing and guiding supply procurement...). **Hence, an immediate updating of the Belize National Formulary is a 'must'. Guidelines for its compilation and for its use, already in place, will facilitate this.**

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A Formulary just doesn't happen! And its supporters and its distractors, alike, must remember that its content is not engraved in stone!

It requires the guidance of a stable non-political expert committee which meets frequently to select and re-select efficacious drugs in proper pharmaceutical formats for economical use. It requires responsible management.

A Formulary guides doctors' prescribing and tells them what is available (or should be available) at each supply level.

A Formulary is the 'shopping list' for the Supplies Officer.

Consumer level (the Government Dispensaries) facilities in most locations required attention ...inventory renewal, equipment and space rehabilitation. The BCH Pharmacy Department was a priority so a new space revision and equipment plan was activated to provide for a more modern pharmaceutical service to the Hospital and to out-patients as well as to perform its teaching function (which is now secondary but is supportive of the Pharmacy course conducted by the University College of Belize). Its potential increased role as a Central Pharmacy undertaking small manufacturing, repackaging of bulk quantities into shelf sizes, pre-packaging into course-of-therapy sizes, and so forth is yet to be realized.

In spite of some exterior work by Public Works, a small rainstorm still floods the BCH Pharmacy Department and puts its stock in jeopardy.

Each of the Dispensaries of the six District Hospitals and Belize City Health Centres has been upgraded both structurally and respecting equipment. With the cooperative involvement of Public Works, so much more could be done.

Procedures and Records, manually operated, were upgraded to provide more definitive information to serve management, operators and planners and to eliminate duplicative redundancies carried over from days gone by. The plan was to gain competence with them in preparation for computerization beginning at CMS.

The Project installed the necessary computer and ancillary equipment but, to date, a suitable software program has not been activated.

Financing is always a problem confronting Government. Health economists tell us that a "free drugs policy" is a "no win policy" which unnecessarily drains resources needed to satisfy other vital health care responsiblities.

Respecting essential drugs, Governments have a regulatory and administrative function (by ensuring best prices for acceptable

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quality, for example) and, in partnership with the individual users who value them, to assist with their financing ....that is, to help those who to a greater or lesser extent cannot help themselves.

Certainly, persons 'doctoring' privately and those covered by insurance programs (such as Social Security and businesses) need not be allowed to be a drain on Government's efforts to fund pharmaceutical services required by the needy in the public sector.

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Is a user-fee one of the answers to Belize's financing of a good drug supply system ? If so, what form should it take ? Social Security methods? What other? How can it best be structured, administered, managed ? .

How can procurement and inventory management be made more effective and systematic ?

How can health care providers and patients be encouraged to use drugs rationally ?

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These are among the questions for the Working Groups of this Workshop. Will they be answered differently than similar questions posed three and one-half years ago and answered by the Working Goups of that 1987 Seminar/Workshop?

Let's take a moment to look at what arose from those four days.....

Its Group A studied "Selection of Drugs: Their Use and the National Formulary". Like each Working Group, they reported their perception of the Problems and Constraints, then presented their Suggestions and Recommendations. The Drugs Project Committee reviewed all material arising from the Workshop toward establishing the immediate and longer term activities. It agreed with the need for a specific Formulary Committee, named it and directed that "develop a Formulary within policies of MoH and public sector economics..." and decided to "develop a feedback mechanism ... to gain input of health care professionals....".

The newly named Formulary Committee began meeting within a week and the Formulary, after some printing delays, was distributed in early 1988.

However:

-The feedback mechanism did not come into being.
-Regular meetings of the Committee did not come about.
-The "Formulary only" supply boundary was broken down.

Group B of that Workshop had the difficult task of "Enhancing the Supply System: Consumer and Institiutional Participation" and said

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"...even at today's rates of distribution...a budget of at least US$535,000 is required ... and suggested that (a) participation by consumers in the cost of their prescribed medicines, (b) appropriate courses-of-therapy quantities be established and pre-priced with patients paying according to their means, (c) anomolies in the Customs Regulations granting exemption to useless preparations be corrected.

The Drugs Project Committee recorded that individualized consideration be given to user-fees and to the need to completly revise the Regulations respecting current Customs Duty exemptions which are long outdated.

Group C, looking at "Managing the Nation's Drug Service; Monitoring, Peer Review and Regulatory Affairs" recorded many Problems and Constraints in recommending (a) a better periodic budget, (b) introducing a tendering system, (c) developing an improved Management Information System, (d) constructing an adequate warehousing facility.

The Project Committee of that time expressed agreement that a tendering system was vital, but that a definitive MIS at the dispensing level was not a priority, named a group to immediately do something about the rehab needs of BCH Pharmacy and to promote a proper CMS warehouse.

"So what is new?", I hear some of you ask!

Belize's Drug Supply Management program ...."Toward a New Essential Drug Plan in Belize" ....has moved along. You, all of us here today and those with whom we relate, must still move it quite some distance -----it's a worthy challenge!

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THE SUBREGIONAL C.A. ESSENTIAL DRUGS PROJECT

(Kees de Joncheere)

In his presentation, Mr. de Joncheere, Subregional Drug Advisor of PAHO, referred to the coming into being and the development of the subregional initiative on Essential Drugs in Central America within the broader framework of "Health as a Bridge to Peace: Priority Health Needs in Central America". As of 1985, five subregional Essential Drugs projects were identified and have gradually become funded by various supportive countries:

-- Drug Quality Control and Drug Supply Systems

-- Pooled Procurement/Revolving Fund and development of pharmaceutical services generally

-- National Drug Policies and Rational Use of Drugs

-- Strengthening of Local Production of Pharmaceuticals

These projects strongly emphasized the development of local expertise and prototypes in various countries which can serve as a basis for extension to national and regional levels. The projects, apart from their subregional approach, also gave room to the support of specific projects and needs at the level of each country.

Mr. Joncheere presented a few observations concerning the Revolving Fund "FORMED". He noted that: "Originally established with US$ 4 million starting capital, the objective of FORMED was to obtain through pooled procurement methods approximately 25 pharmaceuticals in high demand in the Central American countries at good prices and to facilitate favorable payment conditions for the countries. The two rounds of procurement proved that FORMED's methods did, in fact, bring down prices in a spectacular way. However, FORMED ceased to function in 1988 due to decapitalization (the countries did not pay-in to reimburse it) and administrative problems.

"Belize's original annual quota was US$ 150,000 from FORMED's capitalization and by a separate agreement with PAHO it paid-in a monthly amount of US$ 20,000 (in 1989, upgraded to $150,000 and $25,000) and, ratherthan being limited to using the Fund for the designated 25 drugs only, it covered its full list. This system functioned adequately during the initial two years and obtained very favorable prices; however, performances of the FORMED steadily declined and lead-times have grown longer, distorting the supply system.

At the present time, negotiations are taking place between PAHO, the Central American Bank on Economic Integration and the Government of Holland toward reviving the FORMED Revolving Fund and even increasing its funds. It is hoped that in 1991 the Project can be implemented again and that the other countries will be able to join in again.

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"THE DRUG FORMULARY AND ITS ONGOING MANAGEMENT"

(Eugenio Morice)

Rational drug use provides an effective means of treating illness and often is a most cost-effective therapy which obviates expensive medical intervention.

In some developing countries, up to 40% of the health budget is being spent on drugs and, even then, the majority of the population does not have access to the more essential drugs needed to handle present morbidity.

The development of a national drug policy becomes a real need in these countries where the problems are basically due to budgetary limitations, scarcity of foreign exchange and the unavailability of pharmaceuticals to the majority of the needy population in widespread locations. Therefore, the national selection of drugs (the basic drug list) and the development of treatment parameters (the complete Formulary) is the first and most important step in achieving an efficient drug management program and to improve prescibing within a given health care system.

Major elements to consider when establishing a national drugs policy and a National Formulary are:

-- Identification of the therapeutic needs through documented epidemiological information that permits scientifically based selection of essential drugs;

-- Improvement in the overall drug management system including procurement, warehousing, distribution, quality assurance and proper use of the therapeutic items;

-- Therapeutic education through adequate and continuous information to the health professionals and the community.

To be successful in implementing a drug formulary and a national drug policy requires a well informed, well motivated and educated group of workers serving in the fields of economics, finance, management and pharmacology,

'Drug formulary' is the name given to a compilation of pharmaceutical products including information respecting Indications, contraindications, dosage, adverse effects, length of treatment and other pertinent information for the correct prescribing of each product. The application of this administrative device is intended to restict and guide prescibers toward a rational drug regime. It should be viewed as a coordinated component of the pharmaceutical logistics system that will promote the national selection, procurement, warehousing, inventory control, distribution, quality assurance and use of drugs by limiting the number to be purchased to those considered most essential. It must also be considered not as a rigid tool but as a flexible and continuously changing instrument for the permanaet upgrading of every health worker.

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"RATIONAL PRESCRIBING AND USE OF DRUGS"

(Eugenio Morice)

The steady increase in drug consumption and its impact on the well-being of the community is a well known problem faced by the modern age.

Modern marketing strategies of the pharmaceutical industry lead to distortions of presciption practices such as excessive or inadequate or incorrect prescribing not in keeping with the correct diagnosis or the effectiveness of a given product.

Several studies in different parts of the world have shown that there are three major areas for intervention in rationalizing drug use:

-- Education of the health workers at all levels of expertise

-- Education of the community

-- Establishment of national drug policies

Progress toward rational drug use has been important at the level of developing national drug policies. This has been a major target of the WHO Essential Drug Programme. Some progress has also been achieved in many countries at the level of health workers' education through the replacement of symptomatic and ineffective treatment for diarrhoea and other self-limiting illnesses by more appropriate and conservative measures.

Nevertheless, other aspects at this same level have had much less attention. Health workers at all levels of expertise need clear guidelines for the treatment of common conditions with sufficient detail on when and how to use the most significant drug preparation. It is necessary to provide sufficient information in a continuous fashion that will allow the health worker to make the correct choice when the time comes. This latter area of intervention has been largely neglected although their involvement could have a real impact in improving community health and rational drug use.

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"NEW BCH WARD PHARMACY SERVICES"

(Jonathan Dartnell with Kenneth Arthurs)

A new ward pharmacy service was begun on the Female Medical Ward at BCH at the end June this year. This is an ongoing project the aim of which is to upgrade pharmacy services to one medical ward and in so doing to determine the feasibility of providing a more comprehensive pharmacy service to all wards.

Drug ordering for a ward (except now on the Female Medical Ward) is always initiated by the nursing staff using requisition books or by sending "Doctors' Orders" Charts to the Pharmacy Department. Then, without any ward visits by dispensers, drugs accumaulate on the wards. The old system of delivery of drugs to the wards uses the misleading title of "dispenser" in the Dispensary thus propogating the illusion both within and outside the profession that the pharmacists are only 'pill counters'. This diminishes their sense of professional responsibility and professional reputation below their actual drug expertise. The objectives of the project, therefore, became:

1.- Greater control of inventory at ward level;
2.- Greater control of the utilization and administration of drugs in the ward;
3.- Increased pharmacist participation at the ward level;
4.- Upgrading of physical infrastructure in the ward relating to drug use.

To implement the proposal, we introduced some different systems and new tasks for the pharmacist visiting the ward:

1.- An imprest ('top-up') system. A definive ward stock list was created with maximum-minimum levels to be topped-up after inspection by a pharmacist twice weekly'
2.- A new Patient Medication Chart and IV Drug Chart which facilitates recording the administration and dispensing of the drugs'
3.- Pharmacist checks all Charts once daily. In doing so, the pharmacist transcribes all new presciptions for non-ward items thus enabling the Charts to remain on the ward'
4.- Upgrading the ward drug cupboard, drug containers and including their labelling.

The ward-pharmacy project is part of a larger expanding perspective for dispensers achieving their deserved place as pharmacists and achieving, at the same time, a more cost effective and rational delivery of pharmaceuticals to the nation. The larger perspective involves a more active role in patient education, and drug information dissemination among other health care workers, which are being considered as ancillary developments to this project.

This pilot project has been successful in meeting its objectives. Its expansion to other wards is forthcoming but presently is limited by pharemacy manpower constraints and the acceptance of dispensers of it and by other healthh workers of dispensers into sharing their expertise in new domains.

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"FINANCIAL ISSUES OF A DRUG SERVICE"

(Edward Smith)

Many issues of this topic were brought forth in the discussions of the previous sessions. The following, then, are but highlights and a progression of those discussions.

Budgetary: In budgeting for Health Services in Belize, the zero-based method for expenditures should be adopted and a methodical approach to the financing of such a budget should be followed (there are quite a few sources of financing beside Central government that are actually made use of). It is so essential that we ascertain what our total budget actually is and seek to finance it.

Integrity: The integrity of the system must be preserved if funding for Health Services is to be attracted. Internal auditing must be taken seriosly and external auditing must be done on a more regular basis to ensure entities that the Services are efficiently run and that value for money is received. Essential to all this is the willingness of personnel to uphold and operate the systems set in place to ensure integrity.

Funding: Public funding should be examined to find ways of balancing the debits and credits of health costs; the direct sources of revenue are too minimal. Indirect estimated revenue is supplied by the Social Security Board and the Central Government and is not based on real costs incurred at the time it needs to be incurred. Creating a statutory drug corporation is one suggested method to realize and control the actual revenue required.

SUMMARY-- For the short term, it is desirable to take steps to give the present system the measure of integrity it reqires to attract the funding it needs. The urgency of this is reflected in the independent investigation being conducted by the Ministry of Finance and principal funder.

The control of the Health Budget must be consciously seen as the responsibility of senior health officials; the objectives of the health system are certainly set within the organization and it is pointless to imagine that these objectives should not be managed and controlled from within.

A sizeable proportion of money and material (apart from Central Government) is received directly by Health Services and should be controlled in conjunction with the Central Government's contribution to achieve the overall goals of the organization.

Those measures can have significant impact on finances available and the systems related to drugs and medical supplies procurement and control which constitutes a sizeable element of our variable costs.

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THE WORKSHOP GROUPS

Group (A)--"Drug Selection, the Formulary, and Rational Use"

Group (B)--"Financial Issues of the Essential Drug System"

Group (C)--"Procurement and Distribution Systems"

GUIDELINES FOR THE WORKING GROUPS

1.-- Read Chapter 5 of the Background Review Paper "The Belize Essential Drugs Project"

2.-- Discuss according to the area of the Working Group's assignment; review and take into account the reports and results arising from the 1987 Workshop

   -- present problems and constraints

   -- possible solutions and options and their feasibility

3.-- Evaluate the progress made in the Belize Essential Drug System keeping in mind the recommendations of the 1987 Workshop with regard to:

   -- the appropriateness of the recommendations for the problem they were designed to resolve (how effective and how efficient),

   -- identify factors that negatively affected the implementation of the recommendations,

   -- suggestions to avoid these pitfalls in the future and to select effective strategies for the improvement of drug supply.

(NOTE: Copies of the Reports of the 1987 Seminar/Workshop including the decisions of the follow-up meeting of the Drugs Project Committee were available to each Working Group. They are reproduced here beginning on the next page for convenient reference.)

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REPRINT OF REPORTS, beginning Page 25 of its Summary of Proceedings
of
"TOWARD A NEW (ESSENTIAL) DRUG SYSTEM IN BELIZE"
BELIZE CITY, JUNE 9-12, 1987

REPORTS OF WORKING GROUPS OF THE SEMINAR
and
DECISIONS of FOLLOW-UP MEETING of DRUGS PROJECT COMMITTEE*
->>>> Comments & Activity Decisions of the Committee, June 17, <<<<
follow each Report and are cross-referenced to asterisks (*)

GROUP "A"--SELECTION OF DRUGS: THEIR USE AND THE NATIONAL FORMULARY"

Problems and Constraints

A.1- Statistics available respecting disease prevalence in Belize are inadequate and misleading to attempt to use them in formulating a selection of drugs.

A.2- A national list must take into consideration the needs of all dispensing sites--the health worker as well as the specialist practitioner.

A.3- Motivation and cooperation among doctors, pharmacists, nurses and other health care personnel appears lacking respecting pharmaceuticals and drug therapy needs. Feedback from concerned personnel is not effective.

A.4- Ministry of Health has not stated policy guidelines.

Suggestions and Recommendations

A.5- Expedite the preparation and publication of the National Formulary by:

*(a)Select a Formulary committee composed of:

-MOH Representative
-Supplies Officer
-Senior Consultant of each Medical Speciality
-One District Medical Oficer
-One Nurse Practitioner
-Chief Pharmacist
-Possibly, one Private Pharmacist

*(b)Responsibilities of the Formulary Committee

-establish definitions for "Vital", "Essential", "Necessary", categorizations

-in each Therapeutic Classification, categorize the drugs by the above VEN

-decide what dosage forms and strengths are needed and add, amend, delete pharmaceuticals within a Therapeutic Class as necessary

-designate level-of-use (consumer site) for each pharmaceutical

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*(c) Publish its provisional list to all health care professionals for comments and constructive criticism. Possibly send it, too, to known experts abroad.
*(d) Upon receiving the comments, compile a secondary list and cost it using all available statistics and in relation to the available budget. Modify the list as need be.
(e) Name a Formulary Editorial Sub-Committee to prepare the information sections and drug monographs.
(f) Oversee the publishing and distribution of BGNF to all health care personnel.
(g) Undertake regular on-going review and updating of BGNF--meet at least quarterly after establishing the Formulary.
(h) Provide information and Formulary management functions.

A.6- Implementation: The backing and support of MOH is required. Legislation takes time to enact as does the formal appointment of a Formulary Committee. Therefore, immediately form an ad-hoc committee of interested, energetic and dynamic people to urgently undertake to:

(a) push the enactment of any necessary legislation concerning the Formulary
(b) approach prospective members of a Formulary Committee to gain their cooperation

* It is suggested that the membership of this ad-hoc committee include the following:

Director of Health Services
Hospital Administrator
Chief of Medical Staff
Dr. P. Gonzalez (attendee at Project Formulary meetings)
Dr. F. Cawich (Physician Specialist)
One District Medical Officer
A Nurse Practitioner
Chief Pharmacist
Supplies Officer
Chief Dispenser
A District Dispenser

* The Drugs Project Committee meeting on June 17, after reviewing Group 'A' Report in total, decided as follows:

Section A.6: The ad hoc committee proposed in Section A6 is unnecessary because of the existence of the Drugs Project Committee (of which the Group may not have been aware) and the the formation of the Formulary Committee should be expedited as urged in Section A.5(a).

Section A.5(a): The meeting expanded upon Section A5(a)'s membership of the Formulary Committee as follows, but decided against including a Private Pharmacist because only the public sector is involved:

-Director of Health Services
-Medical Chief of Staff
-Representative of various medical specialty areas such as:
  -Ophthalmology
  -Surgical

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-Mental
-Obstetrics-Gynaecology
-Internal Medicine
-Paediatrics
-Dentistry
(the Committee decided that Dr. P. Gonzalez and Dr. F. Cawich be among these representative persons)
-Chief Pharmacist
-One Family Nurse Practitioner
-Supplies Officer
-One DMO and one District Dispenser be appointed as Consulting Members (to be contacted by telephone rather than travel to Belize City meetings.)

The DHS will contact the Medical Chief of Staff toward convening a Formulary meeting on July 1.

Section A.5(b): It was felt that Section A.5(b) is restrictively detailed and agreed to a more general statement, namely:
-Develop a Formulary within policies of MOH and public sector economics by referring to WHO and PAHO and other established Guidelines for the Compilation and the Use of the Formulary.

Section A.5(c) & (d): Similarly, a more general statement was substituted for Sections A.5(c) and (d):
-Develop a feedback mechanism to gain input of health care professionals respecting the selection of the drugs and their presentatiion in the Formulary.

Section A.6 was amended as above.

GROUP B: "FINANCING THE SUPPPLY SYSTEM: CONSUMER AND INSTITUTIONAL PARTICIPATION"

Observations: During 1986, deliveries received by the Supplies Section from Overseas and local Suppliers totalled US$307,500 (Donated items not included). On January 31, 1987, of 313 commercial preparations in the Formulary, 121 were out of stock. At current rates of redistrbution from Central Medical Stores and buying at the best known international prices, an Annual Budget of at least US$535,000 is required. But it is known that with increased supplies, utilization goes up and, too, current prices will undoubtedly be effected by inflation.
Today, most procurements are made via the Project's FORMED fund which MOH reimburses by monthly payments of BZ$20,000. Emergency local buying consumes the balance of the BZ$800,000 Drugs Budget.

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Problems and Constraints

B.1- Budget is insufficient to provide needed medication in the public sector to all Belizeans.
B.2- Health professionals fail to work as a team for effective utilization of available money and medications.
B.3- Lack of public awareness and appreciation of the cost of medicine and the supply system.

* Suggestions and Recommendations

B.4- Undertake a financial analysis of tangible costs in procedures and activities in each segment of the Logistics Cycle (i.e., Drugs selected; Procurement; Prescribing; Dispensing; Consumer utilization). Perform on-going spot checks.
B.5- Institute financial participation by consumers in the cost of their presribed medicines.
-recommended: that appropriate course-of-therapy quantities be established and pre-priced in acceptable ranges depicting the monetary value of the item (suggested: begin at 25 cents and then in five stages up to a maximum of $5.00 per prescribed item, except for private patients)
-that patients pay according to means (suggested: private and Social Security and other Insurers, full pay; others according to ability; fully indigent and certain age groups--under 6 and over 60 years-- and certain illness conditions, fully subsidized by MOH)
-that money collected for consumer-level pharmaceutical services stay in the Drug Supply System via an accountable corporation, not the Consolidated Fund of Government (suggested: the "Belize Pharmaceuticals Authority"), which would have financial responsibility only respecting Essential Drugs procured and distributed.

B.6- Noting that present Customs Regulations indiscriminately exempt a wide variety of drug preparations, some of which are of questionable therapeutic value in Belize, from the 15% Duty thus needlessly denying Government this revenue, it is recommended that these Regulations be amended to provide private sector exemption to only the Essential Drugs and related items specifically selected for listing in the Formulary.

B.7- Education of providers and consumers of Essential Drugs to create the best possible cost-benefit ratio in drug therapy is recommended. This, it is suggested, can be achieved through meetings, seminars, audio-visual continuing education material (reprints, cassettes, newsletters), and such as a Formulary Representative serving in the manner of a "medical detailman" (a knowledgeable pharmacist having good communication skills).

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* Drugs Project Committee meeting, June 17, decision respecting Group B's Report was that it is necessary to give individual definitive consideration to each subject: (a) User-fees; (b) Customs Duty exemption. The aim is to prepare Information Papers for forwarding to Cabinet.

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GROUP C: "MANAGING THE NATION'S DRUG SERVICE (NATIONAL, DISTRICT AND LOCAL): MONITORING, PEER REVIEW AND REGULATORY AFFAIRS"

Problems and Constraints

C.1 -Excessively long leadtimes for delivery of supplies from Overseas are being experienced, particularly under the Project's FORMED system.

*C.2 -Although management information systems have improved, the necessity to run parallel with old methods is time-consuming and wasteful.

C.3 -No comprehensive National Pharmaceutical Policy exists to guide and control activities.

*C.4 -In Belize City, Health Centers have trouble getting their supplies transported.

C.5 -Rehabilitation and reconstruction of BCH Pharmacy Department must await exterior repairs by Public Works.

C.6 -Lack of feedback from and to all levels impedes monitoring and evaluation of the system.

*C.7 -The policy respecting the number of prescriptions allowed per patient is apparently not known to doctors.

*C.8 -Communication problems are experienced by District Hospitals due to insufficient CMS telephone lines.

C.9-Quantity of supplies is inadequate at all levels.

C.10-District storage space is often inadequate.

C.11-Methods of District estimating requirements is based on previous use rather than morbidity or seasonal statistics.

C.12-Drug use is not monitored.

Solutions and Recommendations

*C.13-Obtain Budget allocation for drugs for six months period rather than the current one month allocation.

C.14-Ensure that drug procurements have a "first priority" on Foreign Exchange.

*C.15-Introduce a Tendering System additional to the FORMED system toward, possibly, moving away from FORMED in the future in whole or in part.

*C.16-Further develop the central Management Information System and expand it in a simplified scale to the District and local levels.

C.18-Following a situational survey, make all necessary improvements required by each Dispensing Site. Provide proper shelving and storage and refrigeration where needed.

*C.19-Plan for the construction of an adequate purpose-built building to house CMS.

C.20-Establish a statement of National Pharmaceutical Policy through deliberations of the private and public sectors.

C.21-Respecting communication and transport methods, a Cabinet Paper, currently being reviewed, is designed to solve problems.

C.22-Establish an improved Requisitioning Form for drugs.

C.23-Institute a regular rotation of drugs to ensure freshness and take the necessary steps to coordinate the distribution of all items including those received from donors.

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C.24-Undertake further studies to determine actual drug needs and monitor drug prescribing and use.
C.25-Establish working groups to deal with all issues.

The Drugs Project Committee, June 17, recorded the following observations and recommendations respecting Group C Report:

First, the meeting clarified certain points raised under "Problems and Constraints":

-re: C.2--new information and management systems are not yet being run parallel with old
-re: C.4--Belize City Health Centers have problems respecting extra requirements, not with regular deliveries
-re: C.7--the "policy" which restricts the number and content quantity of prescriptions per patient was established several years ago; a review of it is required
-re: C.8--the telephone problem is with BCH's switchboard and the apparent use of it by visitors; four additional lines are being installed

Then, it recorded its views concerning the Group C recommendations:

C.13- The meeting, after debating the actual utility and the potential spending-risks of a six months allocation, recommended that quarterly warrants be sought.
C.15- A Tendering System is to be developed as quickly as possible using that which was drafted but set-aside several months ago when FORMED was initiated.
C.16- The MIS for the Dispensing Sites need not be as elaborate as that for Central.
C.17- A Working Group (Usher, Kukkillaya, Dougal, Turnbull) is to activate the immediate rehabilitation of BCH Pharmacy Department. First meeting, on site, was set for Tuesday, June 23 at 1400 hrs.
C.19- As discussed at an earlier meeting, Turnbull has started to gather information regarding the space and control needs of programs such as MCH, Malaria and EPI. A visit to a pre-fab building in one of the Industrial Parks is planned. Also, Dr. Fefer has informed us of the existence of warehouse specifications prepared for larger countries in the C.A. Project.

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REPORTS OF WORKING GROUPS OF THE SEMINAR/WORKSHOP
and
DECISIONS OF THE PLENARY SESSION

"BELIZE ESSENTIAL DRUGS SYSTEM: SOLVING PROBLEMS AND CONSTRAINTS"

Chateau Caribbean Hotel, Belize City

November 15 - 16, 1990
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GROUP 'A' -- "SELECTION OF DRUGS, THE FORMULARY, AND THEIR RATIONAL USE"

Problems and Constraints

A.1- The problems and constraints put forward by the 1987 Workshop are still applicable today
-thorough epidemiological studies are required. More statistics need to be tabulated at the District level and from the PHC workers
-the Formulary may have a bias toward BCH rather than nationally reflecting the needs of the Districts
-greater cooperation is needed between health care personnel respecting drugs and their use
-MOH has yet to state policy guidelines

A.1- The Formulary Committee has not functioned since the publication of the initial National Formulary (officially, the 6th Edition)

A.3- The Formulary is not adhered to by prescribers and supplies officers

A.4- There is little information disseminated to health care persnnel and the public ---regarding drug availability and drug use

A.5- Statistics are not available on culturing and sensitivity reports rgarding the use of anti-infective agents

A.6- No standard treatment norms exist in areas such as prescibing and nursing practices

A.7- The National Formulary was not distributed uniformly to all areas of Belize, nor was it made available to all relevant personnel

A.8- The presentation and packaging of pharmaceuticals to the public is often unsuitable --- inadequate labelling; bulky and wasteful packaging; inadequate protection against hot/humid conditions

A.9- There is cooperative effort to assess or review the quality of care delivered or which takes into account the different aspects of health care

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A.10 There are many and varied examples of irrational use of drugs, yet there is no method of prescription evaluation or peer review

A.11 There is a lack of organized continuing education available to health care perrsonnel

A.12 There was a lack of follow-up from the 1987 Workshop to determine continuing progress being made (possibly due to failure to appoint a permanent Pharmaceutical Advisory Board, coupled with the inactivity of the Formulary Committee which never received official appointment)

A.13 There is excessive brand name orientation in prescibing (and this contributes to A.10, above, as well)

Suggestions and Recommendations

A.14 Immediately revive the formulary Committee with motivated and committed members--
- -- consider incentives to members (replace absentees?; subsistence payments?)
- -- need greater coordination of members (rotate meeting sites?)
- -- must reflect national needs; emphasize primary health care; ensure more District representation and involvement (a sub--committee in each District; include pharmacist; rep to attend meetings of Formulary Committee)
- -- meet regularly, for sure (how often?)

A.14 Provide for increasing drug information dissemination
- -- a Pharmacy Newsletter (include reviews by relevant persons; publicize such matters as surpluses/shortages; results of audits)
- -- revive the Belize Pharmacy Association (provide for national meetings of public sector pharmacists)
- -- inter-exchanges among the various health professions
- -- provide for availability of more copies of updated BGNF
- -- distribute the next edition of BGNF with an organized campaign (emphasize various aspects of its usage; point up benefits of such as generic terminology in prescibing)

A.15 Institute a quality assurance program to review all aspects of health care delivery
- -- include in the program, a selection of specific projects such as: --an Infection Control Committee to develop an antibiotic policy and collect statistics respecting culture and sensitivity findings
  --establishment of standard treatment norms and protocols and their enforcement

A.16 Institute more epidemiology studies and include a statistics officer at each hospital

---cont'd....

A.17 Institute a definite program of quality control of pharmaceuticals (regular samples to Caricom's CRDTL; visual inspections of arriving items; ensure suppliers adhere to packaging and labelling requirements; consider more blister packaging?)

A.18 Place increased emphasis on the rational prescribing and consumer use of pharmaceuticals and related items
- -- disseminate increased drug information
- -- institute patient education campaigns to decrease irrational prescription demands and adherance to dosage directions
- -- organize lectures on treatment guidelines, including nursing
- -- in hospitals, more interactive "grand rounds"
- -- institute peer reviews
- -- feedback information from drug audits

****

GROUP 'B' --"FINANCIAL ISSUES OF THE ESSENTIAL DRUGS SYSTEM"

Problems and Constraints

B.1- An inadequqte Budget does not even cover the quantity of Vital Items required today in view of the increased number of health care practitioners and the increased population.

B.2- No cost recovery is made from consumers of pharmaceuticals in the public sector; minor user-fees for District Hospital services are out-dated; no payment benefit from Social Security nor from NGO's such as insurance companies and private sector employers who provide medical benefits to their employees.

B.3- All cost recoveries must go into General Revenue and therefore there is no incentive to collect for local purposes.

B.4- In any event, no data base exists with which to work toward creating a financial program.

Suggestions and Recommendations

B.5- Synchronize the availability of funds with the drug procurement cycle

B.6- Rationalize the policy concerning the acceptance of donated items

B.7- Improve the cost recovery system by simplifying the social categories to three:
(a) Category 1 -- pay 100%
(a) Category 2 -- pay 50%
(a) Category 3 -- pay 0%
with enforcement via local counselling services

----cont'd.....

B.8- Create a statutory body (eg-'Phones; Electricity) for drug procurement and distribution.

B.9- Rescind present agreement with Social Security and replace it with a fee-for-service system.

B.10 Any insured person be considered as being in Category 1, above.

B.11 Improve the data base.

B.12 Improve management at the level of hospitals.

****

GROUP 'C' -- "THE PROCUREMENT AND DISTRIBUTION SYSTEM"

Suggestions and Recommendatiions

C.1- Procurement:

(a)Review current arrangements with FORMED
--if unreliable (and Belize unable to compensate the shortcomings), drop it!
--alter the present dependency on various suppliers; for example, 60% FORMED, 30% Suppliers of known reliability, 10% Local Purchase.

(b)Review donations policy and routines
--control what is being donated; provide a "needs list" (extract from the Formulary; process all via CMS only; maintain as inventory)
--stipulate conditions to be met (shelf life; expiration times; quality safeguards; quantities; storage requirements)

(c)Better the storage facilities
--upgrade capacity and general suitability for warehousing and for administrative procedures

(d)Revise financial base and flow of money with direct pay-in for purposes of supply replenishments
--obtain Social Security financial involvement
--institute consumer participation at point of service
--consider local fund rather than central fund.

C.2-Distribution

(a)Inventory should maintain a revolving six months supply
--'First-in First-out' routines for stocks on hand
--ensure expiration dates information always watched
--computerize the physical control system

---cont'd....

(b)Storage facilities are completely improper and inadequate
--consider a location away from the BCH compound
--increase the storage capability and capacities at the District level (say, to 3 months stock)

(c)Transport requires a 'sideman' accompanying the driver to ensure assistance to him upon arrival at District destinations
--ensure shipment is checked at point of delivery
--two main transport trucks are necessary
--continue the use of Public Health vehicles in the Districts

(d)Train personnel involved in all the various duties of managing and performing supplies operations (such as proper stores keeping; records compilations and use; computer involvements)

Expectations

C.3- A strong and capable Committee is required to follow-up these matters and all matters coming from this Workshop: to evaluate; to implement; to 'enforce' performance; to feedback to all concerned on a continuous basis.

****

THE PLENARY SESSION, after a full discussion following the presentation of all Reports and recognizing the great need for the application of immediate and continuing leadership in Essential Drugs Management programmes, recommended:

(1)-THE DRUGS PROJECT COMMITTEE

=That there be immediately established an official body to be known as the Essential Drugs Program Committee (or Drugs Project Committee or Pharmaceutical Advisory Board or some such suitable name) charged with the reponsibility of helping with and overseeing the carrying out all necessary activities to ensure continuous progress for a successful Belize Drug Management program in all aspects.
=That this Committee be composed of leading responsible officers including, among others:
the DHS (who shall be Chairman), the Supplies Officer, the Chief Pharmacist, the Chairman of Formulary Committee or a Committee member named by him, the Hospital Administrator, the Permanent Secretary or his appointee, a DMO, a District Dispenser, the MOH Finance Officer,the MOF Purchasing Officer
=That the Committee will liaise with and coordinate and serve as an screening body, receiving and processing information, respecting relevant interdepartmental actions (MOH-Finance-Public Works, for example) and inter-agency activities (such as PAHO, USAID, various NGOs).

----cont'd.....

=That the Committee be responsible for the strategic planning in this area of endeavour and formulate annual programmes accordingly in order to improve availability and use of drugs and to optimize available resources.
=That the Committee shall meet at least every two months
=That the Committee, at its discretion and as it may deem necessary, invite the participation of non-members of the Committee at or between its meetings;
=That the Committee shall keep Minutes which record the proceedings of its meetings and actions between meetings and shall apprise the Minister of Health of same;
=That the Committee shall monitor the implementation of decisions taken, the first of which shall relate to its programming of the activities brought forth in the Reports of the Working Groups of this 1990 Seminar/Workshop.

THE FORMULARY COMMITTEE

The Plenary Session also unanimously urged the immediate reactivation of the Formulary Committee with dedicated membership similar in character and expertise and office to that of the 1987 committee but wider in geographic scope and with persons such as the Pharmacy Tutor(s) added and possibly serving as Committee Secretary

The Committee's Terms of Reference are those inherent in the Formulary's published "Guidelines for Compilation" as well as those in PAHO's booklet "Development and Implementation of Drug Formularies". In due course but without in any way delaying the immediate activity of the Formulary Committee, the Drugs Project Committee is to review the Terms and assist with their implementation.

The Workshop and its Reports expects that a new Edition of BGNF be published and distributed by June, 1991, and that the Committee will remain active by means of quarterly meetings from which Formulary updatings will be disseminated and that new editions will be published at least biennally.

The Director of Health Services stated that he is prepared to proceed with appointments to the Formulary Committee.

The Session noted with pleasure the expressed assistance with compilation, production, printing and financing available from PAHO/WHO and its Belize office.

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JCT(90-11-28)

---cont'd....

SEMINAR/WORKSHOP PARTICIPANTS
"BELIZE ESSENTIAL DRUGS SYSTEM: SOLVING PROBLEMS AND CONSTRAINTS"
November 15 & 16, 1990

Ministry of Health --
- Dr. Theodore Aranda, Minister
- Mr. Fred Smith, Permanent Secretary
- Dr. Gregorio Pott, A/Director of Health Services
- Dr. Kurella Rao, Director, Primary Heakth Care
- Mr. Wayne Usher, Hospital Administrator
- Mr. Raymond Lashley, Supplies Officer
- Mr. Edward Smith, Finance Officer
- Sr. Sylvia Flores, Matron 3
- Ms. Shirley Johnson, Principal Nursing OfficerNO
- Dr. Filiberto Cawich, Formulary Committee *

Ministry of Finance --
- Mr. Maxwell Samuels, Procurement Officer *

BC Hospital
- Chief Phcst: Kenneth Arthurs
- Phcy. Tutor: Jonathan Dartnell
- Phcy. Instructor: Gracelia Norales

Districts:

Corozal	DMO: Dr.Baldomino Barboza
	Phcst: Mr. Alberto Paquil
	DCoordr: Francis Alfaro
Orange Walk	DMO: Dr. Victor Lizarraga
	Phcst: Ms. Noreen Kerr
	DCoordr: Jose Chi
San Ignacio	DMO: Dr.Armando Bethancourt
	Phcst: Ms. Ruth Galvez
	DCoordr: Ms. Lourdes Hales
Dangriga	DMO: Dr. M. Kishore
	Phcst: Mr. Jeffrey Zuniga
	Specialist: Dr, Ninfa Ken
Punta Gorda	DMO: Dr.B. Raju
	Phcst: Ms. Pamela Genus
	DCoordr: Mr. Thomas Teul
Belmopan	DMO: Dr. Victoriano Valdez
	Phcst: Mr. Sidney Codd
	MO: Dr. M. Raju
	MSF: Dr. Mario Garcia
Cleopatra White HC	MO: Dr. David Heredia
	Phcst: Ms. Maggie Williams
Matron Roberts H.C.	MO: Dr.Michael Pitts
	Phcst: Ms. Anna Coye
Benque, Family Nurse Practitioner: Louise Neal	

CMS Staff:
- Storeskeeper/Pharm'ls: Mr. Victor Miquel
- Storeskeeper/Clerk : Mr. Gilbert Palacio

PAHO/WHO:
- Dr. Cesar Hermida, PWR Belize
- Mr. Kees de Joncheere, SDA (Costa Rica)
- Dr. Eugenio Morice, MOH Costa Rica
- Mr. John C. Turnbull, STC (Essential Drugs)

USAID TA Consultant: Mr. Jim Rankin

* unable to attend

APPENDIX 4: ANALYSIS OF PAHO/FORMED FREIGHT AND HANDLING CHARGES

ANALYSIS OF PAHO/FORMED FREIGHT AND HANDLING CHARGES
PAHO Statement March 30, 1989 All amounts in US Dollars

P.O. NUMBER	Drugs	Total Cost
28611	$282	$379
28381	$1,844	$2,273
28380	$5,299	$6,072
28386	$3,746	$4,633
28382	$4,510	$4,927
28383	$35,326	$41,344
28385	$3,664	$5,268
28384	$464	$866
29303	$10,976	$14,963
29305	$4,582	$7,979
29309	$786	$1,334
29315	$5,071	$9,268
29312	$1,914	$2,610
29302	$1,815	$3,039
29308	$937	$1,140
29307	$2,308	$3,474
29310	$781	$1,325
29301	$28,060	$38,256
29304	$2,253	$3,072
29311	$7,954	$13,495
29313	$3,962	$6,767
29603	$1,876	$2,040
29317	$27,420	$29,482
29314	$11,337	$13,560
29316	$10,618	$18,101
29790	$900	$1,194
29318	$22	$107
30113	$76	$167
29329	$3,619	$5,076
30160	$13,530	$14,609
30161	$851	$1,337
30162	$861	$962
30163	$820	$989
30165	$1,828	$1,883
30495	$357	$476
29331	$19,846	$22,247
29881	$825	$971
29332	$1,197	$1,560
29344	$3,850	$4,640
Subtotal:	$226,367	$291,885
Charges:	$65,518	28.9%

P.O. NUMBER	Drugs	Total Cost
29339	$7,983	$9,106
29338	$183	$1,072
29337	$9,177	$17,969
29335	$447	$624
29336	$4,829	$5,740
29334	$5,756	$6,609
29340	$22,523	$24,945
29342	$2,111	$2,174
29333	$27,683	$33,013
29345	$4,514	$5,379
30166	$3,000	$3,162
29348	$620	$775
29347	$11,220	$11,693
29350	$308	$434
29349	$1,560	$1,805
29351	$788	$864
29352	$547	$633
29353	$360	$456
29354	$5,558	$6,464
32441	$284	$416
32442	$2,200	$2,856
29356	$20	$116
29359	$7,894	$8,928
29360	$188	$257
29357	$31,239	$33,641
29362	$4,455	$4,762
29358	$31,198	$36,598
29363	$6,993	$8,180
29364	$4,554	$5,863
32674	$2,800	$3,054
29365	$14,375	$15,347
29368	$250	$328
29369	$2,297	$2,469
29367	$1,380	$1,503
29371	$270	$362
29372	$2,250	$2,388
29373	$428	$545
29370	$108	$254
Subtotal:	$222,350	$260,784
Charges:	$38,434	17.3%

Grand Totals:

Drugs	$448,717
Total	$552,669
Charges	$103,952
Net % Charges	23.2%

Breakdown:

Standard PAHO Fee:	3.0%
Average Freight/Other Fees:	20.2%

APPENDIX 5: COMPARISON OF COSTS OF PHARMACEUTICAL PROCUREMENT: PAHO/FORMED VS. LOCAL VENDORS

Cost Comparison - PAHO/APO vs LOCAL 1990

Local PurchaseAug 1990

GENERIC NAME/TITLE	FORMAT, STRENGTH	UNIT	Date Order	Source	Packs Bought	Pack	Pack Price (Bel$)	Total Price (Bel$)	Unit Price (Bel$)	PAHO Vendor	Unit Price (Bel$)	Total Cost of Local Purchases at PAHO Price	Ratio Local to PAHO
AMIKACIN SULPHATE	Inj. 250 mg/ml; 2 m	Vial	28.8	Leiva	600	1	20.67	12402.00	20.67	PahoList	33.73	20235.96	0.6
AMINOPHYLLINE	Inj,IV,25mg/ml;10ml	Vial	28.8	Leiva	1000	1	2.96	2960.00	2.96	PahoList	0.57	565.80	5.2
AMINOPHYLLINE	Tab,100mg	Tab	28.8	Leiva	150	40	8.50	1275.00	0.21	PahoList	0.01	66.86	19.1
AMITRIPTYLLINE	Tab, 25mg	Tab	28.8	Gaboure	12000	1	0.12	1440.00	0.12	Apotex	0.02	286.75	5.0
AMPICILLIN	Cap, 250mg	Cap	20.8	Gaboure	7	1000	134.88	944.16	0.13	IDA	0.08	590.30	1.6
AMPICILLIN	Cap, 500mg	Cap	7.8	Leiva	6	1000	337.20	2023.20	0.34	PahoList	0.23	1357.92	1.5
AMPICILLIN	Inj, 500mg/Vial	Amp	28.8	Leiva	1000	1	12.48	12480.00	12.48	Ongar	0.38	381.50	32.7
ATROPINE	Inj.IM/IV,0.6 mg/ml	Vial	28.8	TB	1000	1	0.90	900.00	0.90	PahoList	0.20	196.80	4.6
CARBAMAZEPINE	Tab 100mg	Tab	7.8	Leiva	2	500	147.93	295.86	0.30	Ongar	0.12	118.16	2.5
CEFTAZIDIME	Inj, 1g/Vial	Vial	28.8	Leiva	200	1	33.79	6758.00	33.79	PAHO	27.81	5562.00	1.2
CEFUROXIME	Inj, 750mg/vial	Vial	28.8	Leiva	200	1	15.00	3000.00	15.00	WashWh	14.04	2808.00	1.1
CHLORAMPHENICOL	Oint,Eye,1%; 4g Tub	Tube	28.8	Leiva	600	1	3.50	2100.00	3.50	Ongar	1.53	915.60	2.3
CHLORPHENIRAMINE MAL	Tab,4mg	Tab	7.8	Leiva	360	100	8.56	3081.60	0.09	IDA	0.01	260.65	11.8
CLOXACILLIN SODIUM	Caps, 250mg	Caps	14.8	Gaboure	4	1000	161.76	647.04	0.16	Ongar	0.07	270.32	2.4
CLOXACILLIN SODIUM	Syrup, 25mg/ml; 100	Botl	28.8	Leiva	200	1	5.50	1100.00	5.50	PahoList	2.46	492.00	2.2
CO-TRIMOXAZOLE	Susp, 48mg/ml;100ml	Botl	7.8	Leiva	960	1	5.54	5318.40	5.54	Ongar	1.33	1276.61	4.2
DEXTROSE	Inj,IV,5% in Water;	Botl	20.8	Leiva	350	12	47.28	16548.00	3.94	IDA	3.02	12667.97	1.3
DIGOXIN	Inj 0.25mg/ml; 2ml	Amp	28.8	TB	600	1	1.00	600.00	1.00	PahoList	0.15	88.56	6.8
ERGOMETRINE MALEATE	Inj, 0.5mg/ml; 1ml	Amp	28.8	Leiva	200	6	7.85	1570.00	1.31	PahoList	0.12	147.60	10.6
GIVING SETS FOR IVs	Refer to#06.03 Elec	Set	28.8	TB	3000	1	3.75	11250.00	3.75	IDA	0.80	2412.12	4.7
HEPARIN SODIUM	Inj, 10,000u/ml; 1m	Vial	28.8	TB	100	1	18.78	1878.00	18.78	WashWh	4.75	475.20	4.0
HYDROCHLOROTHIAZIDE	Tab 50mg	Tab	7.8	Leiva	5	1000	34.08	170.40	0.03	Apotex	0.01	36.05	4.7
HYDROGEN PEROXIDE	Soln 3%; 240ml	Botl	28.8	Leiva	1500	1	2.10	3150.00	2.10	WashWh	1.08	1620.00	1.9
IBUPROFEN	Tab, 200mg	Tab	7.8	Leiva	360	100	8.56	3081.60	0.09	IDA	0.03	1188.94	2.6
INSULIN,ISOPHANE(NPH),	Inj, 100u/ml; Pork	Vial	28.8	Leiva	200	1	24.18	4836.00	24.18	Biobras	9.87	1973.48	2.5
INSULIN(RAPID)Mono	Inj, 100u/ml; Pork	Vial	28.8	Leiva	100	1	23.18	2318.00	23.18	Biobras	13.14	1314.28	1.8
ISOSORBIDE DINITRATE	Tab, 10mg	Tab	28.8	TB	2000	1	0.14	280.00	0.14	WashWh	0.03	64.80	4.3
METRONIDAZOLE	Inj,IV,5mg/ml; 100m	Vial	28.8	Leiva	400	1	12.68	5072.00	12.68	PahoList	2.98	1190.64	4.3
METRONIDAZOLE	Tab, 250mg	Tab	14.8	Gaboure	12	1000	88.92	1067.04	0.09	Novoph	0.06	678.91	1.6
MINOXODIL	Tab, 10mg	Tab	28.8	Gaboure	2000	1	1.80	3600.00	1.80	WashWh	0.45	907.20	4.0
PARACETAMOL	Tab, 500mg	Tab	14.8	Gaboure	13	1000	41.76	542.88	0.04	Novoph	0.02	311.17	1.7
PETHIDINE HCl	Inj, 50mg/ml; 2.15m	Amp	7.8	Leiva	30	100	11.00	329.97	0.11	Roche	0.46	1378.14	0.2
PHYTOMENADIONE (VIT K)	Inj,1mg/0.5ml; 0.5m	Amp	28.8	TB	600	1	1.46	876.00	1.46	Ongar	0.88	529.74	1.7
PREDNISONE	Tab 5 mg	Tab	28.8	Gaboure	12000	1	0.05	600.00	0.05	Novoph	0.02	246.50	2.4
PROPRANOLOL HCl	Tab 40mg	Tab	11.9	DWD	8	1000	28.86	230.88	0.03	PahoList	0.01	47.20	4.9
RANITIDINE	Inj, 25mg/ml; 2ml A	Amp	28.8	Lieva	25	20	15.85	396.25	0.79	Ongar	2.70	1351.60	0.3
SODIUM CHLORIDE	Inj,IV, 0.9%(N Sali	Botl	20.8	Leiva	350	12	47.28	16548.00	3.94	IDA	2.85	11968.60	1.4
SODIUM LACTATE Cpd.	Inj,IV(Hartmans Sol	Botl	11.9	F.Moran	200	12	43.20	8640.00	3.60	IDA	2.82	6756.47	1.3
SPIRONOLACTONE	Tab, 25 mg	Tab	28.8	Gaboure	24	500	202.53	4860.72	0.41	PahoList	0.06	738.00	6.6
TETRACYCLINE	Cap 250mg	Caps	28.8	Gaboure	40000	1	0.10	4000.00	0.10	PahoList	0.02	958.42	4.2
VERAPAMIL HCl	Tab, 80mg	Tab	7.8	Leiva	13	500	284.80	3702.40	0.57	PahoList	0.19	1228.03	3.0
WARFARIN SODIUM	Tab, 5 mg	Tab	16.8	Central	1	100	47.00	47.00	0.47	IDA	0.13	13.12	3.6

Total cost 42 Items at Local Price: 152920.40 Total at PAHO Price: 85677.96

Difference Local vs PAHO: 67242.44

Ratio Local Price to PAHO Price: 1.78 to 1

Total Cost 41 items (without Amikacin): 140518.40 Total at PAHO Price: 65442.00

Difference without Amikacin: 75076.40

Ratio Local Price to PAHO Price: 2.15 to 1

Prices are most recent actual net cost, except PAHO List prices; these were used when an item was not apparently ordered from PAHO. They are taken from the March 1990 PAHO price list, adding 23% for freight and handling (the average from the latest available PAHO-FORMED Statement.

APPENDIX 6: INFORMATION ON CROWN AGENTS LEAD TIME

ORGANISATION OF EASTERN CARIBBEAN STATES

Eastern Caribbean Drug Service (ECDS)

Telegraphic Address : OECAS ST. LUCIA
Telex: 6410 ECDS LC
Telephone: 25058/25895

Central Secretariat,
P.O. Box 179,
The Morne,
Castries,
St. Lucia, West Indies.

Our Ref:
Your Ref:

December 14, 1990

Mr Jim Rankin
Management Sciences for Health
165 Allansdale Road
Boston
Massachussetts 02130
U.S.A.

Dear Mr Rankin,

As per our telephone conversation, I have submitted data with respect to Crown Agents' leadtime.

The data represents statistics on three (3) purchase orders which are presented by the numerous partial shipments per original order. Although the sample is relatively small, it nevertheless depicts the typical situation.

A more detailed analysis could be presented to you at a later date if you so desire.

Yours faithfully,

Francis Burnett

FRANCIS BURNETT
ASSISTANT MANAGING DIRECTOR

FB/tp

ANALYSIS OF CROWN AGENTS LEADTIME

	P.O. DATE	PARTIAL SHIPMENT	TOTAL LEAD TIME - MTHS
P.O. NO. VIN-291	27/4/89	1	5
	"	2	5
	"	3	6
	"	4	9
P.O. NO. GRE-203	4/8/88	1	5
	"	2	5
	"	3	6
	"	4	6
P.O. NO. DOM-208	16/8/88	1	5
	"	2	4
	"	3	6
	"	4	4

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH

List Contents:

Suggested Revisions - ABC Order

Suggested Revisions - Alphabetical Order

Suggested Additions to the Formulary

PRICE SOURCE CODES	
I	International Price List (Average Price)
C	CMS Unit Cost (July 1990 Forecast)
D	Dominica Unit Cost
PAHO	PAHO Price List (1990)
O	Belize Unit Cost (1988)
ECDS	Eastern Caribbean Drug Service, List of Drugs to Tender: 90/91)
IDA	International Dispensary Association, Price Indicator, November 1990
E	Estimated Unit Cost (price not found)

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ALPHABETICAL ORDER

Pharmacist Forecast	Consultant's Suggested	Revisions	
2,535,516	1,816,489	BZ$	Drugs
3,902,082	2,512,174	BZ$	Supplies
126,875	114,195	BZ$	Galenicals
6,564,473	4,442,858	BZ$	Total

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
FORMULARY DRUGS:																								
ACETAZOLAMIDE	Tab,250mg	Tab	4000		2000		0		5000		0		5000		2000		18000	18000	0.02	I	$315	$315	$0	0
ACRIFLAVINE	Lotion,0.1%	Botl	1		0		0		0		45		0		410		456	456	0.16	D	$72	$72	$0	0
ACYCLOVIR	Oint, 3%	Tube	96		100		0		100		0		0		70		366	366	10.19	O	$3,729	$3,729	$0	0
ACYCLOVIR	Oint, Eye, 3%;	Tube	48		200		0		1200	200	0		0		35		1483	483	23.41	I	$34,720	$11,308	$23,412	0
ADRENALINE (EPINEPH	Inj,1mg(HCl)/m	Amp	3000		600		1800		600		450		12120	1800	125		18895	8575	0.06	I	$1,134	$515	$619	400
ALCURONIUM Cl	Inj, 5mg/ml; 2	Amp	200		0		365		0		0		0		0		565	565	2.50	O	$1,413	$1,413	$0	100
ALLOPURINOL	Tab, 100mg	Tab	12000		3000		4800		4000		1000		1000		7000	5000	32800	30800	0.01	I	$394	$370	$24	3000
ALUMINUM HYDROXIDE	Mixture,64mg/	Botl	18		300		0		150		0		832		275		1575	1575	1.75	I	$2,756	$2,756	$0	0
AMIKACIN SULPHATE	Inj. 250 mg/ml;	Amp	1200		300		720		700		900		1500	900	360		5680	5080	12.25	O	$69,580	$62,230	$7,350	400
AMIKACIN SULPHATE	Inj. 50 mg/ml; 2	Amp	144		200		0		500				2000	500	200		3044	1544	3.98	O	$12,109	$6,142	$5,967	0
AMINOPHYLLINE	Inj,IV,25mg/ml;	Vial	3144		300		1200		1000		900		1500	1200	620		8664	8364	0.09	I	$806	$778	$28	500
AMINOPHYLLINE	Susp. 10 mg/m	Botl	300		300		72		200		180		3972	300	50		5074	1402	1.11	I	$5,643	$1,559	$4,084	0
AMINOPHYLLINE	Tab,100mg	Tab	24000		4000		18000		18000		1200		38400	18000	14000		117600	97200	0.01	D	$635	$525	$110	0
AMITRIPTYLLINE	Tab, 25mg	Tab	8000		2000		12000	8000	8000		3000		4800		3000		40800	36800	0.00	I	$184	$166	$18	2000
AMITRIPTYLLINE	Tab,75mg	Tab	3000		1000		6000		6000		8000		4800		1000		29800	29800	0.01	O	$310	$310	$0	0
AMPICILLIN	Cap, 250mg	Caps	312000		35500		90000		72000		48000		63600		9000		630100	630100	0.03	I	$16,887	$16,887	$0	30000
AMPICILLIN	Inj, 1g/Vial	Vial	2000		200		1800	1200	1200		0		1200		400		6800	6200	0.47	I	$3,227	$2,943	$285	0
AMPICILLIN	Inj, 500mg/Vial	Amp	4000		600		1200		600		18000	1200	0		600		25000	8200	0.22	I	$5,400	$1,771	$3,629	167
AMPICILLIN	Susp, 25mg/ml	Botl	4800		1700		2160		2000		2400		1500		800		15360	15360	0.62	I	$9,523	$9,523	$0	0
ASPIRIN (ASA)	Tab, 300mg	Tab	48000		40000		120000	60000	65000		48000		51600		11400		384000	324000	0.00	I	$653	$551	$102	41000
ASPIRIN (ASA)	Tab 75mg	Tab	24000		40000		120000	40000	24000		0		1200		11400		220600	140600	0.00	I	$662	$422	$240	22000
ATROPINE	Drops,Eye,1%;	DrBtl	600		400		0		200		0		0		30		1230	1230	0.49	I	$605	$605	$0	0
ATROPINE	Inj.IM/IV,0.6 m	Vial	2000		200		480		1500		975		1200		240		6595	6595	0.06	I	$387	$387	$0	400
AZOTHIOPRINE	Tab, 50mg	Tab	0		2000		0		0		0		0		0		2000	2000	0.97	I	$1,945	$1,945	$0	0
BENZOIC & SALICYLIC A	Oint(Whitfields)	Tube	40		100		192		4000		20		3624		1640		9616	9616	0.03	D	$317	$317	$0	0
BENZOIC & SALICYLIC A	Oint(Whitfields)	Tube	0		136		192		2500		0		3624		350		6802	6802	0.17	I	$1,122	$1,122	$0	0
BENZOYL PEROXIDE	Lotion, 10%; 3	Botl	240		2000		0		4000		0		3624		0		9864	9864	1.93	O	$18,998	$18,998	$0	12

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ALPHABETICAL ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE – 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
BENZYDAMINE	Inj, 25mg; 5ml	Botl	0		0		0		0		0		0		0		0	0	0.75	O	$0	$0	$0	0
BENZYLBENZOATE	Emuls, 25%; 1	Botl	60		700		12		1600	700	0		180		144		2696	1796	2.80	I	$7,549	$5,029	$2,520	0
BISACODYL	Suppos, 10mg	Supp	600		1000		432		200		450		6800	1000	194		9676	3876	0.10	O	$939	$376	$563	0
BISACODYL	Suppos,Paed,	Supp	48		1000		432		200		350		6800	1000	150		8980	3180	0.09	O	$790	$280	$510	0
BISACODYL	Tab 5mg	Tab	10000		2000		4800		4000		18000		12000		3000		53800	53800	0.00	I	$194	$194	$0	0
CALAMINE LOTION	Lotion	Botl	227		300		6		50		24		3624	300	95		4326	1002	1.40	I	$6,056	$1,403	$4,654	0
CALCIUM GLUCONATE	Inj,100mg/ml;1	Vial	200		200		0		300		450		1200	450	100		2450	1700	0.11	I	$257	$179	$79	200
CARBAMAZEPINE	Tab 100mg	Tab	40000		5000		10800		4000		0		36000	12000	12000		107800	83800	0.14	O	$14,661	$11,397	$3,264	2000
CARBIMAZOLE	Tab, 5mg	Tab	24000		3000		3600		4000		750		12000	6000	6000		53350	47350	0.01	I	$555	$492	$62	0
CEFTAZIDIME	Inj, 500mg/Vial	Vial	600		0		0		0		0		1200	600	0		1800	1200	8.53	O	$15,345	$10,230	$5,115	50
CEFUROXIME	Inj, 750mg/vial	Vial	240		0		0		0		0		1200	240	0		1440	480	2.15	I	$3,097	$1,032	$2,064	100
CHARCOAL,ACTIVATED	Tab/Pwdr,300	Tab	2000		4000		600		4000		3750		7200	4000	2		21552	18352	0.01	I	$241	$206	$36	2000
CHLORAL HYDRATE	Mistura,100mg	Botl	2000		0		0		0		0		6		0		2006	2006	0.86	D	$1,728	$1,728	$0	0
CHLORAMPHENICOL	Cap, 250mg	Cap	18000		8000		2400		10000		9000		24000	18000	26000	18000	97400	83400	0.00	I	$341	$292	$49	5000
CHLORAMPHENICOL	Inj, 1g(Sod.Suc	Vial	1500		200		240		300		1200		1200		600		5240	5240	0.22	I	$1,132	$1,132	$0	150
CHLORAMPHENICOL	Oint,Eye,1%; 4	Tube	720		1300		360		1300		1300		2646	1300	1760	1300	9386	7580	0.16	I	$1,472	$1,189	$283	0
CHLORAMPHENICOL	Susp, 25mg(Pa	Botl	144		200		0		400		0		2646	400	200		3590	1344	0.70	I	$2,513	$941	$1,572	100
CHLORDIAZEPOXIDE H	Caps/Tab, 10m	Tab	3000		3000		10800	6000	7000		6000		12000	6000	6000		47800	37000	0.01	O	$239	$185	$54	0
CHLORDIAZEPOXIDE H	Caps/Tab 25m	Tab	1000		1000		6000		2000		0		12000	6000	3000		25000	19000	0.01	O	$350	$266	$84	2000
CHLORHEXIDINE	Soln,Conc,20	Botl	50		25		0		10		16		12		6		119	119	61.50	I	$7,319	$7,319	$0	0
CHLORHEXIDINE	Soln,Top,Chlor	Botl	280		23		3		8		0		12		50		376	376	17.00	I	$6,392	$6,392	$0	5
CHLOROQUINE SULPH/	Tab,200-250m	Tab	3000		36000		0		20000		108000		18000		0		185000	185000	0.02	I	$2,905	$2,905	$0	0
CHLORPHENIRAMINE M	Tab,4mg	Tab	24000		14000		30000		24000		27000		74640	30000	13000		206640	162000	0.00	I	$331	$259	$71	0
CHLORPROMAZINE HCl	Inj, 25mg/ml; 2	Amp	600		200		600	200	200		700		1200	700	145		3645	2745	0.06	I	$226	$170	$56	100
CHLORPROMAZINE HCl	Syrup, 5mg/ml	Botl	18		200		0		0		0		1200	200	0		1418	418	7.00	I	$9,926	$2,926	$7,000	0
CHLORPROMAZINE HCl	Tab, 100mg	Tab	18000		2000		12000		4000		9000		36000	12000	6000		87000	63000	0.01	I	$740	$536	$204	5000
CHLORPROMAZINE HCl	Tab 50 mg	Tab	20000		12000		12000		2000		9000		36000	12000	7000		98000	74000	0.01	O	$882	$666	$216	0
CHLORPROPAMIDE	Tab, 250mg	Tab	60000		500		36000		36000		36000		60000	36000	17000		245500	221500	0.01	I	$2,357	$2,126	$230	0
CLOTRIMAZOLE	Cr,Vaginal 2%;	Tube	720		1350	720	420		150		0		1860	720	194		4694	2924	3.34	O	$15,678	$9,766	$5,912	0
CLOTRIMAZOLE	Pessary, 500m	Pessar	2400		9000	2400	420		150		1200		1860		150		15180	8580	0.11	PAHO	$1,698	$960	$738	0
CLOXACILLIN SODIUM	Caps, 250mg	Caps	72000		300		48000		24000		4800		36000		12000		197100	197100	0.04	I	$8,258	$8,258	$0	4000
CLOXACILLIN SODIUM	Inj, Pdr; 500mg	Vial	1500		500		1200		1000		0		1200		0		5400	5400	0.42	I	$2,280	$2,280	$0	0
CLOXACILLIN SODIUM	Syrup/Susp 10	Botl	1920		0		2880	1900	300		2400	1900	1320		0		8820	7340	3.03	PAHO	$26,688	$22,209	$4,478	100

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ALPHABETICAL ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
Cleaner	Cream	Each	100		0		144	50	0		48		0		0		292	198	63.00	E	$18,396	$12,474	$5,922	0
Cleaner, Alkaline	Liquid	Botl	200		24		144	50	56		0		0		0		424	330	5.38	O	$2,279	$1,774	$505	0
Cleaner, Disinfectant		Botl	200		50		144	50	96		120		0		0		610	516	4.95	O	$3,020	$2,554	$465	0
Condom	Single Package	Cond	0		4000		1500		1500		500		24000	4000	0		31500	11500	0.23	O	$7,245	$2,645	$4,600	0
Cotton Wool	Absorbent,Non	Roll	4000		144		792		50		0		0		0		4986	4986	3.50	O	$17,451	$17,451	$0	0
Cotton Wool	Absorbent,Non	Roll	4000		0		0		0		0		0		0		4000	4000	1.05	O	$4,200	$4,200	$0	0
Cotton Wool	Absorbent,Non	Roll	4000		150		0		200		0		304	200	172		4826	4722	1.50	O	$7,239	$7,083	$156	0
Cotton Wool	Absorbent,Non	Roll	4000		174		0		300		0		304	300	202		4980	4976	3.58	O	$17,828	$17,814	$14	0
Cotton Wool	Absorbent,Non	Roll	4000		240		0		314		336		628	300	202		5720	5392	4.47	D	$25,582	$24,115	$1,467	500
Cotton Wool	Absorbent,Non	Roll	4000		240		0		0		0		0		470		4710	4710	1.20	O	$5,652	$5,652	$0	0
Cotton Wool	BVD	Roll	4000		0		0		0		0		0		0		4000	4000	0.01	O	$40	$40	$0	0
Cover for Shoes		Cover	2000		28		10000	1200	100		300		1200		0		13628	4828	0.22	D	$3,062	$1,085	$1,977	200
Depressor, Tongue	Tongue Depres	Box	17000		8000		24000	12000	250	8000	21600	12000	144	12000	1800	8000	72794	77000	0.02	D	$1,543	$1,632	($89)	1000
Diapers, Disposable		Box	50		300		4320	300	16		12		264		0		4962	942	1.20	O	$5,954	$1,130	$4,824	0
Dish, Kidney	Large	Dish	20		12		84		25		36		46		0		223	223	2.88	IDA	$643	$643	$0	0
Dish, Kidney	Medium	Dish	20		12		84		52		4		46		0		218	218	2.88	IDA	$628	$628	$0	0
Dish, Kidney	Small	Dish	20		12		84		52		36		46		0		250	250	2.20	IDA	$549	$549	$0	0
Disinfectant Solution	"Milton", 300m	Botl	0		24		0		3		0		0		300	24	327	51	1.41	E	$461	$72	$389	0
Disinfectant Solution	"Milton", 5 litre	Botl	60		3		6		60		227	60	660	60	62		1078	311	20.50	O	$22,099	$6,376	$15,724	11
Disinfectant Solution	"Milton", 600m	Botl	0		54		0		0		0		0		300	54	354	108	2.82	O	$997	$304	$692	0
Dispenser	Soap	Each	60		50		18		50		12		60		7		257	257	11.82	O	$3,038	$3,038	$0	0
Flashlight	(--specs ??)	Lite	48		12		24		12		2		20		0		118	118	0.49	O	$58	$58	$0	0
Forcep	(sizes/types no	Each	106		110		24		0		180		0		0		420	420	1.76	O	$737	$737	$0	0
Giving Set	Blood Admin	Set	0		4200		2096		50		12		1680		0		8038	8038	0.98	O	$7,837	$7,837	$0	900
Giving Set IV	Admin Set, I.V.	Set	6000	0	2000	0	12000	0	800	0	12	0	1680	0	400	0	22892	Duplicate	1.55	O	$35,483	$0	$35,483	0
Gloves	Non-Sterile, Di	Pair	0		2000		31600	11000	1600		10720		16800	11000	2000		64720	38320	0.44	O	$28,347	$16,784	$11,563	1200
Gloves	Non-Sterile, In	Pair	336		1500		164		1206		50		9360	1500	850		13466	5606	0.17	O	$2,222	$925	$1,297	400
Gloves	Sterile,Disposa	Pair	1200		900		4600	3500	1200		1200		9360	6900	300		18760	15200	0.40	O	$7,504	$6,080	$1,424	0
Gloves	Sterile,Disposa	Pair	25000		2000		6600	5000	2000		1200		9360	6900	850		47010	42950	0.57	O	$26,796	$24,482	$2,314	250
Gloves	Sterile,Disposa	Pair	30000		2000		13100	10000	1200		1200		9360	6900	600		57460	51900	0.37	O	$21,145	$19,099	$2,046	400
Gloves	Sterile,Disposa	Pair	30000		2000		13600	10000	1600		1500		16800	11000	2080		67580	58180	0.37	O	$24,869	$21,410	$3,459	600
Gloves	Sterile,Disposa	Pair	25000		1000		8600	6500	2000		1500		9360	6900	800		48260	43700	0.37	O	$17,760	$16,082	$1,678	0
Gown, Surgical	Disposable, St	Gown	3000		800		4006	3000	1000		1212		1200		0		11218	10212	0.50	O	$5,609	$5,106	$503	0

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ALPHABETICAL ORDER

			DISTRICT REQUIREMENTS														TOTAL QUANTITY AND VALUE – 11/90 Forecasts							CMS
GENERIC NAME	FORMAT	UNIT	Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	Jul 90 Total Reported Monthly Issue Rate
COAL TAR SOLUTION	Olnt, 2.5%	Botl	16		0		0		0		0		600	20	0		616	36	4.16	D	$2,563	$150	$2,413	0
CODEINE LINCTUS BPC	Soln,Oral, 3mg	Botl	42		0		0		450		0		1680	450	0		2172	942	6.67	D	$14,479	$6,280	$8,199	0
CODEINE PHOSPHATE	Tab, 30mg	Tab	6000		1000		3600		24000	12000	12000		12000		1000		59600	47600	0.43	D	$25,694	$20,520	$5,173	0
CO-CODAPRIN	Tab, Codeine 8	Tab	24000		2000		9600		0		0		80400	24000	0		116000	59600	0.01	O	$580	$298	$282	0
CO-TRIMOXAZOLE	Inj,96mg/ml; a	Amp	960		300		0		300		900		1200	900	0		3660	3360	1.40	ECDS	$5,124	$4,704	$420	200
CO-TRIMOXAZOLE	Susp, 48mg/ml	Botl	3000		2000		1440		800		2400		2280		510		12430	12430	0.47	I	$5,892	$5,892	$0	0
CO-TRIMOXAZOLE	Tab,480mg	Tab	192000		1800		36000		48000		48000		72000	48000	36000		433800	409800	0.02	I	$7,331	$6,926	$406	10000
CYCLOPHOSPHAMIDE	Tab, 25mg	Tab	600		1000		0		0		0		12000	1000	0		13600	2600	0.08	I	$1,127	$215	$911	0
DEXAMETHASONE SOD	Inj, 4mg/ml;1ml	Amp	960		425		1220		1200		900		1200		350		6255	6255	0.13	I	$806	$806	$0	300
DEXAMETHASONE-NE	Drops,Eye-Ear	DrBtl	960		800		432		1200		0		1200		150		4742	4742	5.66	O	$26,840	$26,840	$0	100
DEXTRAN- 70	Inj,IV,6% in 5	Botl	144		0		1200	850	0		75		576		865		2860	2510	4.40	I	$12,584	$11,044	$1,540	50
DEXTROSE	Inj,IV, 5% in W	Botl	1440		1200		14400	1440	200		1200		1200		600		20240	7280	0.35	I	$7,084	$2,548	$4,536	0
DEXTROSE	Inj,IV,50% in W	Vial	600		200		360		200		100		200		100		1760	1760	0.57	I	$1,003	$1,003	$0	100
DEXTROSE	Inj,IV,5% in Wa	Botl	12000		0		2400		1440		0		600		300		16740	16740	1.40	I	$23,436	$23,436	$0	1200
DIAGNOSTIC, BLOOD,G	Strips, 50s (Am	Pkge	0		50		12		0		0		108		0		170	170	34.89	D	$5,931	$5,931	$0	0
DIAGNOSTIC, TUBERCU	PPD-S(Mantou	Vial	0		0		0		0		0		0		0		0	0	18.50	O	$0	$0	$0	0
DIAGNOSTIC, URINE	pH,Prot,Gluc,K	Botl	0		24		10		0		0		0		0		34	34	0.54	D	$18	$18	$0	0
DIALYSIS SOLN, PERIT	Inj,IV,w 1.5%D	Botl	500		0		3000	500	0		0		0		0		3500	1000	1.10	O	$3,850	$1,100	$2,750	100
DIAZEPAM	Inj, 5mg/ml; 2	Amp	2400		400		720		500		900		1500	900	325		6745	6145	0.06	I	$430	$392	$38	600
DIAZEPAM	Tab, 5mg	Tab	24000		8000		12000		6000		27000	15000	15000		12000		104000	92000	0.00	I	$229	$202	$26	11000
DICLOFENAC	Inj, 25mg/ml; 3	Vial	150		0		12000	1200	0		0		1200		0		13350	2550	1.40	O	$18,690	$3,570	$15,120	100
DIENOESTROL	CreamVaginal,	Tube	24		300		0		0		0		500		0		824	824	4.32	O	$3,560	$3,560	$0	0
DIGOXIN	Elixir, 0.05mg/	Botl	144		0		0		0		0		3000	300	0		3144	444	0.59	I	$1,849	$261	$1,588	0
DIGOXIN	Inj 0.25mg/ml;	Amp	400		200		360		200		600		1200	600	240		3200	2600	0.07	I	$230	$187	$43	100
DIGOXIN	Tab 0.25mg	Tab	18000		6000		6000		1200		9000		36000	18000	5000		81200	63200	0.00	I	$333	$259	$74	5000
DIPYRIDAMOLE	Tab,SC,25mg	Tab	36000		2000		0		0		0		24000	12000	4000		66000	54000	0.03	O	$2,046	$1,674	$372	0
DISOPYRAMIDE	Tab, 100mg	Tab	12000		2000		0		0		0		12000	6000	0		26000	20000	0.03	O	$780	$600	$180	0
DOPAMINE HCl	Inj,40mg/ml;5	Amp	200		100		0		0		25		600	200	100		1025	625	3.00	I	$3,075	$1,875	$1,200	0
DROPERIDOL	Inj, 2.5mg/ml;	Amp	200		0		0		0		0		2400	240	0		2600	440	2.08	O	$5,411	$916	$4,495	100
EPHEDRINE HCl	Drops,Nasal,1	Botl	2000		160		288		1100	600	0		600		75		4223	3723	0.54	D	$2,289	$2,018	$271	0
EPHEDRINE HCl	Inj, 5mg/ml; 1	Amp	250		100		240		400		0		1200	400	0		2190	1390	0.06	I	$124	$78	$45	0
ERGOMETRINE MALEA	Inj, 0.5mg/ml;	Amp	1800		800		12000	2000	800		600		2280		625		18905	8905	0.06	I	$1,134	$534	$600	500
ERGOMETRINE MALEA	Tab, 0.5mg	Tab	1200		3000		5760		6000		4000		22800	6000	4000		46760	29960	0.01	I	$397	$255	$143	3000

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ALPHABETICAL ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
Gravideyx-90(60)		MSC	0		0		0		0		0		0		0		0	0	75.00	O	$0	$0	$0	0
Guaze	By Pound weig	Box	0		240		54		0		0		480		0		774	774	23.73	O	$18,363	$18,363	$0	0
Guaze, Absorbent	Roll, Non-Steri	Roll	950		144		329		254		84		480	329	245		2486	2335	21.05	O	$52,320	$49,141	$3,179	0
Guaze, Swab	X-Ray, 10cm x	Each	1200		300		500		100		0		1200	500	100		3400	2700	0.02	E	$83	$66	$17	0
Hand Brush		Each	600		50		500		62		12		404		0		1628	1628	12.50	O	$20,350	$20,350	$0	5
Holder	Forcep Needle	Holdr	60		150	60	60		0		18		0		0		288	198	31.36	E	$9,032	$6,209	$2,822	
Humidifier	Capacity 2 gall	Machn	24		3		10		6		1		0		0		44	44	44.39	O	$1,953	$1,953	$0	3
Hypo Needles		Each			20000	0 -DUP	0		0		0		0		0		20000	0	0.25	D	$4,920	$0	$4,920	0
Intra Uterine Device	Copper-T Coil	IUD	18		100		200		0		0		4000	400	0		4318	718	7.20	IDA	$31,110	$5,173	$25,937	0
Jaconet' Roll	(specs ??); 50	Roll	60		0		0		4		0		0		0		64	64	6.05	O	$387	$387	$0	50
Mackintosh" Roll	(specs ??); 50	Roll	300		0		7		6		2		10		0		325	325	0.28	O	$91	$91	$0	0
Mask, Face		Mask	0		50		15000	2000	2000		360		1200		0		18610	5610	0.31	IDA	$5,779	$1,742	$4,037	0
Mask, Surgical		Mask	8000		50		15000	2000	2000		0		1200		0		26250	13250	0.22	D	$5,888	$2,972	$2,916	2000
Measuring Glass	Pharmacy, Cali	Glass	10		2		2		0		3		13		5		35	35	6.84	E	$240	$240	$0	0
Measuring Glass	Pharmacy, Cali	Glass	30		4		2		0		6		13		16		71	71	2.55	E	$181	$181	$0	0
Measuring Glass	Pharmacy, Cali	Glass	30		4		2		0		6		13		16		71	71	2.39	E	$169	$169	$0	0
Measuring Glass	Pharmacy, Cali	Glass	10		3		2		0		3		13		5		36	36	3.71	E	$134	$134	$0	0
Mop Bucket		Pail	10		24		12		10		0		73		0		129	129	47.50	O	$6,128	$6,128	$0	0
Mop Bucket, Wringer		Each	10		24		12		10		5		73		0		134	134	47.50	O	$6,365	$6,365	$0	0
Needle, Disposable	Dental, Long, 2	Needl	5000		12000	5000	1800		0		2400		16800	5000	0		38000	19200	0.09	D	$3,583	$1,811	$1,773	2000
Needle, Disposable	#18 G x 1.5"	Needl	9000		50000	9000	2000		1000		0		16800	9000	1000		79800	31000	0.05	D	$3,854	$1,497	$2,357	0
Needle, Disposable	#20 G x 1.5"	Needl	13000		50000	13000	12000		1000		300		16800	13000	6500		99600	58800	0.03	D	$3,416	$2,017	$1,399	11760
Needle, Disposable	#22 G x 1.5"	Needl	18000		50000	18000	18000		2000		1200		16800		13780		119780	87780	0.06	D	$7,319	$5,363	$1,955	14684
Needle, Disposable	#23 G x 1.5"	Needl	6500		50000	6500	12000	6500	2000		1500		16800	6500	11500	6500	100300	36000	0.06	D	$6,128	$2,200	$3,929	1300
Needle, Disposable	#25 G x 1.5"	Needl	9000		50000	9000	21600	9000	2000		1200		16800	9000	9500	9000	110100	48200	0.05	D	$5,780	$2,531	$3,250	8106
Needle, Disposable	#26 G x 1.5"	Needl	7000		50000	7000	12000	7000	2000		300		16800	7000	5800		93900	36100	0.05	D	$4,930	$1,895	$3,035	0
Needle, Disposable	#21 G x 1.5"	Needl	17000		50000	12000	12000		2300		900		16800	12000	11200		110200	67400	0.03	D	$3,780	$2,312	$1,468	2000
Needle, Infusion Set	Butterfly	Set	0		2000		2000		400		600		12600	2000	600		18200	7600	1.81	O	$32,851	$13,718	$19,133	0
Needle, Infusion Set	#23 G, Scalp V	Set	4000		300		2160		300		600		12600	2000	1050		21010	10410	1.52	O	$31,935	$15,823	$16,112	300
Needle, Infusion Set	#25 G, Scale V	Set	6000		300		2160		400		600		12600	2000	1050		23110	12510	1.81	O	$41,714	$22,581	$19,133	300
Needle, Infusion Set	#21 G, Scalp Ve	Set	5000		300		2000		400		600		12600	2000	600		21500	10900	1.25	E	$26,875	$13,625	$13,250	400
Needle, Infusion Set	#19 G, Scalp Ve	Set	4000		300		2192		200		600		12600	2000	500		20392	9792	1.25	O	$25,490	$12,240	$13,250	300
Needle, Spinal	#20 G x 3.5	Needl	150		500		432		50		0		1200	500	0		2332	1632	1.99	D	$4,645	$3,251	$1,394	0

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ALPHABETICAL ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
LINDANE	Shampoo/Lotio	Botl	216		500		864		300		2400		2400		900		7580	7580	0.74	I	$5,609	$5,609	$0	0
LIQUID PARAFFIN,(MEDI	Mineral Oil, He	Botl	810		150		12		0		24		10		200		1206	1206	1.75	O	$2,111	$2,111	$0	0
LITHIUM CARBONATE	Cap, 300mg (	Cap	2000		0		0		0		0		1200		0		3200	3200	0.03	I	$106	$106	$0	1000
LOPERAMIDE	Cap, 2mg	Caps	2500		3000		7200		0		0		6000		0		18700	18700	0.01	I	$202	$202	$0	2000
LOPERAMIDE	Syrup,0.2mg/m	Botl	144		700		144		0		0		1200	700	0		2188	1688	3.35	O	$7,325	$5,651	$1,674	50
LUBRICATING JELLY	Jelly,Topical; 1	Tube	648		600		288		200		450		416		101		2703	2703	0.87	O	$2,344	$2,344	$0	100
MAGNESIUM SULPHAT	Inj, 50%; 10ml	Amp	300		200		360		200		900		240		50		2250	2250	0.53	D	$1,203	$1,203	$0	0
MAGNESIUM TRISIL CP	Tab,BPC	Tab	20000		8000		39600		40000		36000		96000	40000	74400	40000	314000	223600	0.00	I	$1,507	$1,073	$434	0
MAGNESIUM TRISIL MIS	Susp, BPC	Botl	2600		800		341		0		38		0		512		4291	4291	0.00	D	$15	$15	$0	0
MANNITOL	Inj,IV,20%; 250	Botl	180		400	200	144		60		0		300	200	0		1084	784	1.42	D	$1,541	$1,115	$427	0
MEBENDAZOLE	Susp,Oral,20m	Botl	960		800		960		600		600		2424	960	0		6344	4880	0.75	D	$4,728	$3,637	$1,091	0
MEBENDAZOLE	Tab,Chewable,	Tab	8000		20000		19200		13000		27000		90000	45000	45200		222400	177400	0.01	I	$1,979	$1,579	$401	6000
MEDROXYPROGESTER	Inj, 50mg/ml; 3	Amp	60		50		0		0				600		0		710	710	1.21	E	$857	$857	$0	0
METFORMIN	Tab, 500mg	Tab	8000		0		0		0		0		12000	8000	0		20000	16000	0.04	D	$718	$574	$144	2000
METHOTREXATE	Tab, 2.5mg	Tab	600		1000		0		0		0		6000	1000	0		7600	2600	0.05	I	$345	$118	$227	1000
METHYL SALICYLATE	Oint 10%	Tube	585		150		108		0		6		0		0		849	849	2.00	E	$1,699	$1,699	$0	0
METHYLDOPA	Tab, 250mg	Tab	42000		30000		30000		55000	40000	27000		10000		42000		236000	221000	0.03	I	$6,514	$6,100	$414	0
METOCLOPRAMIDE	Inj, 5mg/ml; 2	Amp	2000		250		500		1000		900		0		0		4650	4650	0.10	I	$487	$487	$0	300
METOCLOPRAMIDE	Syrup, 1mg/ml;	DrBtl	360		200		144		300		0		6000	400	0		7004	1404	5.50	C	$38,522	$7,722	$30,800	100
METOCLOPRAMIDE	Tab,10mg	Tab	24000		2000		6000		6000		27000	12000	12000		6000		83000	68000	0.01	I	$432	$354	$78	3000
METRONIDAZOLE	Inj,IV,5mg/ml;	Vial	1200		200		36		600		900	600	600		0		3536	3236	1.20	I	$4,243	$3,883	$360	200
METRONIDAZOLE	Pessary, 200m	Pessar	1000		300		12000	1200	600		0		0		0		13900	3100	0.01	I	$174	$39	$135	0
METRONIDAZOLE	Suppository, 5	Supp	600		200		288		400		0		3600	600	0		5088	2088	1.29	E	$6,576	$2,698	$3,877	0
METRONIDAZOLE	Susp, Paed, 40	Botl	1200		400		1200		600		1800	1200	3600	1200	0		8800	5800	0.74	I	$6,512	$4,292	$2,220	0
METRONIDAZOLE	Tab, 250mg	Tab	36000		6000		30000		48000	36000	27000		60000	36000	18000		225000	189000	0.01	I	$1,643	$1,380	$263	0
MICONAZOLE	Cream, Topical	Tube	1440		400		600		400		300		1320	600	150		4610	3890	1.55	D	$7,152	$6,035	$1,117	100
MINOXODIL	Tab, 5mg	Tab	3000		2000		0		3000		0		12000	3000	0		20000	11000	0.38	O	$7,500	$4,125	$3,375	1000
MORPHINE MIXTURE	Soln,Oral (Nep	Botl	12		0		0		0		0		300	150	0		312	162	6.23	D	$1,943	$1,009	$934	0
MORPHINE SULPHATE	Inj, 10mg/ml; 1	Amp	300		300		18		0		0		120		0		738	738	0.33	D	$245	$245	$0	50
NEOMYCIN PREP'N, TO	Oint,B-N-Poly	Tube	2400		2350		1224		0		2000		600		550		9124	9124	0.09	I	$794	$794	$0	500
NEOSTIGMINE	Inj, 0.5mg/ml;	Amp	1200		100		0		0		0		600	300	0		1900	1600	0.06	I	$119	$100	$19	0
NITRAZEPAM	Tab, Scored,5	Tab	4000		2000		6000		4000		9000		6000		600		31600	31600	0.10	O	$3,160	$3,160	$0	3000
NITROFURANTOIN	Tab, 50mg	Tab	8000		3000		12000	8000	4000		3000		12000	8000	12000	8000	54000	42000	0.00	I	$221	$172	$49	8000

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POTASSIUM CIT MIXTU	Mixture,Oral,B	Botl	36		0		0		0		0		360	36	19		415	91	3.13	D	$1,300	$285	$1,015	0
PREDNISOLONE	Tab, 5mg	Tab	18000		6000		18000		24000		24000		36000	24000	6000		132000	120000	0.01	I	$1,003	$912	$91	0
PRIMAQUINE	Tab, 7.5mg ba	Tab	2000		50000		0		11000		72000		12000		0		147000	147000	0.00	I	$603	$603	$0	0
PROCYCLIDINE HCl	Inj, 5mg/ml; 2	Amp	0		0		0		0		0		240	120	0		240	120	3.79	PAHO	$911	$455	$455	0
PROCYCLIDINE HCl	Tab, 5mg	Tab	0		0		0		0		0		12000	6000	0		12000	6000	0.04	O	$528	$264	$264	0
PROMETHAZINE HCl	Inj 25mg/ml;2m	Amp	960		900		12000	1200	16000	1600	1200		1320		450		32830	7630	0.06	I	$2,095	$487	$1,608	150
PROPRANOLOL HCl	Tab 40mg	Tab	130000		8000		18000		32000		36000		36000		20000		280000	280000	0.00	I	$980	$980	$0	12000
PROTAMINE SULPHATE	Inj,10mg/ml; 5	Amp	24		200		0		0		0		0		0		224	224	0.66	I	$148	$148	$0	0
PYRAZINAMIDE	Tab, 500mg	Tab	2400		12000	6000	0		0		6000		0		6000		26400	20400	0.03	I	$832	$643	$189	3000
PYRIDOSTIGMINE BRO	Inj, 1mg/ml; 1	Amp	1200		120		0		200		0		240		0		1760	1760	0.46	O	$810	$810	$0	0
PYRIDOSTIGMINE BRO	Tab, 60mg	Tab	3600		2000		0		8000		0		12000	8000	0		25600	21600	0.15	I	$3,948	$3,331	$617	0
PYRIDOXINE HCl (B 6)	Tab, 50mg	Tab	12000		14000		12000		0		11000		24000	12000	3000		76000	64000	0.04	I	$3,063	$2,579	$484	0
RANITIDINE	Inj, 25mg/ml; 2	Amp	1200		100		960		300		0		360		100		3020	3020	1.13	O	$3,425	$3,425	$0	100
RANITIDINE	Tab, 150mg	Tab	24000		4000		18000		12000		0		24000	18000	6000		88000	82000	0.01	O	$1,179	$1,098	$80	1000
RIFAMPICIN	Caps, 300mg	Caps	3600		10000		10500		12000		2000		0		0		38100	38100	0.08	I	$2,949	$2,949	$0	500
SALBUTAMOL SULPHA	Inhalor,100mcg	Vial	1200		200		0		200		0		360		150		2110	2110	1.36	I	$2,870	$2,870	$0	0
SALBUTAMOL SULPHA	Soln for Respir	Botl	200		200		36		0		0		0		100		536	536	4.77	O	$2,557	$2,557	$0	50
SALBUTAMOL SULPHA	Syrup,0.4mg/m	Botl	1200		0		288		400		0		1200	600	200		3288	2688	1.55	D	$5,090	$4,161	$929	0
SALBUTAMOL SULPHA	Tab, 4mg	Tab	36000		9000		12000		15000		27000		0		14000		113000	113000	0.00	I	$554	$554	$0	250
SERUM, ANTIRABIES,I'	Inj, 200u/ml;5m	Amp	0		5000	500	0		0		0		0		0		5000	500	8.86	I	$44,280	$4,428	$39,852	0
SERUM, ANTIVENOM	Inj, 10ml	Vial	200		20		72		300		600	400	60		50		1302	1102	13.62	I	$17,733	$15,009	$2,724	33
SERUM, ANTI-D IMMUN	Inj, 250mcg;2m	Amp	60		0		0		0		0		0		0		60	60	32.10	D	$1,926	$1,926	$0	0
SERUM, TETANUS ANTI	Inj, 50,000U	Vial	48		0		0		0		0		300	150	0		348	198	7.06	D	$2,458	$1,399	$1,060	0
SILVER NITRATE	Drops, Eye 1%	Botl	0		150		6		0		0		240	120	0		396	276	0.17	I	$68	$47	$21	0
SILVER SULPHADIAZIN	Cream, 1%; 50	Jar	30		100		120		50		200	50	144		24		668	518	15.25	I	$10,187	$7,900	$2,288	0
SILVER SUPHADIAZINE	Cream, 1%; 60	Tube	60		200		120		200		50	200	0		40		670	820	1.83	I	$1,226	$1,501	($275)	100
SODIUM BICARBONATE	Inj,IV, 8.4%; 50	Vial	120		200		0		300	200	0		0		100		720	620	1.10	D	$791	$682	$110	0
SODIUM CHLORIDE	Inj,IV, 0.9%(N	Botl	12000		1500		360		1440		2400		1068		480		19248	19248	1.30	I	$25,022	$25,022	$0	900
SODIUM LACTATE Cpd.	Inj,IV(Hartman	Botl	6000		800		6500	2400	1440		2400		1068		600		18808	14708	0.70	I	$13,166	$10,296	$2,870	333
SODIUM VALPROATE	Caps, 250 mg	Caps	24000		3000		8400		0		1000		6000		0		42400	42400	0.04	PAHO	$1,907	$1,907	$0	2000
SPECTINOMYCIN-STRE	Inj, 2g Vial with	Amp	60		0		0		200	100	0		0		0		260	160	3.10	O	$806	$496	$310	0
SPIRONOLACTONE	Tab, 25 mg	Tab	24000		2000		6000		8000		2000		12000		12000		66000	66000	0.02	I	$1,452	$1,452	$0	2000
STILBOESTROL	Tab, 5 mg	Tab	1200		1000		36000		4000		3000		12000		6000		63200	63200	0.10	D	$6,143	$6,143	$0	3000

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ALPHABETICAL ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
STREPTOMYCIN SULFA	Inj, 1g/vial	Vial	600		400		5500	900	400		300		3552	900	900		11652	4400	0.08	I	$979	$370	$609	0
SULFACETAMIDE SODI	Drops,Eye,10	DrBtl	1200		200		360		500		300		2280	800	899		5739	4259	0.36	I	$2,066	$1,533	$533	0
SULPHA,TRIPLE	Cream,Topical	Tube	144		250		432		400		0		828	400	140		2194	1766	2.76	O	$6,055	$4,874	$1,181	0
SUXAMETHONIUM CHL	Inj, 20mg/ml; 1	Amp	0		0		0		0		0		0		0		0	0	3.57	D	$0	$0	$0	0
SUXAMETHONIUM CHL	Inj, 20mg/ml; 2	Amp	1200		0		0		0		0		0		0		1200	1200	3.57	D	$4,285	$4,285	$0	150
SUXAMETHONIUM CHL	Inj, IV, 500mg(	Amp	240		0		0		0		0		0		0		240	240	3.59	O	$862	$862	$0	0
SUXAMETHONIUM CHL	Inj. 50mg/ml; 2	Amp	500		400		0		0		0		0		0		900	900	0.10	I	$90	$90	$0	0
TETRACYCLINE	Cap 250mg	Caps	72000		22000		3600		60000		27000		72000	62000	62000		318600	308600	0.01	I	$3,505	$3,395	$110	20000
THIAMINE(VIT B1/ANEU	Inj, 100mg/ml;	Amp	240		200		0		200		0		1200	200	0		1840	840	0.08	D	$141	$64	$77	0
THIAMINE(VIT B1/ANEU	Tab,50mg	Tab	12000		2000		12000		4000		12000		1200		400		43600	43600	0.01	D	$388	$388	$0	0
THIOPENTONE SODIUM	Inj, Pdr.for Inj;	Vial	2000		200		0		0		0		0		0		2200	2200	0.63	I	$1,388	$1,388	$0	100
THYROXINE SODIUM	Tab, 0.1mg (Le	Tab	6000		4000		3600		600		2000		0		0		16200	16200	0.02	D	$334	$334	$0	0
TOLBUTAMIDE	Tab, 500mg	Tab	18000		10000		7200		36000		3000		60000	36000	12000		146200	122200	0.01	I	$1,959	$1,637	$322	0
TRIAMCINALONE ACET	Inj,IM, 40mg/m	Amp	72		0		0		200		0		1200		0		1472	1472	8.05	D	$11,845	$11,845	$0	0
TRIFLUOPERAZINE	Tab, 5mg	Tab	9000		4000		9600		5000		3000		12000	9000	3000		45600	42600	0.01	D	$315	$294	$21	0
TUBOCURARINE CHLO	Inj.Miscible10	Amp	72		0		0		0		0		0		0		72	72	1.94	D	$140	$140	$0	0
UNDECENOIC ACID	Cream/Oint; 25	Tube	1200		0		0		800		0		600		0		2600	2600	1.00	I	$2,600	$2,600	$0	0
VACCINE, DIPHTHERIA,	Inj, 10 dose	Vial	0		800		420		500		60		0		0		1780	1780	0.03	PAHO	$53	$53	$0	0
VACCINE, DIP-TET-PER	Inj,Adsorbed, 2	Vial	0		0		270		0		480		0		0		750	750	0.02	PAHO	$15	$15	$0	0
VACCINE, M-M-R	Inj	Vial	0		400		0		0		0		0		0		400	400	1.19	PAHO	$476	$476	$0	0
VACCINE, RABIES	Injection	Vial	0		800		0		0		150		0		0		950	950	0.28	PAHO	$266	$266	$0	0
VACCINE, RUBELLA	Inj	Vial	0		0		0		0		0		0		0		0	0	0.14	PAHO	$0	$0	$0	0
VACCINE,BCG (DRIED)	Injection	Vial	0		300		500		0		240		0		0		1040	1040	0.09	PAHO	$94	$94	$0	0
VACCINE,MEASLES	Inj,Edmonston	Vial	0		400		480		0		432		0		0		1312	1312	0.08	PAHO	$105	$105	$0	0
VACCINE,POLIO,TRIVAL	Liquid,Oral;20	Vial	0		450		275		0		480		0		0		1205	1205	0.04	P	$48	$48	$0	0
VACCINE,TETANUS(TO	Inj, 10 ml	Vial	600		250		240		500		360		0		0		1950	1950	0.02	PAHO	$39	$39	$0	0
VACCINE,TYPHOID, BP	S. Typhi(Mono	Vial	0		0		0		0		0		0		0		0	0	0.17	PAHO	$0	$0	$0	0
VACCINE,YELLOW FEV	Injection	Vial	0		100		0		0		0		0		0		100	100	0.22	PAHO	$22	$22	$0	0
VERAPAMIL HCl	Tab, 80mg	Tab	18000		2000		0		0		0		24000	12000	7000		51000	39000	0.09	I	$4,702	$3,596	$1,106	1000
VITAMIN A ACETATE	Tab/Cap, 7.5m	Cap	0		3000		3600		5000		9000		12000	9000	7000		39600	36600	0.01	I	$317	$293	$24	1000
VITAMIN A PALMITATE	Inj, 20000u/ml	Vial	0		0		0		100		0		1200	120	100		1400	320	0.17	O	$235	$54	$181	0
VITAMIN B-COMPLEX w	Inj, IM; Pair of	Pair	144		400		480		300		0		1200	500	500		3024	2324	0.27	D	$816	$627	$189	0
VITAMIN B-COMPLEX w	Inj, IV; Pair of	Pair	0		400		480		100		0		1200	500	500		2680	1980	0.27	D	$731	$540	$191	0

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ALPHABETICAL ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
MEDICAL SUPPLIES:																								
Add-on Metriset, no Shut Off		Case	0		0		0		0		0		0		0		0	0	55.00	O	$0	$0	$0	0
AIDS Test Kit		Kit	0		3		0		0		0		0		0		3	3	4.61	D	$14	$14	$0	0
Air-Ways (--?-)	Large	-?-	240		0		10		0		0		0		0		250	250	4.02	D	$1,006	$1,006	$0	0
Air-Ways (--?-)	Medium	-?-	240		0		10		0		0		0		0		250	250	4.02	D	$1,006	$1,006	$0	0
Air-Ways (--?-)	Small	-?-	240		0		10		0		0		0		0		250	250	4.02	D	$1,006	$1,006	$0	0
Antiseptic Concentrate - C&S		Gal	0		0		0		0		0		0		0		0	0	16.00	O	$0	$0	$0	0
Applicator	Cotton Tipped	Applic	18000		5000		5600		3000		1200		60000	6000	65		92865	38865	0.10	D	$9,138	$3,824	$5,314	2400
Bag, Rubber	Hot Water/Ice;	Bag	40		24		10		12		18		24		0		128	128	2.75	O	$352	$352	$0	5
Bag, Urine	Adult	Bag	2500		600		2000	1000	200		36		300		0		5636	4636	0.57	D	$3,199	$2,631	$568	666
Bag, Urine	Collection Unit,	Bag	2000		400		1144	500	0		48		300		0		3892	3248	0.55	D	$2,146	$1,791	$355	400
Bag, Urine	Infant	Bag	2000		400		1288	600	0		48		300		0		4036	3348	1.21	D	$4,873	$4,043	$831	0
Bandage, Crepe	7.5cm x 4m	Roll	2000		180		1840	900	170		186		600		425		5401	4461	0.53	O	$2,863	$2,364	$498	36
Bandage, Crepe	10cm x 4m	Roll	2000		180		1840	900	170		186		2040	900	425		6841	4761	0.71	O	$4,857	$3,380	$1,477	36
Bandage, Elastic,Adhesiv	Roll, 7.5cm x 4.	Roll	3000		200		1984	900	144		312		2040	900	425		8105	5881	2.83	D	$22,914	$16,626	$6,287	0
Bandage, Guaze 180		Roll	2000		0		7000	2500	2000		240		2520		250		14010	9510	0.69	O	$9,667	$6,562	$3,105	0
Bandage, Guaze 60		Roll	2000		0		7000	2500	2000		100		2520		250		13870	9370	2.07	O	$28,711	$19,396	$9,315	0
Bandage, Skin Traction	Adult, Kit	Kit	1152		0		400		100		0		24		0		1676	1676	5.48	O	$9,184	$9,184	$0	0
Bandage, Strip	Strip, 1"x3",Si	Strip	12000		1000		2800		1200		1200		27600	2800	0		45800	21000	0.07	O	$3,394	$1,556	$1,838	18
Bandage, W.O.W.	Roll, 2.5cm x 5	Roll	7000		0		0		100		0		492		250		7842	7842	0.27	O	$2,117	$2,117	$0	0
Bandage, W.O.W.	Roll, 5cm x 5m	Roll	7000		0		0		50		0		492		250		7792	7792	0.25	O	$1,948	$1,948	$0	1200
Bandage, W.O.W.	Roll, 7.5cm x 5	Roll	7000		0		0		50		0		492		150		7692	7692	0.15	O	$1,154	$1,154	$0	1200
Bandage, W.O.W.	Roll, 10cm x10	Roll	7000		0		0		100		0		492		200		7792	7792	0.30	O	$2,338	$2,338	$0	0
Bandage,Elastic,Non-Ad	Roll, 5cm	Roll	2000		0		1100	600	200		84		1560	750	150		5094	3784	1.71	D	$8,703	$6,465	$2,238	0
Bandage,Elastic,Non-Ad	Roll, 7.5cm x 4	Roll	2000		0		1220	600	150		84		1560	750	390		5404	3974	3.16	O	$17,077	$12,558	$4,519	144
Bandage,Elastic,Non-Ad	Roll, 10cm x 4	Roll	1852		0		1100	600	150		84		1560	750	270		5016	3706	1.45	D	$7,284	$5,381	$1,902	0
Bandage,Elastic,Non-Ad	Roll, 15cm	Roll	1852		0		1100	600	200		84		1560	750	250		5046	3736	1.19	D	$6,000	$4,442	$1,558	0
Bandage,Plaster of Paris	Roll, 10cm x 2.	Roll	3000		78		4000	1000	120		144		600		300		8242	5242	0.89	O	$7,335	$4,665	$2,670	167
Bandage,Plaster of Paris	Roll, 15cm x 2.	Roll	3000		78		4000	1000	150		144		600		300		8272	5272	1.31	O	$10,836	$6,906	$3,930	180
Bed Pan		Pan	65		24		40		12		12		38		0		191	191	7.66	O	$1,463	$1,463	$0	0
Bed Pan Brush		Each	12		12		15		12		12		32		0		95	95	4.55	O	$432	$432	$0	0

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Bilotropin (1x6caps) -- X-Ray		Pack	0		0		24		0		0		15		0		39	39	0.49	O	$19	$19	$0	0
Blade, Skin Graft	Humby' Blade,	Blade	300		300		60		0		0		4800	300	0		5460	960	1.90	O	$10,374	$1,824	$8,550	0
Blade, Surgical	Disposable,Ster	Other															0	0	0.25	D	$0	$0	$0	2500
Blade, Surgical	Disposable,Ste	Blade	6000		200		4000	2000	100		450		4800	2000	1200		16750	11950	0.20	D	$3,278	$2,339	$939	500
Blade, Surgical	Disposable,Ste	Blade	6000		200		4000	2000	100		450		4800	2000	1300		16850	12050	0.18	D	$3,046	$2,179	$868	500
BP Apparatus	Desk Type	Each	11		16	12	24	12	12		4		26	12	2		95	65	85.00	O	$8,075	$5,525	$2,550	0
BP Apparatus	Luminoscope	Each	0		8		0		8		0		26	12	0		42	28	42.45	O	$1,783	$1,189	$594	0
BP Apparatus	Standing Type	Each	11		18	12	24	12	6		2		26	12	2		89	57	12.40	O	$1,104	$707	$397	0
BP Apparatus, Bladder	For Desk Type	Each	18		0		0		0		0		26	12	0		44	30	9.25	O	$407	$278	$130	0
BP Apparatus, Bulb	For Desk Type	Each	18		0		24	12	0		0		26	12	0		68	42	1.50	O	$102	$63	$39	0
BP Apparatus, Bulb	For Standing T	Each	18		0		24	12	0		0		26	12	0		68	42	16.50	O	$1,122	$693	$429	0
BP Apparatus, Repair Kit		Each	24		0		24	12	0		0		11		0		59	47	72.50	O	$4,278	$3,408	$870	0
BP Apparatus, Tubes	For Desk Type	Each	72		0		48	12	0		0		0		0		120	84	7.80	O	$936	$655	$281	0
BP Sphygmomanometer	B.P. Apparatus	Kit	28		0		24	12	12		2		43	12	0		109	66	16.30	D	$1,776	$1,076	$701	10
BP Sphygmomanometer	Pre-Calibrated	Cuff	36		8		24	12	0		2		0		0		70	58	16.30	D	$1,141	$945	$196	0
BP Sphygmomanometer	Pre-Calibrated	Cuff	36		0		24	12	10		2		43	12	0		115	72	24.44	D	$2,810	$1,759	$1,051	0
CARBON DIOXIDE	Gas, Cylinder	Cyl	0		50		52		0		6		0		0		108	108	375.00	O	$40,500	$40,500	$0	0
Catheter	Foley, 12-FR-	Cath	600		200		1120	600	100		72		600		0		2692	2172	1.95	O	$5,249	$4,235	$1,014	36
Catheter	Foley, 14-FR-	Cath	600		200		1120	600	120		72		600		300		3012	2492	1.22	D	$3,684	$3,048	$636	36
Catheter	Foley, 16-FR-	Cath	600		200		1312	600	120		144		600		300		3276	2564	1.20	D	$3,923	$3,071	$853	48
Catheter	Foley, 18-FR-	Cath	500		200		1120	600	150		144		600		0		2714	2194	1.20	D	$3,250	$2,628	$623	98
Catheter	Foley, 20-FR-	Cath	900		150		1120	600	100		72		600		300		3242	2722	1.34	D	$4,338	$3,642	$696	76
Catheter	Foley, 22-FR-	Cath	600		150		1120	600	100		72		600		300		2942	2422	1.19	D	$3,492	$2,874	$617	36
Catheter	Foley, other	Cath															0	0	1.80	O	$0	$0	$0	60
Catheter	I.V., 14x 1.25G	Cath	3000		200		1500	600	200		0		600		0		5500	4600	1.80	O	$9,900	$8,280	$1,620	50
Catheter	I.V., 16x 1.25G	Cath	4000		300		720	600	144		0		600		0		5764	5644	1.01	D	$5,806	$5,685	$121	50
Catheter	I.V., 18x 1.25G	Cath	4000		200		2160	600	200		0		600		0		7160	5600	1.80	O	$12,888	$10,080	$2,808	250
Catheter	I.V., 19x 1.25G	Cath	4000		300		2160	600	144		0		600		0		7204	5644	1.08	D	$7,798	$6,110	$1,689	100
Catheter	I.V., 20x 1.25G	Cath	4000		200		2160	600	150		0		600		0		7110	5550	0.05	D	$382	$298	$84	250
Catheter	I.V., 22x 1.25G	Cath	4000		300		2160	600	144		360		600		0		7564	6004	1.10	D	$8,295	$6,584	$1,711	100
Catheter	Suction	Cath	150		200		5600	600	650		144		600		0		7344	2344	3.50	O	$25,704	$8,204	$17,500	3
Clamp	Umbilical Cord	Clamp	5000		500		2000		400		500		2352		300		11052	11052	0.48	O	$5,294	$5,294	$0	400
Cleaner	Blood Stains	Each	2000		100	50	144	50	50		48		0		0		2342	2198	8.25	O	$19,322	$18,134	$1,188	0

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ERYTHROMYCIN ETHYL	Susp, 25mg/ml	Botl	7200		700		1920		1000		2400		2400		1320		16940	16940	0.72	I	$12,197	$12,197	$0	0
ERYTHROMYCIN STEAR	Tab/Cap,250m	Tab	90000		12000		18000		52000		48000		72000	52000	36500		328500	308500	0.04	I	$12,614	$11,846	$768	10000
ETHAMBUTOL	Tab, 400mg	Tab	0		5000		0		0		0		15000		0		20000	20000	0.02	I	$414	$414	$0	0
EUSOL	Soln,Topical	Botl	3372		260		364		60		177		92		107		4432	4432	0.08	D	$374	$374	$0	0
FENTANYL CITRATE	Inj, 0.05mg/ml;	Amp	0		0		0		0		0		0		0		0	0	2.35	D	$0	$0	$0	0
FERROUS SULPHATE/F	Syrup,15mg(=	Botl	600		0		0		46		0		6364	64	314	31	7324	741	3.50	I	$25,634	$2,594	$23,041	0
FERROUS SULPHATE/F	Tab,65mgFe	Tab	100000		15000		112800		55000		36000		104800		140800		564400	564400	0.00	I	$903	$903	$0	27000
FLUOCINOLONE	Cream, 0.025	Tube	800		400		0		100		200		1860		220		3580	3580	1.21	O	$4,317	$4,317	$0	100
FLUOROURICIL	Inj, 25mg/ml; 1	Amp	0		0		0		0		0		0		0		0	0	5.77	D	$0	$0	$0	0
FLUPHENAZINE DEC/E	Inj,25mg/ml; 10	Amp	12		100		48		0		10		600		0		770	770	2.75	E	$2,118	$2,118	$0	50
FOLIC ACID	Tab 1mg	Tab	36000		9000		24000		28000		36000		210000	36000	0		343000	169000	0.00	I	$309	$152	$157	9000
FRUSEMIDE	Inj,10mg/ml;2	Amp	2400		300		12000		400		180		1320		200		16800	16800	0.06	I	$1,008	$1,008	$0	0
FRUSEMIDE	Tab,40mg	Tab	18000		3000		7200		12000		18000		38800	18000	24500	18000	121500	94200	0.01	I	$693	$537	$156	0
GALLAMINE TRIETHIOD	Inj,40mg/ml;2	Amp	1000		0		0		0		0		300		0		1300	1300	0.65	I	$842	$842	$0	100
GENTAMICIN	Inj,10mg/ml;2	Amp	1200		300		2400		12000	1200	0		2400		1080		19380	8580	0.08	I	$1,535	$680	$855	200
GENTAMICIN	Inj,40mg/ml;2	Amp	12000		700		2400		24000	2400	2400		2400		1080		44980	23380	0.11	I	$4,975	$2,586	$2,389	400
GENTIAN(CRYSTAL)VIO	Soln,Topical, 0	Botl	110		3000	110	6		32		221	110	102		57		3528	527	0.20	I	$706	$105	$600	5
GIVING SETS FOR IVs	Micro Drip for	Set	3000		1000		1700		2000		0		1200		600		9500	9500	0.92	ECDS	$8,740	$8,740	$0	0
GIVING SETS FOR IVs	Refer to#06.03	Set	20000		3000		8064		4000		0		1500		600		37164	37164	0.38	ECDS	$14,122	$14,122	$0	0
GLYCERYL TRINITRATE	Tab,Sublingual	Tab	6000		3000		9600		2000		9000		24000	12000	12000		65600	53600	0.01	I	$479	$391	$88	200
GLYCINE	Inj,Irrigation,1.	Btl	144		0		0		0		0		24		0		168	168	4.60	O	$773	$773	$0	10
GRISEOFULVIN	Tab,Fine Partic	Tab	18000		5000		9600		24000		18000		36000	24000	15000		125600	113600	0.05	I	$5,853	$5,294	$559	3000
HAEMORRHOIDAL PRE	Oint/Cream (no	Tube	120		500		432		100		0		720		200		2072	2072	1.66	O	$3,440	$3,440	$0	0
HAEMORRHOIDAL PRE	Suppository (n	Supp	120		500		864		100		1200		1872	1200	200		4856	4184	0.13	PAHO	$638	$550	$88	0
HALOPERIDOL	Inj,IM,5mg/ml;	Amp	100		0		0		200		10		500		0		810	810	0.14	I	$117	$117	$0	50
HALOPERIDOL	Inj,IM,5mg/ml;	Amp	0		0		0		4000	400	0		0		0		4000	400	0.29	I	$1,152	$115	$1,037	0
HALOPERIDOL	Tab, 5mg	Tab	5000		3000		6000		4000		1000		0		0		19000	19000	0.02	D	$312	$312	$0	5000
HALOTHANE	Inhalation, 250	Botl	0		50		0		100		0		0		0		150	150	13.38	I	$2,006	$2,006	$0	50
HEPARIN SODIUM	Inj, 10,000u/ml;	Vial	200		300		240		0		0		0		0		740	740	0.12	I	$89	$89	$0	50
HIPOKALISAL B	Inj,IV, 250ml	Botl	4000		1600		2880	2000	1000		1200		400		300		11380	10500	1.30	O	$14,794	$13,650	$1,144	500
HYDRALAZINE	Inj, 20mg/ml; 1	Amp	500		200		840		200		1200		1200		150		4290	4290	0.20	I	$855	$855	$0	200
HYDRALAZINE	Tab, 25mg	Tab	40000		11000		12000		24000		36000		36000		15400		174400	174400	0.01	I	$1,378	$1,378	$0	0
HYDROCHLOROTHIAZI	Tab 50mg	Tab	25000		15000		19200		30000		36000		60000	36000	19000		204200	180200	0.00	I	$735	$649	$86	15000

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ALPHABETICAL ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
HYDROCORTISONE	Cream, 1%; 15	Tube	1440		1860		1800		800		1200		1824		1120		10044	10044	0.42	I	$4,218	$4,218	$0	100
HYDROCORTISONE AC	Drops, Eye, 1	Botl	288		240		288		300		0		1800		125		3041	3041	0.81	I	$2,463	$2,463	$0	0
HYDROCORTISONE SO	Inj, 250mg/Vial	Vial	2500		300		1200		200		1800		1200		400		7600	7600	0.75	E	$5,700	$5,700	$0	300
HYDROCORTISONE SO	Inj, 50mg/ml; 2	Amp	600		300		1200		150		0		1200		300		3750	3750	0.05	I	$171	$171	$0	200
HYDROGEN PEROXIDE	Soln 3%; 240m	Botl	3000		900		1860		1500		600		3576	1900	40		11476	9800	1.10	D	$12,649	$10,802	$1,847	20
HYDROXYCOBALAMINE	Inj, IM, 1mg/ml	Amp	200		200		360		300		0		1500	200	0		2560	1260	0.07	D	$187	$92	$95	100
HYOSCINE BUTYLBRO	Inj, 20mg/ml; 1	Amp	1200		500		1200		0		0		0		0		2900	2900	0.07	I	$204	$204	$0	50
HYOSCINE BUTYLBRO	Tab, 10mg	Tab	4000		4000		7200		0		0		0		0		15200	15200	0.16	O	$2,478	$2,478	$0	1000
IBUPROFEN	Tab, 200mg	Tab	72000		12000		120000	72000	95000	72000	36000		100800	72000	60000		495800	396000	0.01	O	$5,751	$4,594	$1,158	6000
IMIPRAMINE HCl	Tab,75mg	Tab	3000		2000		4800		3000		0		24000		4800		41600	41600	0.00	E	$191	$191	$0	0
INDOMETHACIN	Cap,25mg	Caps	72000		12000		96000	55000	55000		27000		53000		25200		340200	299200	0.00	I	$1,055	$928	$127	6000
INSULIN,ISOPHANE(NP	Inj, 100u/ml; P	Vial	1440		200		360		600		120		500		160		3380	3380	3.57	D	$12,083	$12,083	$0	150
INSULIN,ISOPHANE(NP	Inj, 100u/ml; H	Vial	144		200		360		400		0		500		160		1764	1764	8.77	O	$15,461	$15,461	$0	0
INSULIN REGULAR,MO	Inj, 100 u/ml; P	Vial	600		100		180		600		70		360		120		2030	2030	5.90	D	$11,970	$11,970	$0	100
IODINE	Mandl's Paint(	Botl	1		6		0		0		0		69	6	19	6	95	19	1.89	D	$180	$36	$144	0
IODINE SOLN, AQUEOU	Lugol's Soln(=	Botl	1		6		0		0		0		0		16	6	23	13	1.05	D	$24	$14	$11	0
IPECACUANHA & AMMO	Mistura Expect	Botl	2660		2000	900	6		0		0		288		930		5884	4784	1.50	D	$8,833	$7,182	$1,651	0
IRON DEXTRAN	Inj 50mgFe/ml;	Amp	1000		1800		3600		0		1200		1200		800		9600	9600	0.10	I	$973	$973	$0	200
IRON & FOLIC ACID	Tab,65mgFe-0	Tab	25000		4000		102000		20000		48000		60000		86000		345000	345000	0.00	I	$587	$587	$0	0
ISONIAZID (INH)	Tab,100mg	Tab	8000		12000		16000		5000		6000		24000	16000	0		71000	63000	0.00	I	$199	$176	$22	7000
ISOPRENALINE	Tab, 30mg	Tab	600		2000		0		0		0		24000	12000	0		26600	14600	0.01	D	$165	$91	$74	2000
ISOSORBIDE DINITRATE	Tab, 10mg	Tab	27000		8000		12000		0		0		24000	12000	12000		83000	71000	0.01	D	$664	$568	$96	2000
KETAMINE HCL	Inj, 50mg/ml; 1	Vial	144		300		240		800	300	0		0		0		1484	984	0.83	I	$1,232	$817	$415	50
KETOTIFEN	Tab, 1mg	Tab	3000		0		0		0		0		24000		0		27000	27000	0.10	O	$2,700	$2,700	$0	100
LEVAMISOLE	Tab,50mg	Tab	600		1000		108000	50000	4000		0		36000		30600		180200	122200	0.01	I	$1,297	$880	$418	1000
LEVODOPA & CARBIDO	Tab, 100mgL &	Tab	2400		0		0		1000		0		0		0		3400	3400	0.06	O	$214	$214	$0	1000
LIGNOCAINE HCl	Gel, Intra-uret	Tube	48		300		0		150		0		360		0		858	858	2.39	D	$2,051	$2,051	$0	100
LIGNOCAINE HCl	Inj,2% &preser	Vial	900		300		0		0		1200		360		50		2810	2810	0.81	D	$2,264	$2,264	$0	0
LIGNOCAINE HCl	Inj,2% (no pres	Amp	240		300		0		0		0		360		100		1000	1000	0.81	D	$806	$806	$0	0
LIGNOCAINE HCl	Inj,Spinal,5%-	Amp	120		100		0		0		0		360		0		580	580	0.83	D	$480	$480	$0	0
LIGNOCAINE & ADRENA	Inj,20mgL/ml,1	Amp	0		200		1500		150		0		360		50		2260	2260	0.20	D	$461	$461	$0	0
LIGNOCAINE & NORADR	Inj,2.13%L & 1:	Amp	0		200		1200		0		900		360		0		2660	2660	0.01	D	$32	$32	$0	0
LINDANE	Cream,1%; 50	Tube	696		500		864		750		1200		2400	1200	450		6860	5660	0.60	O	$4,116	$3,396	$720	100

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ALPHABETICAL ORDER

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Suture, Chromic	Catgut; '2/0'	Sutr	400		100		730	400	100		0		264		15		1609	1279	1.09	O	$1,751	$1,392	$359	0
Suture, Chromic	Catgut; '3/0'	Sutr	400		0		730	400	100		0		264		24		1518	1188	1.09	O	$1,652	$1,293	$359	0
Suture, Chromic	Catgut; '4/0'	Sutr	400		148		730	400	50		0		264		15		1607	1277	1.28	O	$2,060	$1,637	$423	0
Suture, Ethilon	Ethilon + Needl	Sutr	400		0		730	400	50		600	400	264		10		2054	1524	0.93	O	$1,914	$1,420	$494	0
Suture, Ethilon	Ethilon + Needl	Sutr	400		0		730	400	25		600	400	264		10		2029	1499	0.80	O	$1,623	$1,199	$424	0
Suture, Ethilon	Ethilon + Needl	Sutr	400		100		2000	400	50		624	400	264		10		3448	1624	0.80	E	$2,758	$1,299	$1,459	0
Suture, Ethilon	Ethilon + Needl	Sutr	400		148		2000	400	100		624	400	264		10		3546	1722	0.95	O	$3,372	$1,638	$1,735	0
Suture, Ethilon	Ethilon + Needl	Sutr	400		100		2000	400	100		624	400	264		10		3498	1674	0.95	E	$3,323	$1,590	$1,733	0
Suture, Mersilk	Silk 2/0	Sutr	400		100		1000	400	25		0		264		20		1809	1209	0.71	E	$1,284	$858	$426	0
Suture, Mersilk	Silk 3/0	Sutr	400		0		2000	400	50		0		264		20		2734	1134	0.71	O	$1,938	$804	$1,134	0
Suture, Mersilk	Silk + Needle; '	Sutr	400		100		730	400	50		600	400	264		15		2159	1629	0.90	O	$1,934	$1,460	$475	0
Suture, Mersilk	Silk + Needle; '	Sutr	400		148		730	400	25		600	400	264		10		2177	1647	0.95	O	$2,070	$1,566	$504	0
Suture, Mersilk	Silk + Needle; '	Sutr	400		148		730	400	50		600	400	264		30		2222	1692	0.90	O	$1,991	$1,516	$475	0
Suture, Mersilk	Silk + Needle; '	Sutr	400		148		2000	400	100		600	400	264		60		3572	1772	0.95	O	$3,397	$1,685	$1,712	0
Suture, Mersilk	Silk + Needle; '	Sutr	400		0		2000	400	25		624	400	264		45		3358	1534	0.95	O	$3,193	$1,459	$1,735	0
Suture, Plain	Plain + Needle;	Sutr	400		0		730	400	50		600	400	264		10		2054	1524	1.02	O	$2,099	$1,558	$542	0
Suture, Plain	Plain + Needle;	Sutr	400		100		2000	400	50		600	400	264		10		3424	1624	1.02	E	$3,492	$1,656	$1,836	0
Suture, Plain	Plain + Needle;	Sutr	400		100		2000	400	50		600	400	264		15		3429	1629	1.02	E	$3,498	$1,662	$1,836	0
Suture, Plain	Plain; '0'	Sutr	400		0		730	400	50		0		264		10		1454	1124	1.34	O	$1,944	$1,503	$441	0
Suture, Plain	Plain; '1'	Sutr	400		0		2000	400	100		0		264		10		2774	1174	1.34	E	$3,717	$1,573	$2,144	0
Suture, Plain	Plain; '2/0'	Sutr	400		0		2000	400	100		0		264		10		2774	1174	1.34	E	$3,717	$1,573	$2,144	0
Suture, Prolene	Prolene + Need	Sutr	400		0		730	400	25		0		264		10		1429	1099	0.83	E	$1,191	$916	$275	0
Suture, Prolene	Prolene + Need	Sutr	400		100		730	400	25		0		264		10		1529	1199	0.83	E	$1,274	$999	$275	0
Suture, Prolene	Prolene + Need	Sutr	400		0		365		25		0		264		10		1064	1064	0.83	E	$887	$887	$0	0
Suture, Virgin Silk	Silk + Needle; '	Sutr	400		0		305		50		0		264		10		1029	1029	1.06	O	$1,093	$1,093	$0	0
Syringe, Disposable	1cc (Insulin) +	Syrng	34000		3600		4000		3900		5800		60800	6000	6000		118100	63300	0.14	O	$16,534	$8,862	$7,672	4008
Syringe, Disposable	2cc + Needle	Syrng	0		0		24120	12000	500		500		60800	12000	6000		91920	31000	0.04	D	$3,429	$1,156	$2,272	0
Syringe, Disposable	3cc + Needle 2	Syrng	0		7200		46300	15000	4000		5000		60800	15000	14500		137800	60700	0.06	O	$8,544	$3,763	$4,780	0
Syringe, Disposable	3cc + Needle 2	Syrng	60000		7000		28000	15000	5000		300		60800	15000	9000		170100	111300	0.14	O	$23,814	$15,582	$8,232	0
Syringe, Disposable	5cc + Needle 2	Syrng	60000		19200		46120	15000	700		5000		60800	15000	13000		204820	127900	0.13	D	$26,688	$16,665	$10,023	1230
Syringe, Disposable	6cc + Needle	Syrng	19130		15000		40000	15000	50		5000		60800	15000	2000		141980	71180	0.14	O	$19,593	$9,823	$9,770	0
Syringe, Disposable	10cc + Needle	Syrng	60000		10000		37000	15000	3850		5800		60800	15000	8000		185450	117650	0.16	D	$30,228	$19,177	$11,051	3752
Syringe, Disposable	12cc + Needle	Syrng	19130		0		6000		100		300		60800	15000	1000		87330	41530	0.18	O	$15,545	$7,392	$8,152	0

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Needle, Spinal	#22 G x 3.5	Needl	150		500		432		50		0		1200	500	0		2332	1632	1.99	E	$4,641	$3,248	$1,393	0
Needle, Spinal	#25 G x 3.5	Needl	150		500		432		50		0		1200	500	0		2332	1632	1.99	E	$4,641	$3,248	$1,393	0
NITROGEN	Gas, Cylinder	Cyl	0		100		432		0		0		0		0		532	532	45.00	O	$23,940	$23,940	$0	0
NITROUS OXIDE	Gas, Cylinder	Cyl	200		0		104		10		0		0		0		314	314	225.00	O	$70,650	$70,650	$0	0
O Ring, Set	#75	Each	10		0		0		0		0		0		0		10	10	9.12	D	$91	$91	$0	0
O Ring, Set	#80	Each	10		0		0		0		0		0		0		10	10	9.12	D	$91	$91	$0	0
O Ring, Set	#85	Each	10		0		0		0		0		0		0		10	10	9.12	D	$91	$91	$0	0
O Ring, Set	#90	Each	10		0		0		0		0		0		0		10	10	9.12	D	$91	$91	$0	0
OXYGEN	Inhalation(Medi	Cyl	1000		100		360		50		18		240		36		1804	1804	47.50	O	$85,690	$85,690	$0	0
Pad, Abdominal	X-Ray Detecta	Pad	8400		200		1000		200		0		0		0		9800	9800	2.55	O	$24,990	$24,990	$0	0
Pad, Eye	Oval	Pad	2000		0		1000		1000		60		6900	1000	0		10960	5060	1.63	I	$17,849	$8,241	$9,609	250
Padding, P.O.P.	7.5 cm x 2.5 m		1300		15		3000	600	100		144		600		400		5559	3159	0.30	O	$1,679	$954	$725	0
Padding, P.O.P.	15 cm x 2.7 m	Wad	1300		20		3000	600	100		144		600		600		5764	3364	0.56	O	$3,205	$1,870	$1,334	0
Padding, P.O.P.	20 cm x 2.7 m	Wad	1300		20		3000	600	200		144		600		600		5864	3464	0.74	O	$4,345	$2,567	$1,778	0
Pig Feed	'Wheat Brand'	Bag			0		0		0		0		0		0		0	0	6.70	O	$0	$0	$0	0
Scissors	(sizes/types no	Each	20		30	20	60	20	104	20	15		28	20	0		257	115	6.00	O	$1,542	$690	$852	2
Sheets, Disposable		Each	2400		200		2012		0		600		6840	2000	0		12052	7212	0.12	D	$1,499	$897	$602	200
Soap	Dish Washing,	Botl	2000		450		144		3		18		432		3		3050	3050	1.60	O	$4,865	$4,865	$0	0
Soap	Hand, Liquid	Botl	2000		500		416		50		36		696	500	3		3701	3505	7.05	O	$26,070	$24,689	$1,381	0
Soap	Laundry, Liqui	Botl	2000		350		104		64		70		1176	500	4		3768	3092	8.89	O	$33,490	$27,482	$6,008	0
Speculum, Disposable	Vaginal	Spect	200		600		2088	600	460		244		0		0		3592	2104	1.00	E	$3,592	$2,104	$1,488	50
Sponge	Lap, 12 x 12	Spnge	2400		400		5000	1200	200		0		0		0		8000	4200	0.67	D	$5,360	$2,814	$2,546	0
Sponge	Lap, 18 x 18	Spnge	2400		400		5000	1200	200		0		0		0		8000	4200	0.67	D	$5,360	$2,814	$2,546	0
Sponge, Laparatomy	4 Ply, 8" x 36"	Spnge	2400		0		5000	1200	200		0		0		0		7600	3800	0.67	D	$5,092	$2,546	$2,546	0
Sterilizing Fluid	0.00	Botl	32		48		52		0		70		4175	70	0		4377	272	10.48	D	$45,859	$2,850	$43,009	2
Stethoscope	Binaural Compl	Each	30		30	20	8		2		0		58	20	0		128	80	6.31	D	$808	$505	$303	10
Stethoscope	Paediatric	Each	10		9		4		2		6		58	10	0		89	41	4.13	O	$367	$169	$198	0
Suture, Chromic		Sutr	400		0		0		0		0		264		0		664	664	1.28	O	$851	$851	$0	0
Suture, Chromic	Catgut, + Need	Sutr	400		0		730	400	100		1200	400	264		30		2724	1594	1.23	O	$3,342	$1,956	$1,387	0
Suture, Chromic	Catgut, + Need	Sutr	400		148		1460	400	100		300		264		15		2687	1627	1.28	O	$3,445	$2,086	$1,359	0
Suture, Chromic	Catgut, + Need	Sutr	400		148		730	400	100		1224	400	264		50		2916	1762	1.28	O	$3,738	$2,259	$1,479	0
Suture, Chromic	Catgut, + Need	Sutr	400		148		730	400	100		1224	400	264		50		2916	1762	1.28	O	$3,738	$2,259	$1,479	0
Suture, Chromic	Catgut, + Need	Sutr	400		100		730	400	50		324		264		50		1918	1588	1.28	O	$2,459	$2,036	$423	0

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ALPHABETICAL ORDER

			DISTRICT REQUIREMENTS														TOTAL QUANTITY AND VALUE - 11/90 Forecasts							CMS
GENERIC NAME	FORMAT	UNIT	Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	Jul 90 Total Reported Monthly Issue Rate
Syringe, Disposable	20cc + Needle	Syrng	5000		0		6500	1200	200		324		1200		1000		14224	8924	0.21	D	$2,969	$1,862	$1,106	500
Syringe, Disposable	30cc + Needle	Syrng	150		0		1800	500	200		300		1200	500	1000	500	4650	2150	0.37	D	$1,723	$797	$926	25
Syringe, Disposable	50cc + Needle	Syrng	600		200		1692		100		324		12000		1000		15916	15916	0.85	D	$13,529	$13,529	$0	25
Syringe, Disposable	60cc + Needle	Syrng	1000		0		1000		100		300		1200	1000	500		4100	3900	0.60	D	$2,443	$2,324	$119	25
Syringe, Glass	10 cc	Syrng	0		0		52		0		0		60800	50	500	50	61352	152	1.69	IDA	$103,877	$257	$103,619	0
Syringe, Glass	20 cc	Syrng	0		0		52		0		0		30400	50	500	50	30952	152	1.69	IDA	$52,406	$257	$52,148	0
Tape, Autoclave	Roll, 1" x 60yd	Roll	300		300		144		70		42		240		0		1096	1096	4.01	O	$4,395	$4,395	$0	50
Tape, Autoclave	Roll, 3/4" x 60y	Roll	300		300		144		75		0		240		0		1059	1059	3.91	D	$4,140	$4,140	$0	0
Thermometer, Clinical	Oral	Therm	2000		500		230		172		180		864	500	425		4371	4007	0.93	D	$4,079	$3,739	$340	200
Thermometer, Clinical	Rectal	Therm	50		200		128		100		48		864	300	300		1690	1126	0.81	D	$1,361	$907	$454	0
Toilet Paper	2 Ply	Roll	960		1600	1000	1944	1000	2030	1000	900		2036	1000	2500	1000	11970	6860	0.44	O	$5,315	$3,046	$2,269	0
Toner Solution - Nu Tone		Gal	0		0		0		0		0		0		0		0	0	12.13	O	$0	$0	$0	0
Towels, Paper	2 Ply	Roll	480		144		726	480	1230	480	264		864	480	450		4158	2778	1.11	O	$4,624	$3,089	$1,535	0
Traction Kit, Skin	Roll (Elastoplas	Roll	350		24		104		50		0		1152		0		1680	1680	7.61	D	$12,777	$12,777	$0	0
Tray	Peritoneal Dial	Tray	26		10		12		6		0		0		0		54	54	6.50	O	$351	$351	$0	5
Tray, Catheter		Tray	60		144	30	30		4		5		0		0		243	129	9.15	O	$2,223	$1,180	$1,043	2
Tray, Instrument	(specs ??)	Tray	10		10		30	10	4		5		0		0		59	39	13.87	IDA	$818	$541	$277	0
Tube, Endotracheal	40 mm	Tube	72		20		12		100	50	0		0		0		204	154	2.74	D	$558	$421	$137	10
Tube, Endotracheal	50 mm	Tube	72		20		12		100	50	0		0		0		204	154	2.74	D	$558	$421	$137	10
Tube, Feeding	5F	Tube	2000		150		1000	500	0		78		1200	500	200		4628	3428	0.85	D	$3,948	$2,924	$1,024	100
Tube, Feeding	8F	Tube	2000		200		1000	500	0		78		1200	500	200		4678	3478	0.91	D	$4,237	$3,150	$1,087	100
Tube, Feeding	Infant, 3.5 FR	Tube	400		300		1000	400	0		42		1200	400	200		3142	1742	1.93	D	$6,049	$3,354	$2,695	50
Tube, Stomach	12FR	Tube	600		100		1000	500	150		72		1200	500	300		3422	2222	0.57	D	$1,956	$1,270	$686	100
Tube, Stomach	14 FR	Tube	500		100		1500	500	150		0		1200	500	300		3750	2050	2.06	D	$7,740	$4,231	$3,509	100
Tube, Stomach	16 FR	Tube	500		100		1000	500	50		72		1200	500	400		3322	2122	5.43	D	$18,051	$11,531	$6,521	100
Tube, Stomach	18 FR	Tube	500		150		1500	500	50		42		1200	500	200		3642	1942	2.98	D	$10,850	$5,786	$5,065	100
Tubing, Suction	Conductive	Tube	10		240	50	20		50		0		1200	50	0		1520	180	3.50	O	$5,320	$630	$4,690	3
Urografin 30% -- X-Ray		Amp	0		0		0		0		0		0		0		0	0	13.86	O	$0	$0	$0	0
Urografin 60% -- X-Ray		Amp	0		0		192		0		0		0		0		192	192	30.01	O	$5,762	$5,762	$0	0
X-Ray Pharml(Urografin60%)		Amp	0		0		192		0		0		0		0		192	192	56.27	O	$10,803	$10,803	$0	0
X-Ray Pharm'l(Bilotropin)		Amp	0		0		0		0		0		0		0		0	0	2.47	O	$0	$0	$0	0
"Short Cut"		Case	0		0		0		0		0		0		0		0	0	110.00	O	$0	$0	$0	0
																			Subtotal		$1,951,041	$1,256,087	$694,954	0

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ALPHABETICAL ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
BULK GALENICALS:																								
Acacia	Pharmaceutical	1000	2		0		0		0		0		0		1		3	3	21.12	O	$63	$63	$0	0
Amaranth, Food Grade, 8	Food Grade	1000	1		2		0		2		1		1		2		9	9	25.50	O	$230	$230	$0	0
Ammonia, Aromatic Spirit	Pharmaceutical	2	6		15	6	6		2		3		9		7		47	38	17.34	O	$820	$664	$156	0
Ammonium Chloride	Pharmaceutical	25	2		1		1		1		1		1		3		10	10	75.89	O	$738	$738	$0	0
Beeswax, White, Disks	Pharmaceutical	5	5		0		3		10	5	0		1		2		21	16	68.80	O	$1,445	$1,101	$344	0
Beeswax, Yellow, Cakes	Pharmaceutical	5	12		0		3		10	5	0		1		2		28	23	68.80	O	$1,926	$1,582	$344	0
Benzoic Acid	Pharmaceutical	5	10		4		5		2		1		1		2		25	25	12.12	O	$303	$303	$0	0
Benzoin Co., Tincture	Pharmaceutical	2	6		3		4		2		0		1		1		17	17	21.98	O	$374	$374	$0	0
Benzyl Benzoate,Conc.(9	Pharmaceutical	1	0		50	12	12		5		0		12		25	12	104	53	7.68	O	$799	$407	$392	0
Calamine, Powder	Pharmaceutical	5	12		4		3		0		5		12	5	2		38	31	22.08	O	$839	$684	$155	1
Camphor, Synthetic, B.P.	Pharmaceutical	1	6		1		3		0		0		1		1		12	12	8.48	O	$102	$102	$0	0
Castor Oil	Pharmaceutical	20	3		1		1		0		0		12	3	0		17	8	67.55	O	$1,148	$540	$608	0
Cetrimide	Pharmaceutical	5	12		5		10	5	3		0		1		3		34	29	27.00	I	$918	$783	$135	1
Chloramphenicol	Pharmaceutical	5	2		0		1		1		0		1		1		6	6	508.00	O	$3,048	$3,048	$0	0
Chloramphenicol Palmitat	Pharmaceutical	5	1		0		1		0		0		1		0		3	3	508.00	O	$1,524	$1,524	$0	0
Chloroform	Pharmaceutical	2	8		5		4		3		5		4		4		33	33	15.14	O	$500	$500	$0	0
Citric Acid, Monohydrate	Pharmaceutical	35	0		1		2		3		0		12	3	0		18	9	20.64	D	$371	$186	$186	0
Coal Tar Solution	Pharmaceutical	2	6		1		0		2		0		3		1		13	13	14.70	O	$191	$191	$0	0
Cod Liver Oil	Pharmaceutical	25	0		1		0		1		0		3		0		5	5	4.75	O	$24	$24	$0	0
Collodion, Flexible	Pharmaceutical	500	6		0		6		0		0		1		0		13	13	32.62	O	$424	$424	$0	0
Diphenhydramine	Pharmaceutical	1	10		2		3		8	3	2		2		3		30	25	36.74	O	$1,102	$919	$184	0
Ether Solvent	Pharmaceutical	500	24		0		6		0		0		0		0		30	30	6.10	O	$183	$183	$0	0
Ethyl Alcohol	Pharmaceutical	55	0		0		0		2		0		2		0		4	4	450.00	O	$1,845	$1,845	$0	0
Ferrous Sulfate	Pharmaceutical	5	12		5		5		2		1		5		3		33	33	26.21	O	$870	$870	$0	0
Flavoring, Cherry	Pharmaceutical	500	6		6		4		2		6		3		0		27	27	6.98	O	$188	$188	$0	10
Flavoring, Raspberry	Pharmaceutical	500	21		6		4		4		3		3		0		41	41	6.98	O	$286	$286	$0	0
Formaldehyde, 40%	Pharmaceutical	25	4		1		1		0		0		2		0		8	8	70.24	O	$596	$596	$0	0
Glycerin	Pharmaceutical	25	12		35	12	4		0		12		4		12		79	56	74.64	O	$5,897	$4,180	$1,717	0
Iodine,Crystals	Pharmaceutical	500	4		2		3		2		0		1		1		13	13	31.60	O	$411	$411	$0	0
Isopropyl Alcohol	Pharmaceutical	55	24		3		3		5		2		2		2		41	41	240.00	ECDS	$9,831	$9,831	$0	0
Kaolin Powder, Light	Pharmaceutical	5	6		12	6	10	6	2		0		5		0		35	25	12.96	O	$454	$324	$130	1

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ALPHABETICAL ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
Lanolin, Hydrous, BP	Pharmaceutical	1	20		4		12		0		10		12		3		61	61	7.04	O	$429	$429	$0	0
Liquorice, Fluid Extract	Pharmaceutical	2	30		13		12		12		0		12		6		85	85	23.10	O	$1,964	$1,964	$0	25
Magnesium Sulphate	Pharmaceutical	25	0		1		1		2		0		1		1		6	6	83.20	O	$499	$499	$0	0
Magnesium Trisilicate	Pharmaceutical	25	4		2		2		2		1		3		4		18	18	116.22	O	$2,045	$2,045	$0	0
Neutral Spirit	Pharmaceutical	45	1		0		0		0		0		0		0		1	1	832.00	O	$832	$832	$0	0
Paraffin, Soft, White	Pharmaceutical	25	12		2		2		3		1		3		0		23	23	65.92	O	$1,516	$1,516	$0	5
Paraffin Liq. Heavy (Med)	Pharmaceutical	25	3		2		2		1		0		2		0		10	10	64.96	O	$681	$681	$0	2
Peppermint Oil	Pharmaceutical	1	6		3		2		3		2		2		5		23	23	19.36	O	$445	$445	$0	0
Petrolatum	Pharmaceutical	110	2		1		2	1	0		1		2		1		9	8	329.00	O	$3,020	$2,632	$388	0
Phenol, Liquified, 80%	Pharmaceutical	2	12		1		2		5		1		6		3		30	30	13.60	O	$401	$401	$0	0
Phenylmercuric Acetate	Pharmaceutical	100	1		0		0		0		0		5	1	0		6	2	13.60	O	$82	$27	$54	0
Pilocarpine Nitrate	Pharmaceutical	100	3		0		2		0		0		5	2	0		10	7	364.80	O	$3,648	$2,554	$1,094	0
Piperazine Citrate	Pharmaceutical	5	4		2		5		1		0		2		4		18	18	50.72	O	$913	$913	$0	0
Podophyllin Resin	Pharmaceutical	100	6		4		5		2		1		1		2		21	21	14.40	O	$302	$302	$0	0
Potassium Citrate, Granul	Pharmaceutical	5	3		2		2		1		0		3		2		13	13	21.76	O	$283	$283	$0	0
Potassium Iodide	Pharmaceutical	1	6		0		3		1		0		1		2		13	13	26.13	O	$340	$340	$0	0
Proflavine Hemisulfate	Pharmaceutical	500	2		0		0		0		0		0		0		2	2	137.60	O	$275	$275	$0	0
Promethazine HCl	Pharmaceutical	1	2		2		0		3		0		1		2		10	10	72.96	O	$730	$730	$0	0
Propylene Glycol (Med)	Pharmaceutical	25	6		1		2		2		2		3		12		28	28	74.72	O	$2,092	$2,092	$0	0
Rectified Spirit	Pharmaceutical	45	3		2		1		3	2	1		2		2		15	14	184.00	O	$2,693	$2,509	$184	0
Riboflavine	Pharmaceutical	500	3		1		2		2		1		1		4		14	14	41.76	O	$585	$585	$0	0
Silver Nitrate, Sticks; 5g e	Pharmaceutical	1	144		200	24	12		1		0		24		0		381	205	1.18	O	$450	$242	$208	0
Soda Lime (Ca&NaOH's)	Pharmaceutical	35	0		0		1		3		0		0		0		4	4	9.00	O	$39	$39	$0	1
Sodium Benzoate	Pharmaceutical	5	1		0		0		0		0		1		0		2	2	26.19	O	$52	$52	$0	0
Sodium Bicarbonate	Pharmaceutical	25	3		2		2		2		0		1		3		13	13	21.60	O	$289	$289	$0	0
Sodium Thiosulfate	Pharmaceutical	1	6		1		0		0		0		1		0		8	8	3.20	O	$26	$26	$0	0
Thiamine HCl	Pharmaceutical	1	3		1		1		4	3	1		1		2		13	12	62.40	O	$811	$749	$62	0
Zinc Oxide	Pharmaceutical	25	2		0		0		1		0		1		2		7	7	80.38	O	$547	$547	$0	0
																			Subtotal		$63,438	$57,097	$6,340	
																			TOTAL		$3,282,237	$2,221,429	$1,060,808	

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ABC ORDER

Pharmacist Forecast	Consultant's Suggested	Revisions	
2,535,516	1,816,489	BZ$	Drugs
3,902,082	2,512,174	BZ$	Supplies
126,875	114,195	BZ$	Galenicals
6,564,473	4,442,858	BZ$	Total

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
FORMULARY DRUGS:																								
AMIKACIN SULPHATE	Inj. 250 mg/ml;	Amp	1200		300		720		700		900		1500	900	360		5680	5080	12.25	O	$69,580	$62,230	$7,350	400
PLASMA PROTEIN FRA	Inj.IV,5%;250m	Botl	600		0		72		50		0		60		50		832	832	35.73	PAHO	$29,726	$29,726	$0	10
DEXAMETHASONE-NE	Drops,Eye-Ear	DrBtl	960		800		432		1200		0		1200		150		4742	4742	5.66	O	$26,840	$26,840	$0	100
SODIUM CHLORIDE	Inj,IV, 0.9%(N	Botl	12000		1500		360		1440		2400		1068		480		19248	19248	1.30	I	$25,022	$25,022	$0	900
DEXTROSE	Inj,IV,5% in Wa	Botl	12000		0		2400		1440		0		600		300		16740	16740	1.40	I	$23,436	$23,436	$0	1200
CLOXACILLIN SODIUM	Syrup/Susp 10	Botl	1920		0		2880	1900	300		2400	1900	1320		0		8820	7340	3.03	PAHO	$26,688	$22,209	$4,478	100
CODEINE PHOSPHATE	Tab, 30mg	Tab	6000		1000		3600		24000	12000	12000		12000		1000		59600	47600	0.43	D	$25,694	$20,520	$5,173	0
BENZOYL PEROXIDE	Lotion, 10%; 3	Botl	240		2000		0		4000		0		3624		0		9864	9864	1.93	O	$18,998	$18,998	$0	12
AMPICILLIN	Cap, 250mg	Caps	312000		35500		90000		72000		48000		63600		9000		630100	630100	0.03	I	$16,887	$16,887	$0	30000
ORAL REHYDRATION S	Sachet,Citrate	Sach	10400		12000		180000		10000		12000		0		10000		234400	234400	0.07	I	$16,408	$16,408	$0	0
INSULIN,ISOPHANE(NP	Inj, 100u/ml; H	Vial	144		200		360		400		0		500		160		1764	1764	8.77	O	$15,461	$15,461	$0	0
SERUM, ANTIVENOM	Inj, 10ml	Vial	200		20		72		300		600	400	60		50		1302	1102	13.62	I	$17,733	$15,009	$2,724	33
GIVING SETS FOR IVs	Refer to#06.03	Set	20000		3000		8064		4000		0		1500		600		37164	37164	0.38	ECDS	$14,122	$14,122	$0	0
HIPOKALISAL B	Inj,IV, 250ml	Botl	4000		1600		2880	2000	1000		1200		400		300		11380	10500	1.30	O	$14,794	$13,650	$1,144	500
ERYTHROMYCIN ETHYL	Susp, 25mg/ml	Botl	7200		700		1920		1000		2400		2400		1320		16940	16940	0.72	I	$12,197	$12,197	$0	0
INSULIN,ISOPHANE(NP	Inj, 100u/ml; P	Vial	1440		200		360		600		120		500		160		3380	3380	3.57	D	$12,083	$12,083	$0	150
INSULIN REGULAR,MO	Inj, 100 u/ml; P	Vial	600		100		180		600		70		360		120		2030	2030	5.90	D	$11,970	$11,970	$0	100
ERYTHROMYCIN STEAR	Tab/Cap,250m	Tab	90000		12000		18000		52000		48000		72000	52000	36500		328500	308500	0.04	I	$12,614	$11,846	$768	10000
TRIAMCINALONE ACET	Inj,IM, 40mg/m	Amp	72		0		0		200		0		1200		0		1472	1472	8.05	D	$11,845	$11,845	$0	0
CARBAMAZEPINE	Tab 100mg	Tab	40000		5000		10800		4000		0		36000	12000	12000		107800	83800	0.14	O	$14,661	$11,397	$3,264	2000
ACYCLOVIR	Oint, Eye, 3%;	Tube	48		200		0		1200	200	0		0		35		1483	483	23.41	I	$34,720	$11,308	$23,412	0
DEXTRAN- 70	Inj,IV,6% in 5	Botl	144		0		1200	850	0		75		576		865		2860	2510	4.40	I	$12,584	$11,044	$1,540	50
HYDROGEN PEROXIDE	Soln 3%; 240m	Botl	3000		900		1860		1500		600		3576	1900	40		11476	9800	1.10	D	$12,649	$10,802	$1,847	20
SODIUM LACTATE Cpd.	Inj,IV(Hartman	Botl	6000		800		6500	2400	1440		2400		1068		600		18808	14708	0.70	I	$13,166	$10,296	$2,870	333
CEFTAZIDIME	Inj, 500mg/Vial	Vial	600		0		0		0		0		1200	600	0		1800	1200	8.53	O	$15,345	$10,230	$5,115	50
CLOTRIMAZOLE	Cr,Vaginal 2%;	Tube	720		1350	720	420		150		0		1860	720	194		4694	2924	3.34	O	$15,678	$9,766	$5,912	0
AMPICILLIN	Susp, 25mg/ml	Botl	4800		1700		2160		2000		2400		1500		800		15360	15360	0.62	I	$9,523	$9,523	$0	0

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ABC ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
GIVING SETS FOR IVs	Micro Drip for	Set	3000		1000		1700		2000		0		1200		600		9500	9500	0.92	ECDS	$8,740	$8,740	$0	0
CLOXACILLIN SODIUM	Caps, 250mg	Caps	72000		300		48000		24000		4800		36000		12000		197100	197100	0.04	I	$8,258	$8,258	$0	4000
NYSTATIN	Susp,Oral,100	Botl	1200		200		720		400		1200		2952	1200	144		6816	5064	1.56	I	$10,633	$7,900	$2,733	100
SILVER SULPHADIAZIN	Cream, 1%; 50	Jar	30		100		120		50		200	50	144		24		668	518	15.25	I	$10,187	$7,900	$2,288	0
METOCLOPRAMIDE	Syrup, 1mg/ml;	DrBtl	360		200		144		300		0		6000	400	0		7004	1404	5.50	C	$38,522	$7,722	$30,800	100
CHLORHEXIDINE	Soln,Conc,20	Botl	50		25		0		10		16		12		6		119	119	61.50	I	$7,319	$7,319	$0	0
IPECACUANHA & AMMO	Mistura Expect	Botl	2660		2000	900	6		0		0		288		930		5884	4784	1.50	D	$8,833	$7,182	$1,651	0
CO-TRIMOXAZOLE	Tab,480mg	Tab	192000		1800		36000		48000		48000		72000	48000	36000		433800	409800	0.02	I	$7,331	$6,926	$406	10000
CHLORHEXIDINE	Soln,Top,Chlor	Botl	280		23		3		8		0		12		50		376	376	17.00	I	$6,392	$6,392	$0	5
CODEINE LINCTUS BPC	Soln,Oral, 3mg	Botl	42		0		0		450		0		1680	450	0		2172	942	6.67	D	$14,479	$6,280	$8,199	0
STILBOESTROL	Tab, 5 mg	Tab	1200		1000		36000		4000		3000		12000		6000		63200	63200	0.10	D	$6,143	$6,143	$0	3000
AMIKACIN SULPHATE	Inj. 50 mg/ml; 2	Amp	144		200		0		500				2000	500	200		3044	1544	3.98	O	$12,109	$6,142	$5,967	0
METHYLDOPA	Tab, 250mg	Tab	42000		30000		30000		55000	40000	27000		10000		42000		238000	221000	0.03	I	$6,514	$6,100	$414	0
MICONAZOLE	Cream, Topical	Tube	1440		400		600		400		300		1320	600	150		4610	3890	1.55	D	$7,152	$6,035	$1,117	100
WATER FOR INJECTION	Water for Inj 10	Vial	3600		200		180		300		500		34800	2000	725		40305	7505	0.80	I	$32,244	$6,004	$26,240	0
DIAGNOSTIC, BLOOD,G	Strips, 50s (Am	Pkge	0		50		12		0		0		108		0		170	170	34.89	D	$5,931	$5,931	$0	0
CO-TRIMOXAZOLE	Susp, 48mg/ml	Botl	3000		2000		1440		800		2400		2280		510		12430	12430	0.47	I	$5,892	$5,892	$0	0
HYDROCORTISONE SO	Inj, 250mg/Vial	Vial	2500		300		1200		200		1800		1200		400		7600	7600	0.75	E	$5,700	$5,700	$0	300
LOPERAMIDE	Syrup,0.2mg/m	Botl	144		700		144		0		0		1200	700	0		2188	1688	3.35	O	$7,325	$5,651	$1,674	50
LINDANE	Shampoo/Lotio	Botl	216		500		864		300		2400		2400		900		7580	7580	0.74	I	$5,609	$5,609	$0	0
GRISEOFULVIN	Tab,Fine Partic	Tab	18000		5000		9600		24000		18000		36000	24000	15000		125600	113600	0.05	I	$5,853	$5,294	$559	3000
BENZYLBENZOATE	Emuls, 25%; 1	Botl	60		700		12		1600	700	0		180		144		2696	1796	2.80	I	$7,549	$5,029	$2,520	0
SULPHA,TRIPLE	Cream,Topical	Tube	144		250		432		400		0		828	400	140		2194	1766	2.76	O	$6,055	$4,874	$1,181	0
CO-TRIMOXAZOLE	Inj,96mg/ml; a	Amp	960		300		0		300		900		1200	900	0		3660	3360	1.40	ECDS	$5,124	$4,704	$420	200
IBUPROFEN	Tab, 200mg	Tab	72000		12000		120000	72000	95000	72000	36000		100800	72000	60000		495800	396000	0.01	O	$5,751	$4,594	$1,158	6000
PENICILLIN G PROCAIN	Inj, 3g/vial (3 m	Vial	1800		2500		1800		6000	2000	1800		3660	2000	1250		18810	13150	0.34	I	$6,437	$4,500	$1,937	100
PENICILLIN G SODIUM (	Inj,IV, 3g(5 milli	Vial	4000		900		2040		6000	2000	450		3660	2000	600		17650	11990	0.37	I	$6,566	$4,460	$2,106	300
SERUM, ANTIRABIES,I'	Inj, 200u/ml;5m	Amp	0		5000	500	0		0		0		0		0		5000	500	8.86	I	$44,280	$4,428	$39,852	0
FLUOCINOLONE	Cream, 0.025	Tube	800		400		0		100		200		1860		220		3580	3580	1.21	O	$4,317	$4,317	$0	100
METRONIDAZOLE	Susp, Paed, 40	Botl	1200		400		1200		600		1800	1200	3600	1200	0		8800	5800	0.74	I	$6,512	$4,292	$2,220	0
SUXAMETHONIUM CHL	Inj, 20mg/ml; 2	Amp	1200		0		0		0		0		0		0		1200	1200	3.57	D	$4,285	$4,285	$0	150
HYDROCORTISONE	Cream, 1%; 15	Tube	1440		1860		1800		800		1200		1824		1120		10044	10044	0.42	I	$4,218	$4,218	$0	100
SALBUTAMOL SULPHA	Syrup,0.4mg/m	Botl	1200		0		288		400		0		1200	600	200		3288	2688	1.55	D	$5,090	$4,161	$929	0

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MINOXODIL	Tab, 5mg	Tab	3000		2000		0		3000		0		12000	3000	0		20000	11000	0.38	O	$7,500	$4,125	$3,375	1000
PETHIDINE HCl (MEPERI	Inj, 50mg/ml; 1	Amp	12000		900		600		2400	1000	450		900		300		17550	16150	0.26	D	$4,482	$4,125	$358	1000
PILOCARPINE	Drops,Eye, 4%	DrBtl	360		150		288		300		0		900	400	70		2068	1568	2.48	I	$5,133	$3,892	$1,241	50
METRONIDAZOLE	Inj,IV,5mg/ml;	Vial	1200		200		36		600		900	600	600		0		3536	3236	1.20	I	$4,243	$3,883	$360	200
PHENYTOIN	Susp, 25mg/ml	Botl	120		200		120		100		25		500	120	100		1165	785	4.84	D	$5,639	$3,799	$1,839	0
ACYCLOVIR	Oint, 3%	Tube	96		100		0		100		0		0		70		366	366	10.19	O	$3,729	$3,729	$0	0
MEBENDAZOLE	Susp,Oral,20m	Botl	960		800		960		600		600		2424	960	0		6344	4880	0.75	D	$4,728	$3,637	$1,091	0
VERAPAMIL HCl	Tab, 80mg	Tab	18000		2000		0		0		0		24000	12000	7000		51000	39000	0.09	I	$4,702	$3,596	$1,106	1000
DICLOFENAC	Inj, 25mg/ml; 3	Vial	150		0		12000	1200	0		0		1200		0		13350	2550	1.40	O	$18,690	$3,570	$15,120	100
DIENOESTROL	CreamVaginal,	Tube	24		300		0		0		0		500		0		824	824	4.32	O	$3,560	$3,560	$0	0
PHENYTOIN	Inj 50mg/ml; 5	Amp	240		0		180		200		0		1200	200	200		2020	1020	3.46	D	$6,980	$3,524	$3,455	100
PARACETAMOL(ACETA	Tab, 500mg	Tab	364000		34000		106800		75000		48000		102000		64400		794200	794200	0.00	I	$3,494	$3,494	$0	30000
HAEMORRHOIDAL PRE	Oint/Cream (no	Tube	120		500		432		100		0		720		200		2072	2072	1.66	O	$3,440	$3,440	$0	0
RANITIDINE	Inj, 25mg/ml; 2	Amp	1200		100		960		300		0		360		100		3020	3020	1.13	O	$3,425	$3,425	$0	100
LINDANE	Cream,1%; 50	Tube	696		500		864		750		1200		2400	1200	450		6860	5660	0.60	O	$4,116	$3,396	$720	100
TETRACYCLINE	Cap 250mg	Caps	72000		22000		3600		60000		27000		72000	62000	62000		318600	308600	0.01	I	$3,505	$3,395	$110	20000
PYRIDOSTIGMINE BRO	Tab, 60mg	Tab	3600		2000		0		8000		0		12000	8000	0		25600	21600	0.15	I	$3,948	$3,331	$617	0
NITRAZEPAM	Tab, Scored,5	Tab	4000		2000		6000		4000		9000		6000		600		31600	31600	0.10	O	$3,160	$3,160	$0	3000
RIFAMPICIN	Caps, 300mg	Caps	3600		10000		10500		12000		2000		0		0		38100	38100	0.08	I	$2,949	$2,949	$0	500
AMPICILLIN	Inj, 1g/Vial	Vial	2000		200		1800	1200	1200		0		1200		400		6800	6200	0.47	I	$3,227	$2,943	$285	0
CHLORPROMAZINE HCl	Syrup, 5mg/ml	Botl	18		200		0		0		0		1200	200	0		1418	418	7.00	I	$9,926	$2,926	$7,000	0
CHLOROQUINE SULPH/	Tab,200-250m	Tab	3000		36000		0		20000		108000		18000		0		185000	185000	0.02	I	$2,905	$2,905	$0	0
SALBUTAMOL SULPHA	Inhalor,100mcg	Vial	1200		200		0		200		0		360		150		2110	2110	1.36	I	$2,870	$2,870	$0	0
ALUMINUM HYDROXIDE	Mixture,64mg/	Botl	18		300		0		150		0		832		275		1575	1575	1.75	I	$2,756	$2,756	$0	0
KETOTIFEN	Tab, 1mg	Tab	3000		0		0		0		0		24000		0		27000	27000	0.10	O	$2,700	$2,700	$0	100
METRONIDAZOLE	Suppository, 5	Supp	600		200		288		400		0		3600	600	0		5088	2088	1.29	E	$6,576	$2,698	$3,877	0
OESTROGENS, CONJU	Tab, 1.25 mg	Tab	1200		1000		4800		0		13500		6000		0		26500	26500	0.10	O	$2,650	$2,650	$0	2000
UNDECENOIC ACID	Cream/Oint; 25	Tube	1200		0		0		800		0		600		0		2600	2600	1.00	I	$2,600	$2,600	$0	0
FERROUS SULPHATE/F	Syrup,15mg(=	Botl	600		0		0		46		0		6364	64	314	31	7324	741	3.50	I	$25,634	$2,594	$23,041	0
GENTAMICIN	Inj,40mg/ml;2	Amp	12000		700		2400		24000	2400	2400		2400		1080		44980	23380	0.11	I	$4,975	$2,586	$2,389	400
PYRIDOXINE HCl (B 6)	Tab, 50mg	Tab	12000		14000		12000		0		11000		24000	12000	3000		76000	64000	0.04	I	$3,063	$2,579	$484	0
SALBUTAMOL SULPHA	Soln for Respir	Botl	200		200		36		0		0		0		100		536	536	4.77	O	$2,557	$2,557	$0	50
DEXTROSE	Inj,IV, 5% in W	Botl	1440		1200		14400	1440	200		1200		1200		600		20240	7280	0.35	I	$7,084	$2,548	$4,536	0

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ZINC OXIDE	Oint, Zinc Oxid	Jar	1800		60		21		200		9		0		30		2120	2120	1.20	D	$2,544	$2,544	$0	0
HYOSCINE BUTYLBRO	Tab, 10mg	Tab	4000		4000		7200		0		0		0		0		15200	15200	0.16	O	$2,478	$2,478	$0	1000
HYDROCORTISONE AC	Drops, Eye, 1	Botl	288		240		288		300		0		1800		125		3041	3041	0.81	I	$2,463	$2,463	$0	0
LUBRICATING JELLY	Jelly,Topical; 1	Tube	648		600		288		200		450		416		101		2703	2703	0.87	O	$2,344	$2,344	$0	100
PHYTOMENADIONE (VIT	Inj,1mg/0.5ml;	Amp	1200		200		1200		100		300		2280	1200	75		5355	4275	0.54	D	$2,872	$2,293	$579	300
CLOXACILLIN SODIUM	Inj, Pdr; 500mg	Vial	1500		500		1200		1000		0		1200		0		5400	5400	0.42	I	$2,280	$2,280	$0	0
LIGNOCAINE HCl	Inj,2% &preser	Vial	900		300		0		0		1200		360		50		2810	2810	0.81	D	$2,264	$2,264	$0	0
PARACETAMOL(ACETA	Liquid,24mg/m	Botl	1200		700		648		3400	1200	464		6840	1200	804		14056	6216	0.36	I	$5,060	$2,238	$2,822	0
PILOCARPINE	Drops,Eye, 2%	DrBtl	240		150		288		400		0		600	400	70		1748	1548	1.44	I	$2,517	$2,229	$288	0
CHLORPROPAMIDE	Tab, 250mg	Tab	60000		500		36000		36000		36000		60000	36000	17000		245500	221500	0.01	I	$2,357	$2,126	$230	0
FLUPHENAZINE DEC/E	Inj,25mg/ml; 10	Amp	12		100		48		0		10		600		0		770	770	2.75	E	$2,118	$2,118	$0	50
LIQUID PARAFFIN,(MEDI	Mineral Oil, He	Botl	810		150		12		0		24		10		200		1206	1206	1.75	O	$2,111	$2,111	$0	0
LIGNOCAINE HCl	Gel, Intra-uret	Tube	48		300		0		150		0		360		0		858	858	2.39	D	$2,051	$2,051	$0	100
EPHEDRINE HCl	Drops,Nasal,1	Botl	2000		160		288		1100	600	0		600		75		4223	3723	0.54	D	$2,289	$2,018	$271	0
HALOTHANE	Inhalation, 250	Botl	0		50		0		100		0		0		0		150	150	13.38	I	$2,006	$2,006	$0	50
AZOTHIOPRINE	Tab, 50mg	Tab	0		2000		0		0		0		0		0		2000	2000	0.97	I	$1,945	$1,945	$0	0
SERUM, ANTI-D IMMUN	Inj, 250mcg;2m	Amp	60		0		0		0		0		0		0		60	60	32.10	D	$1,926	$1,926	$0	0
SODIUM VALPROATE	Caps, 250 mg	Caps	24000		3000		8400		0		1000		6000		0		42400	42400	0.04	PAHO	$1,907	$1,907	$0	2000
WATER FOR INJECTION	Water for Inj 1	Vial	600		1000		2000		0		0		34800	2000	1550		39950	7150	0.26	D	$10,535	$1,885	$8,649	0
DOPAMINE HCl	Inj,40mg/ml;5	Amp	200		100		0		0		25		600	200	100		1025	625	3.00	I	$3,075	$1,875	$1,200	0
PENICILLIN G BENZATH	Inj, 2.4million u	Vial	360		150		2400		4000	2000	1800		3180	2000	150		12040	8860	0.21	I	$2,484	$1,828	$656	200
AMPICILLIN	Inj, 500mg/Vial	Amp	4000		600		1200		600		18000	1200	0		600		25000	8200	0.22	I	$5,400	$1,771	$3,629	167
CHLORAL HYDRATE	Mistura,100mg	Botl	2000		0		0		0		0		6		0		2006	2006	0.86	D	$1,728	$1,728	$0	0
METHYL SALICYLATE	Oint 10%	Tube	585		150		108		0		6		0		0		849	849	2.00	E	$1,699	$1,699	$0	0
DIPYRIDAMOLE	Tab,SC,25mg	Tab	36000		2000		0		0		0		24000	12000	4000		66000	54000	0.03	O	$2,046	$1,674	$372	0
TOLBUTAMIDE	Tab, 500mg	Tab	18000		10000		7200		36000		3000		60000	36000	12000		146200	122200	0.01	I	$1,959	$1,637	$322	0
WATER FOR IRRIGATIO	Water for Irrig'	Btl	720		0		1000	720	12		0		120		0		1852	1572	1.02	PAHO	$1,889	$1,603	$286	36
MEBENDAZOLE	Tab,Chewable,	Tab	8000		20000		19200		13000		27000		90000	45000	45200		222400	177400	0.01	I	$1,979	$1,579	$401	6000
AMINOPHYLLINE	Susp. 10 mg/m	Botl	300		300		72		200		180		3972	300	50		5074	1402	1.11	I	$5,643	$1,559	$4,084	0
SULFACETAMIDE SODI	Drops,Eye,10	DrBtl	1200		200		360		500		300		2280	800	899		5739	4259	0.36	I	$2,066	$1,533	$533	0
SILVER SUPHADIAZINE	Cream, 1%; 60	Tube	60		200		120		200		50	200	0		40		670	820	1.83	I	$1,226	$1,501	($275)	100
SPIRONOLACTONE	Tab, 25 mg	Tab	24000		2000		6000		8000		2000		12000		12000		66000	66000	0.02	I	$1,452	$1,452	$0	2000
ALCURONIUM Cl	Inj, 5mg/ml; 2	Amp	200		0		365		0		0		0		0		565	565	2.50	O	$1,413	$1,413	$0	100

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CALAMINE LOTION	Lotion	Botl	227		300		6		50		24		3624	300	95		4326	1002	1.40	I	$6,056	$1,403	$4,654	0
SERUM, TETANUS ANTI	Inj, 50,000U	Vial	48		0		0		0		0		300	150	0		348	198	7.06	D	$2,458	$1,399	$1,060	0
THIOPENTONE SODIUM	Inj, Pdr.for Inj;	Vial	2000		200		0		0		0		0		0		2200	2200	0.63	I	$1,388	$1,388	$0	100
METRONIDAZOLE	Tab, 250mg	Tab	36000		6000		30000		48000	36000	27000		60000	36000	18000		225000	189000	0.01	I	$1,643	$1,380	$263	0
HYDRALAZINE	Tab, 25mg	Tab	40000		11000		12000		24000		36000		36000		15400		174400	174400	0.01	I	$1,378	$1,378	$0	0
PENICILLIN G SODIUM (	Inj,IV, 600mg(1	Vial	600		900		4800	2400	4000	2000	1800		3660	2000	600		16360	10300	0.13	I	$2,084	$1,312	$772	200
MAGNESIUM SULPHAT	Inj, 50%; 10ml	Amp	300		200		360		200		900		240		50		2250	2250	0.53	D	$1,203	$1,203	$0	0
CHLORAMPHENICOL	Oint,Eye,1%; 4	Tube	720		1300		360		1300		1300		2646	1300	1760	1300	9386	7580	0.16	I	$1,472	$1,189	$283	0
PENTAZOCINE LACTAT	Tab, 30mg	Tab	600		2000		2400		0		0		12000	2400	0		17000	7400	0.15	I	$2,616	$1,139	$1,477	1000
CHLORAMPHENICOL	Inj, 1g(Sod.Suc	Vial	1500		200		240		300		1200		1200		600		5240	5240	0.22	I	$1,132	$1,132	$0	150
BENZOIC & SALICYLIC A	Oint(Whitfields)	Tube	0		136		192		2500		0		3624		350		6802	6802	0.17	I	$1,122	$1,122	$0	0
MANNITOL	Inj,IV,20%; 250	Botl	180		400	200	144		60		0		300	200	0		1084	784	1.42	D	$1,541	$1,115	$427	0
DIALYSIS SOLN, PERIT	Inj,IV,w 1.5%D	Botl	500		0		3000	500	0		0		0		0		3500	1000	1.10	O	$3,850	$1,100	$2,750	100
RANITIDINE	Tab, 150mg	Tab	24000		4000		18000		12000		0		24000	18000	6000		88000	82000	0.01	O	$1,179	$1,098	$80	1000
MAGNESIUM TRISIL CP	Tab,BPC	Tab	20000		8000		39600		40000		36000		96000	40000	74400	40000	314000	223600	0.00	I	$1,507	$1,073	$434	0
CEFUROXIME	Inj, 750mg/vial	Vial	240		0		0		0		0		1200	240	0		1440	480	2.15	I	$3,097	$1,032	$2,064	100
MORPHINE MIXTURE	Soln,Oral (Nep	Botl	12		0		0		0		0		300	150	0		312	162	6.23	D	$1,943	$1,009	$934	0
FRUSEMIDE	Inj,10mg/ml;2	Amp	2400		300		12000		400		180		1320		200		16800	16800	0.06	I	$1,008	$1,008	$0	0
DEXTROSE	Inj,IV,50% in W	Vial	600		200		360		200		100		200		100		1760	1760	0.57	I	$1,003	$1,003	$0	100
PANCURONIUM BROMI	Inj 2mg/ml;2ml	Amp	360		0				250		0		0		0		610	610	1.61	I	$981	$981	$0	100
PROPRANOLOL HCl	Tab 40mg	Tab	130000		8000		18000		32000		36000		36000		20000		280000	280000	0.00	I	$980	$980	$0	12000
IRON DEXTRAN	Inj 50mgFe/ml;	Amp	1000		1800		3600		0		1200		1200		800		9600	9600	0.10	I	$973	$973	$0	200
CLOTRIMAZOLE	Pessary, 500m	Pessar	2400		9000	2400	420		150		1200		1860		150		15180	8580	0.11	PAHO	$1,698	$960	$738	0
VITAMINS AND MINERA	Mist Ferro Vite(	Botl	420		0		730		50		150		0		237		1587	1587	0.60	D	$952	$952	$0	0
CHLORAMPHENICOL	Susp, 25mg(Pa	Botl	144		200		0		400		0		2646	400	200		3590	1344	0.70	I	$2,513	$941	$1,572	100
INDOMETHACIN	Cap,25mg	Caps	72000		12000		96000	55000	55000		27000		53000		25200		340200	299200	0.00	I	$1,055	$928	$127	6000
DROPERIDOL	Inj, 2.5mg/ml;	Amp	200		0		0		0		0		2400	240	0		2600	440	2.08	O	$5,411	$916	$4,495	100
PREDNISOLONE	Tab, 5mg	Tab	18000		6000		18000		24000		24000		36000	24000	6000		132000	120000	0.01	I	$1,003	$912	$91	0
FERROUS SULPHATE/F	Tab,65mgFe	Tab	100000		15000		112800		55000		36000		104800		140800		564400	564400	0.00	I	$903	$903	$0	27000
LEVAMISOLE	Tab,50mg	Tab	600		1000		108000	50000	4000		0		36000		30600		180200	122200	0.01	I	$1,297	$880	$418	1000
SUXAMETHONIUM CHL	Inj, IV, 500mg(	Amp	240		0		0		0		0		0		0		240	240	3.59	O	$862	$862	$0	0
MEDROXYPROGESTER	Inj, 50mg/ml; 3	Amp	60		50		0		0				600		0		710	710	1.21	E	$857	$857	$0	0
HYDRALAZINE	Inj, 20mg/ml; 1	Amp	500		200		840		200		1200		1200		150		4290	4290	0.20	I	$855	$855	$0	200

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GALLAMINE TRIETHIOD	Inj,40mg/ml;2	Amp	1000		0		0		0		0		300		0		1300	1300	0.65	I	$842	$842	$0	100
KETAMINE HCL	Inj, 50mg/ml; 1	Vial	144		300		240		800	300	0		0		0		1484	984	0.83	I	$1,232	$817	$415	50
PYRIDOSTIGMINE BRO	Inj, 1mg/ml; 1	Amp	1200		120		0		200		0		240		0		1760	1760	0.46	O	$810	$810	$0	0
DEXAMETHASONE SOD	Inj, 4mg/ml;1ml	Amp	960		425		1220		1200		900		1200		350		6255	6255	0.13	I	$806	$806	$0	300
LIGNOCAINE HCl	Inj,2% (no pres	Amp	240		300		0		0		0		360		100		1000	1000	0.81	D	$806	$806	$0	0
PHYTOMENADIONE (VIT	Inj,10mg/ml; 1	Amp	480		500		1200		200		75		2280	1200	150		4885	3805	0.21	D	$1,021	$795	$226	300
NEOMYCIN PREP'N, TO	Oint,B-N-Poly	Tube	2400		2350		1224		0		2000		600		550		9124	9124	0.09	I	$794	$794	$0	500
OESTROGENS, CONJU	Inj, 5mg/ml; 5	Amp	60		0		0		0		0		1800	60	0		1860	120	6.61	O	$12,285	$793	$11,493	0
POTASSIUM CHLORIDE	Tab, 600mg, SI	Tab	12000		2000		6000		3000		10000		24000	12000	6000		63000	51000	0.02	D	$964	$780	$184	2000
AMINOPHYLLINE	Inj,IV,25mg/ml;	Vial	3144		300		1200		1000		900		1500	1200	620		8664	8364	0.09	I	$806	$778	$28	500
GLYCINE	Inj,Irrigation,1.	Btl	144		0		0		0		0		24		0		168	168	4.60	O	$773	$773	$0	10
POTASSIUM CHLORIDE	Inj,IV, 2meq/ml	Vial	600		100		360		300		450		1200	450	25		3035	2285	0.34	D	$1,025	$772	$253	0
ORPHENADRINE	Tab, 100mg	Tab	3600		6000		0		0		0		24000	6000	0		33600	15600	0.05	O	$1,613	$749	$864	0
SODIUM BICARBONATE	Inj,IV, 8.4%; 50	Vial	120		200		0		300	200	0		0		100		720	620	1.10	D	$791	$682	$110	0
GENTAMICIN	Inj,10mg/ml;2	Amp	1200		300		2400		12000	1200	0		2400		1080		19380	8580	0.08	I	$1,535	$680	$855	200
CHLORPROMAZINE HCl	Tab 50 mg	Tab	20000		12000		12000		2000		9000		36000	12000	7000		98000	74000	0.01	O	$882	$666	$216	0
HYDROCHLOROTHIAZI	Tab 50mg	Tab	25000		15000		19200		30000		36000		60000	36000	19000		204200	180200	0.00	I	$735	$649	$86	15000
PYRAZINAMIDE	Tab, 500mg	Tab	2400		12000	6000	0		0		6000		0		6000		26400	20400	0.03	I	$832	$643	$189	3000
VITAMIN B-COMPLEX w	Inj, IM; Pair of	Pair	144		400		480		300		0		1200	500	500		3024	2324	0.27	D	$816	$627	$189	0
ATROPINE	Drops,Eye,1%;	DrBtl	600		400		0		200		0		0		30		1230	1230	0.49	I	$605	$605	$0	0
PRIMAQUINE	Tab, 7.5mg ba	Tab	2000		50000		0		11000		72000		12000		0		147000	147000	0.00	I	$603	$603	$0	0
DISOPYRAMIDE	Tab, 100mg	Tab	12000		2000		0		0		0		12000	6000	0		26000	20000	0.03	O	$780	$600	$180	0
PHENOL	Mouthwash,5	Botl	0		0		0		100		0		1200	200	0		1300	300	2.00	E	$2,600	$600	$2,000	100
IRON & FOLIC ACID	Tab,65mgFe-0	Tab	25000		4000		102000		20000		48000		60000		86000		345000	345000	0.00	I	$587	$587	$0	0
METFORMIN	Tab, 500mg	Tab	8000		0		0		0		0		12000	8000	0		20000	16000	0.04	D	$718	$574	$144	2000
ISOSORBIDE DINITRATE	Tab, 10mg	Tab	27000		8000		12000		0		0		24000	12000	12000		83000	71000	0.01	D	$664	$568	$96	2000
SALBUTAMOL SULPHA	Tab, 4mg	Tab	36000		9000		12000		15000		27000		0		14000		113000	113000	0.00	I	$554	$554	$0	250
ASPIRIN (ASA)	Tab, 300mg	Tab	48000		40000		120000	60000	65000		48000		51600		11400		384000	324000	0.00	I	$653	$551	$102	41000
PHENYTOIN	Tab/Cap, 100m	Tab	18000		5000		15600		6000		27000	16000	4000		6000		81600	70600	0.01	I	$636	$551	$86	0
HAEMORRHOIDAL PRE	Suppository (n	Supp	120		500		864		100		1200		1872	1200	200		4856	4184	0.13	PAHO	$638	$550	$88	0
VITAMIN B-COMPLEX w	Inj, IV; Pair of	Pair	0		400		480		100		0		1200	500	500		2680	1980	0.27	D	$731	$540	$191	0
FRUSEMIDE	Tab,40mg	Tab	18000		3000		7200		12000		18000		38800	18000	24500	18000	121500	94200	0.01	I	$693	$537	$156	0
CHLORPROMAZINE HCl	Tab, 100mg	Tab	18000		2000		12000		4000		9000		36000	12000	6000		87000	63000	0.01	I	$740	$536	$204	5000

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ERGOMETRINE MALEA	Inj, 0.5mg/ml;	Amp	1800		800		12000	2000	800		600		2280		625		18905	8905	0.06	I	$1,134	$534	$600	500
AMINOPHYLLINE	Tab,100mg	Tab	24000		4000		18000		18000		1200		38400	18000	14000		117600	97200	0.01	D	$635	$525	$110	0
ADRENALINE (EPINEPH	Inj,1mg(HCl)/m	Amp	3000		800		1800		600		450		12120	1800	125		18895	8575	0.06	I	$1,134	$515	$619	400
SPECTINOMYCIN-STRE	Inj, 2g Vial with	Amp	60		0		0		200	100	0		0		0		260	160	3.10	O	$806	$496	$310	0
CARBIMAZOLE	Tab, 5mg	Tab	24000		3000		3600		4000		750		12000	6000	6000		53350	47350	0.01	I	$555	$492	$62	0
OXYTOCIN	Inj, 5 iu/ml; 1ml	Amp	2400		400		1200		800		1200		12000	1200	300		18300	7500	0.07	O	$1,190	$488	$702	0
METOCLOPRAMIDE	Inj, 5mg/ml; 2	Amp	2000		250		500		1000		900		0		0		4650	4650	0.10	I	$487	$487	$0	300
PROMETHAZINE HCl	Inj 25mg/ml;2m	Amp	960		900		12000	1200	16000	1600	1200		1320		450		32830	7630	0.06	I	$2,095	$487	$1,608	150
LIGNOCAINE HCl	Inj,Spinal,5%-	Amp	120		100		0		0		0		360		0		580	580	0.83	D	$480	$480	$0	0
VACCINE, M-M-R	Inj	Vial	0		400		0		0		0		0		0		400	400	1.19	PAHO	$476	$476	$0	0
LIGNOCAINE & ADRENA	Inj,20mgL/ml,1	Amp	0		200		1500		150		0		360		50		2260	2260	0.20	D	$461	$461	$0	0
PROCYCLIDINE HCl	Inj, 5mg/ml; 2	Amp	0		0		0		0		0		240	120	0		240	120	3.79	PAHO	$911	$455	$455	0
ASPIRIN (ASA)	Tab 75mg	Tab	24000		40000		120000	40000	24000		0		1200		11400		220600	140600	0.00	I	$662	$422	$240	22000
ETHAMBUTOL	Tab, 400mg	Tab	0		5000		0		0		0		15000		0		20000	20000	0.02	I	$414	$414	$0	0
DIAZEPAM	Inj, 5mg/ml; 2	Amp	2400		400		720		500		900		1500	900	325		6745	6145	0.06	I	$430	$392	$38	600
GLYCERYL TRINITRATE	Tab,Sublingual	Tab	6000		3000		9600		2000		9000		24000	12000	12000		65600	53600	0.01	I	$479	$391	$88	200
THIAMINE(VIT B1/ANEU	Tab,50mg	Tab	12000		2000		12000		4000		12000		1200		400		43600	43600	0.01	D	$388	$388	$0	0
ATROPINE	Inj.IM/IV,0.6 m	Vial	2000		200		480		1500		975		1200		240		6595	6595	0.06	I	$387	$387	$0	400
BISACODYL	Suppos, 10mg	Supp	600		1000		432		200		450		6800	1000	194		9676	3876	0.10	O	$939	$376	$563	0
EUSOL	Soln,Topical	Botl	3372		260		364		60		177		92		107		4432	4432	0.08	D	$374	$374	$0	0
ALLOPURINOL	Tab, 100mg	Tab	12000		3000		4800		4000		1000		1000		7000	5000	32800	30800	0.01	I	$394	$370	$24	3000
STREPTOMYCIN SULFA	Inj, 1g/vial	Vial	600		400		5500	900	400		300		3552	900	900		11652	4400	0.08	I	$979	$370	$609	0
METOCLOPRAMIDE	Tab,10mg	Tab	24000		2000		6000		6000		27000	12000	12000		6000		83000	68000	0.01	I	$432	$354	$78	3000
THYROXINE SODIUM	Tab, 0.1mg (Le	Tab	6000		4000		3600		600		2000		0		0		16200	16200	0.02	D	$334	$334	$0	0
PENTAZOCINE LACTAT	Inj,30mg/ml; 1	Amp	0		250		360		0		0		600		0		1210	1210	0.28	I	$334	$334	$0	100
BENZOIC & SALICYLIC A	Oint(Whitfields)	Tube	40		100		192		4000		20		3624		1640		9616	9616	0.03	D	$317	$317	$0	0
ACETAZOLAMIDE	Tab,250mg	Tab	4000		2000		0		5000		0		5000		2000		18000	18000	0.02	I	$315	$315	$0	0
HALOPERIDOL	Tab, 5mg	Tab	5000		3000		6000		4000		1000		0		0		19000	19000	0.02	D	$312	$312	$0	5000
AMITRIPTYLLINE	Tab,75mg	Tab	3000		1000		6000		6000		8000		4800		1000		29800	29800	0.01	O	$310	$310	$0	0
CO-CODAPRIN	Tab, Codeine 8	Tab	24000		2000		9600		0		0		80400	24000	0		116000	59600	0.01	O	$580	$298	$282	0
TRIFLUOPERAZINE	Tab, 5mg	Tab	9000		4000		9600		5000		3000		12000	9000	3000		45600	42600	0.01	D	$315	$294	$21	0
VITAMIN A ACETATE	Tab/Cap, 7.5m	Cap	0		3000		3600		5000		9000		12000	9000	7000		39600	36600	0.01	I	$317	$293	$24	1000
CHLORAMPHENICOL	Cap, 250mg	Cap	18000		8000		2400		10000		9000		24000	18000	26000	18000	97400	83400	0.00	I	$341	$292	$49	5000

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ALPHABETICAL ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
VITAMINS AND MINERA	Mist Ferro Vite(	Botl	420		0		730		50		150		0		237		1587	1587	0.60	D	$952	$952	$0	0
WARFARIN SODIUM	Tab, 5 mg	Tab	6000		200		3600		3000		0		12000	4000	0		24800	16800	0.01	I	$285	$193	$92	0
WATER FOR INJECTION	Water for Inj 1	Vial	600		1000		2000		0		0		34800	2000	1550		39950	7150	0.26	D	$10,535	$1,885	$8,649	0
WATER FOR INJECTION	Water for Inj 10	Vial	3600		200		180		300		500		34800	2000	725		40305	7505	0.80	I	$32,244	$6,004	$26,240	0
WATER FOR IRRIGATIO	Water for Irrig'	Btl	720		0		1000	720	12		0		120		0		1852	1572	1.02	PAHO	$1,889	$1,603	$286	36
ZINC OXIDE	Oint, Zinc Oxid	Jar	1800		60		21		200		9		0		30		2120	2120	1.20	D	$2,544	$2,544	$0	0
	297	Formulary Drug Products																			$1,267,758	$908,245	$359,513	

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ABC ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
POTASSIUM CIT MIXTU	Mixture,Oral,B	Botl	36		0		0		0		0		360	36	19		415	91	3.13	D	$1,300	$285	$1,015	0
PHENOBARBITAL	Inj, 200mg/ml;	Amp	600		200		600		200		450		2280	600	200		4530	2850	0.10	D	$446	$280	$165	0
BISACODYL	Suppos,Paed,	Supp	48		1000		432		200		350		6800	1000	150		8980	3180	0.09	O	$790	$280	$510	0
CHLORDIAZEPOXIDE H	Caps/Tab 25m	Tab	1000		1000		6000		2000		0		12000	6000	3000		25000	19000	0.01	O	$350	$266	$84	2000
VACCINE, RABIES	Injection	Vial	0		800		0		0		150		0		0		950	950	0.28	PAHO	$266	$266	$0	0
PROCYCLIDINE HCl	Tab, 5mg	Tab	0		0		0		0		0		12000	6000	0		12000	6000	0.04	O	$528	$264	$264	0
DIGOXIN	Elixir, 0.05mg/	Botl	144		0		0		0		0		3000	300	0		3144	444	0.59	I	$1,849	$261	$1,588	0
CHLORPHENIRAMINE M	Tab,4mg	Tab	24000		14000		30000		24000		27000		74640	30000	13000		206640	162000	0.00	I	$331	$259	$71	0
DIGOXIN	Tab 0.25mg	Tab	18000		6000		6000		1200		9000		36000	18000	5000		81200	63200	0.00	I	$333	$259	$74	5000
ERGOMETRINE MALEA	Tab, 0.5mg	Tab	1200		3000		5760		6000		4000		22800	6000	4000		46760	29960	0.01	I	$397	$255	$143	3000
MORPHINE SULPHATE	Inj, 10mg/ml; 1	Amp	300		300		18		0		0		120		0		738	738	0.33	D	$245	$245	$0	50
PHENOBARBITAL	Tab 30mg	Tab	16000		5000		12000		7000		27000		36000	27000	12000		115000	106000	0.00	I	$265	$244	$21	5000
PETHIDINE HCl (MEPERI	Tab, 50 mg	Tab	1800		500		600		1000		45		1200		0		5145	5145	0.05	D	$240	$240	$0	1000
CYCLOPHOSPHAMIDE	Tab, 25mg	Tab	600		1000		0		0		0		12000	1000	0		13600	2600	0.08	I	$1,127	$215	$911	0
LEVODOPA & CARBIDO	Tab, 100mgL &	Tab	2400		0		0		1000		0		0		0		3400	3400	0.06	O	$214	$214	$0	1000
CHARCOAL,ACTIVATED	Tab/Pwdr,300	Tab	2000		4000		600		4000		3750		7200	4000	2		21552	18352	0.01	I	$241	$206	$36	2000
HYOSCINE BUTYLBRO	Inj, 20mg/ml; 1	Amp	1200		500		1200		0		0		0		0		2900	2900	0.07	I	$204	$204	$0	50
DIAZEPAM	Tab, 5mg	Tab	24000		8000		12000		6000		27000	15000	15000		12000		104000	92000	0.00	I	$229	$202	$26	11000
LOPERAMIDE	Cap, 2mg	Caps	2500		3000		7200		0		0		6000		0		18700	18700	0.01	I	$202	$202	$0	2000
BISACODYL	Tab 5mg	Tab	10000		2000		4800		4000		18000		12000		3000		53800	53800	0.00	I	$194	$194	$0	0
WARFARIN SODIUM	Tab, 5 mg	Tab	6000		200		3600		3000		0		12000	4000	0		24800	16800	0.01	I	$285	$193	$92	0
IMIPRAMINE HCl	Tab,75mg	Tab	3000		2000		4800		3000		0		24000		4800		41600	41600	0.00	E	$191	$191	$0	0
PHENOBARBITAL	Tab 60mg	Tab	6000		4000		12000		8000		9000		36000	12000	3000		78000	54000	0.00	I	$273	$189	$84	3000
DIGOXIN	Inj 0.25mg/ml;	Amp	400		200		360		200		600		1200	600	240		3200	2600	0.07	I	$230	$187	$43	100
CHLORDIAZEPOXIDE H	Caps/Tab, 10m	Tab	3000		3000		10800	6000	7000		6000		12000	6000	6000		47800	37000	0.01	O	$239	$185	$54	0
CALCIUM GLUCONATE	Inj,100mg/ml;1	Vial	200		200		0		300		450		1200	450	100		2450	1700	0.11	I	$257	$179	$79	200
ISONIAZID (INH)	Tab,100mg	Tab	8000		12000		16000		5000		6000		24000	16000	0		71000	63000	0.00	I	$199	$176	$22	7000
NITROFURANTOIN	Tab, 50mg	Tab	8000		3000		12000	8000	4000		3000		12000	8000	12000	8000	54000	42000	0.00	I	$221	$172	$49	8000
HYDROCORTISONE SO	Inj, 50mg/ml; 2	Amp	600		300		1200		150		0		1200		300		3750	3750	0.05	I	$171	$171	$0	200
CHLORPROMAZINE HCl	Inj, 25mg/ml; 2	Amp	600		200		600	200	200		700		1200	700	145		3645	2745	0.06	I	$226	$170	$56	100
PHENOBARBITAL	Elixir U.S.P/BP	Botl	24		0		6		0		5		2280	24	0		2315	59	2.83	D	$6,546	$167	$6,380	0
AMITRIPTYLLINE	Tab, 25mg	Tab	8000		2000		12000	8000	8000		3000		4800		3000		40800	36800	0.00	I	$184	$166	$18	2000
FOLIC ACID	Tab 1mg	Tab	36000		9000		24000		28000		36000		210000	36000	0		343000	169000	0.00	I	$309	$152	$157	9000

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ABC ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consultant's Total	Corozal Annual Total	Consultant's Total	Orange Walk Annual Total	Consultant's Total	Belmopan Annual Total	Consultant's Total	San Ignacio Annual Total	Consultant's Total	Dangriga Annual Total	Consultant's Total	Toledo Annual Total	Consultant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
PERPHENAZINE	Tab, 4mg	Tab	0		1000		0		0		0		1000		0		2000	2000	0.08	PAHO	$152	$152	$0	0
COAL TAR SOLUTION	Oint, 2.5%	Botl	16		0		0		0		0		600	20	0		616	36	4.16	D	$2,563	$150	$2,413	0
PROTAMINE SULPHATE	Inj,10mg/ml; 5	Amp	24		200		0		0		0		0		0		224	224	0.66	I	$148	$148	$0	0
TUBOCURARINE CHLO	Inj.Miscible10	Amp	72		0		0		0		0		0		0		72	72	1.94	D	$140	$140	$0	0
METHOTREXATE	Tab, 2.5mg	Tab	600		1000		0		0		0		6000	1000	0		7600	2600	0.05	I	$345	$118	$227	1000
HALOPERIDOL	Inj,IM,5mg/ml;	Amp	100		0		0		200		10		500		0		810	810	0.14	I	$117	$117	$0	50
HALOPERIDOL	Inj,IM,5mg/ml;	Amp	0		0		0		4000	400	0		0		0		4000	400	0.29	I	$1,152	$115	$1,037	0
LITHIUM CARBONATE	Cap, 300mg (	Cap	2000		0		0		0		0		1200		0		3200	3200	0.03	I	$106	$106	$0	1000
GENTIAN(CRYSTAL)VIO	Soln,Topical, 0	Botl	110		3000	110	6		32		221	110	102		57		3528	527	0.20	I	$706	$105	$600	5
VACCINE,MEASLES	Inj,Edmonston	Vial	0		400		480		0		432		0		0		1312	1312	0.08	PAHO	$105	$105	$0	0
NEOSTIGMINE	Inj, 0.5mg/ml;	Amp	1200		100		0		0		0		600	300	0		1900	1600	0.06	I	$119	$100	$19	0
VACCINE,BCG (DRIED)	Injection	Vial	0		300		500		0		240		0		0		1040	1040	0.09	PAHO	$94	$94	$0	0
HYDROXYCOBALAMINE	Inj, IM, 1mg/ml	Amp	200		200		360		300		0		1500	200	0		2560	1260	0.07	D	$187	$92	$95	100
ISOPRENALINE	Tab, 30mg	Tab	600		2000		0		0		0		24000	12000	0		26600	14600	0.01	D	$165	$91	$74	2000
SUXAMETHONIUM CHL	Inj. 50mg/ml; 2	Amp	500		400		0		0		0		0		0		900	900	0.10	I	$90	$90	$0	0
HEPARIN SODIUM	Inj, 10,000u/ml;	Vial	200		300		240		0		0		0		0		740	740	0.12	I	$89	$89	$0	50
EPHEDRINE HCl	Inj, 5mg/ml; 1	Amp	250		100		240		400		0		1200	400	0		2190	1390	0.06	I	$124	$78	$45	0
ACRIFLAVINE	Lotion,0.1%	Botl	1		0		0		0		45		0		410		456	456	0.16	D	$72	$72	$0	0
THIAMINE(VIT B1/ANEU	Inj, 100mg/ml;	Amp	240		200		0		200		0		1200	200	0		1840	840	0.08	D	$141	$64	$77	0
VITAMIN A PALMITATE	Inj, 20000u/ml	Vial	0		0		0		100		0		1200	120	100		1400	320	0.17	O	$235	$54	$181	0
VACCINE, DIPHTHERIA,	Inj, 10 dose	Vial	0		800		420		500		60		0		0		1780	1780	0.03	PAHO	$53	$53	$0	0
VACCINE,POLIO,TRIVAL	Liquid,Oral;20	Vial	0		450		275		0		480		0		0		1205	1205	0.04	P	$48	$48	$0	0
SILVER NITRATE	Drops, Eye 1%	Botl	0		150		6		0		0		240	120	0		396	276	0.17	I	$68	$47	$21	0
VACCINE,TETANUS(TO	Inj, 10 ml	Vial	600		250		240		500		360		0		0		1950	1950	0.02	PAHO	$39	$39	$0	0
METRONIDAZOLE	Pessary, 200m	Pessar	1000		300		12000	1200	600		0		0		0		13900	3100	0.01	I	$174	$39	$135	0
IODINE	Mandl's Paint(	Botl	1		6		0		0		0		69	6	19	6	95	19	1.89	D	$180	$36	$144	0
LIGNOCAINE & NORADR	Inj,2.13%L & 1:	Amp	0		200		1200		0		900		360		0		2660	2660	0.01	D	$32	$32	$0	0
VACCINE,YELLOW FEV	Injection	Vial	0		100		0		0		0		0		0		100	100	0.22	PAHO	$22	$22	$0	0
DIAGNOSTIC, URINE	pH,Prot,Gluc,K	Botl	0		24		10		0		0		0		0		34	34	0.54	D	$18	$18	$0	0
MAGNESIUM TRISIL MIS	Susp, BPC	Botl	2600		800		341		0		38		0		512		4291	4291	0.00	D	$15	$15	$0	0
VACCINE, DIP-TET-PER	Inj,Adsorbed, 2	Vial	0		0		270		0		480		0		0		750	750	0.02	PAHO	$15	$15	$0	0
IODINE SOLN, AQUEOU	Lugol's Soln(=	Botl	1		6		0		0		0		0		16	6	23	13	1.05	D	$24	$14	$11	0
BENZYDAMINE	Inj, 25mg; 5ml	Botl	0		0		0		0		0		0		0		0	0	0.75	O	$0	$0	$0	0

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ABC ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
DIAGNOSTIC, TUBERCU	PPD-S(Mantou	Vial	0		0		0		0		0		0		0		0	0	18.50	O	$0	$0	$0	0
FENTANYL CITRATE	Inj, 0.05mg/ml;	Amp	0		0		0		0		0		0		0		0	0	2.35	D	$0	$0	$0	0
FLUOROURICIL	Inj, 25mg/ml; 1	Amp	0		0		0		0		0		0		0		0	0	5.77	D	$0	$0	$0	0
SUXAMETHONIUM CHL	Inj, 20mg/ml; 1	Amp	0		0		0		0		0		0		0		0	0	3.57	D	$0	$0	$0	0
VACCINE, RUBELLA	Inj	Vial	0		0		0		0		0		0		0		0	0	0.14	PAHO	$0	$0	$0	0
VACCINE,TYPHOID, BP	S. Typhi(Mono	Vial	0		0		0		0		0		0		0		0	0	0.17	PAHO	$0	$0	$0	0
297	Formulary Drug Products																				$1,267,758	$908,245	$359,513	

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ABC ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
MEDICAL SUPPLIES:																								
OXYGEN	Inhalation(Medi	Cyl	1000		100		360		50		18		240		36		1804	1804	47.50	O	$85,690	$85,690	$0	0
NITROUS OXIDE	Gas, Cylinder	Cyl	200		0		104		10		0		0		0		314	314	225.00	O	$70,650	$70,650	$0	0
Guaze, Absorbent	Roll, Non-Steri	Roll	950		144		329		254		84		480	329	245		2486	2335	21.05	O	$52,320	$49,141	$3,179	0
CARBON DIOXIDE	Gas, Cylinder	Cyl	0		50		52		0		6		0		0		108	108	375.00	O	$40,500	$40,500	$0	0
Soap	Laundry, Liqui	Botl	2000		350		104		64		70		1176	500	4		3768	3092	8.89	O	$33,490	$27,482	$6,008	0
Pad, Abdominal	X-Ray Detecta	Pad	8400		200		1000		200		0		0		0		9800	9800	2.55	O	$24,990	$24,990	$0	0
Soap	Hand, Liquid	Botl	2000		500		416		50		36		696	500	3		3701	3505	7.05	O	$26,070	$24,689	$1,381	0
Gloves	Sterile,Disposa	Pair	25000		2000		6600	5000	2000		1200		9360	6900	850		47010	42950	0.57	O	$26,796	$24,482	$2,314	250
Cotton Wool	Absorbent,Non	Roll	4000		240		0		314		336		628	300	202		5720	5392	4.47	D	$25,582	$24,115	$1,467	500
NITROGEN	Gas, Cylinder	Cyl	0		100		432		0		0		0		0		532	532	45.00	O	$23,940	$23,940	$0	0
Needle, Infusion Set	#25 G, Scale V	Set	6000		300		2160		400		600		12600	2000	1050		23110	12510	1.81	O	$41,714	$22,581	$19,133	300
Gloves	Sterile,Disposa	Pair	30000		2000		13600	10000	1600		1500		16800	11000	2080		67580	58180	0.37	O	$24,869	$21,410	$3,459	600
Hand Brush		Each	600		50		500		62		12		404		0		1628	1628	12.50	O	$20,350	$20,350	$0	5
Bandage, Guaze 60		Roll	2000		0		7000	2500	2000		100		2520		250		13870	9370	2.07	O	$28,711	$19,396	$9,315	0
Syringe, Disposable	10cc + Needle	Syrng	60000		10000		37000	15000	3850		5800		60800	15000	8000		185450	117650	0.16	D	$30,228	$19,177	$11,051	3752
Gloves	Sterile,Disposa	Pair	30000		2000		13100	10000	1200		1200		9360	6900	600		57460	51900	0.37	O	$21,145	$19,099	$2,046	400
Guaze	By Pound weig	Box	0		240		54		0		0		480		0		774	774	23.73	O	$18,363	$18,363	$0	0
Cleaner	Blood Stains	Each	2000		100	50	144	50	50		48		0		0		2342	2198	8.25	O	$19,322	$18,134	$1,188	0
Cotton Wool	Absorbent,Non	Roll	4000		174		0		300		0		304	300	202		4980	4976	3.58	O	$17,828	$17,814	$14	0
Cotton Wool	Absorbent,Non	Roll	4000		144		792		50		0		0		0		4986	4986	3.50	O	$17,451	$17,451	$0	0
Gloves	Non-Sterile, Di	Pair	0		2000		31600	11000	1600		10720		16800	11000	2000		64720	38320	0.44	O	$28,347	$16,784	$11,563	1200
Syringe, Disposable	5cc + Needle 2	Syrng	60000		19200		46120	15000	700		5000		60800	15000	13000		204820	127900	0.13	D	$26,688	$16,665	$10,023	1230
Bandage, Elastic,Adhesiv	Roll, 7.5cm x 4.	Roll	3000		200		1984	900	144		312		2040	900	425		8105	5881	2.83	D	$22,914	$16,626	$6,287	0
Gloves	Sterile,Disposa	Pair	25000		1000		8600	6500	2000		1500		9360	6900	800		48260	43700	0.37	O	$17,760	$16,082	$1,678	0
Needle, Infusion Set	#23 G, Scalp V	Set	4000		300		2160		300		600		12600	2000	1050		21010	10410	1.52	O	$31,935	$15,823	$16,112	300
Syringe, Disposable	3cc + Needle 2	Syrng	60000		7000		28000	15000	5000		300		60800	15000	9000		170100	111300	0.14	O	$23,814	$15,582	$8,232	0
Needle, Infusion Set	Butterfly	Set	0		2000		2000		400		600		12600	2000	600		18200	7600	1.81	O	$32,851	$13,718	$19,133	0
Needle, Infusion Set	#21 G, Scalp Ve	Set	5000		300		2000		400		600		12600	2000	600		21500	10900	1.25	E	$26,875	$13,625	$13,250	400
Syringe, Disposable	50cc + Needle	Syrng	600		200		1692		100		324		12000		1000		15916	15916	0.85	D	$13,529	$13,529	$0	25
Traction Kit, Skin	Roll (Elastoplas	Roll	350		24		104		50		0		1152		0		1680	1680	7.61	D	$12,777	$12,777	$0	0

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ABC ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
Bandage,Elastic,Non-Ad	Roll, 7.5cm x 4	Roll	2000		0		1220	600	150		84		1560	750	390		5404	3974	3.16	O	$17,077	$12,558	$4,519	144
Cleaner	Cream	Each	100		0		144	50	0		48		0		0		292	198	63.00	E	$18,396	$12,474	$5,922	0
Needle, Infusion Set	#19 G, Scalp Ve	Set	4000		300		2192		200		600		12600	2000	500		20392	9792	1.25	O	$25,490	$12,240	$13,250	300
Tube, Stomach	16 FR	Tube	500		100		1000	500	50		72		1200	500	400		3322	2122	5.43	D	$18,051	$11,531	$6,521	100
X-Ray Pharml(Urografin60%)		Amp	0		0		192		0		0		0		0		192	192	56.27	O	$10,803	$10,803	$0	0
Catheter	I.V., 18x 1.25G	Cath	4000		200		2160	600	200		0		600		0		7160	5600	1.80	O	$12,888	$10,080	$2,808	250
Syringe, Disposable	6cc + Needle	Syrng	19130		15000		40000	15000	50		5000		60800	15000	2000		141980	71180	0.14	O	$19,593	$9,823	$9,770	0
Bandage, Skin Traction	Adult, Kit	Kit	1152		0		400		100		0		24		0		1676	1676	5.48	O	$9,184	$9,184	$0	0
Syringe, Disposable	1cc (Insulin) +	Syrng	34000		3600		4000		3900		5800		60800	6000	6000		118100	63300	0.14	O	$16,534	$8,862	$7,672	4008
Catheter	I.V., 14x 1.25G	Cath	3000		200		1500	600	200		0		600		0		5500	4600	1.80	O	$9,900	$8,280	$1,620	50
Pad, Eye	Oval	Pad	2000		0		1000		1000		60		6900	1000	0		10960	5060	1.63	I	$17,849	$8,241	$9,609	250
Catheter	Suction	Cath	150		200		5600	600	650		144		600		0		7344	2344	3.50	O	$25,704	$8,204	$17,500	3
Giving Set	Blood Admin	Set	0		4200		2096		50		12		1680		0		8038	8038	0.98	O	$7,837	$7,837	$0	900
Syringe, Disposable	12cc + Needle	Syrng	19130		0		6000		100		300		60800	15000	1000		87330	41530	0.18	O	$15,545	$7,392	$8,152	0
Cotton Wool	Absorbent,Non	Roll	4000		150		0		200		0		304	200	172		4826	4722	1.50	O	$7,239	$7,083	$156	0
Bandage,Plaster of Paris	Roll, 15cm x 2.	Roll	3000		78		4000	1000	150		144		600		300		8272	5272	1.31	O	$10,836	$6,906	$3,930	180
Catheter	I.V., 22x 1.25G	Cath	4000		300		2160	600	144		360		600		0		7564	6004	1.10	D	$8,295	$6,584	$1,711	100
Bandage, Guaze 180		Roll	2000		0		7000	2500	2000		240		2520		250		14010	9510	0.69	O	$9,667	$6,562	$3,105	0
Bandage,Elastic,Non-Ad	Roll, 5cm	Roll	2000		0		1100	600	200		84		1560	750	150		5094	3784	1.71	D	$8,703	$6,465	$2,238	0
Disinfectant Solution	"Milton", 5 litre	Botl	60		3		6		60		227	60	660	60	62		1078	311	20.50	O	$22,099	$6,376	$15,724	11
Mop Bucket, Wringer		Each	10		24		12		10		5		73		0		134	134	47.50	O	$6,365	$6,365	$0	0
Holder	Forcep Needle	Holdr	60		150	60	60		0		18		0		0		288	198	31.36	E	$9,032	$6,209	$2,822	
Mop Bucket		Pail	10		24		12		10		0		73		0		129	129	47.50	O	$6,128	$6,128	$0	0
Catheter	I.V., 19x 1.25G	Cath	4000		300		2160	600	144		0		600		0		7204	5644	1.08	D	$7,798	$6,110	$1,689	100
Gloves	Sterile,Disposa	Pair	1200		900		4600	3500	1200		1200		9360	6900	300		18760	15200	0.40	O	$7,504	$6,080	$1,424	0
Tube, Stomach	18 FR	Tube	500		150		1500	500	50		42		1200	500	200		3642	1942	2.98	D	$10,850	$5,786	$5,065	100
Urografin 60% -- X-Ray		Amp	0		0		192		0		0		0		0		192	192	30.01	O	$5,762	$5,762	$0	0
Catheter	I.V., 16x 1.25G	Cath	4000		300		720	600	144		0		600		0		5764	5644	1.01	D	$5,806	$5,685	$121	50
Cotton Wool	Absorbent,Non	Roll	4000		240		0		0		0		0		470		4710	4710	1.20	O	$5,652	$5,652	$0	0
BP Apparatus	Desk Type	Each	11		16	12	24	12	12		4		26	12	2		95	65	85.00	O	$8,075	$5,525	$2,550	0
Bandage,Elastic,Non-Ad	Roll, 10cm x 4	Roll	1852		0		1100	600	150		84		1560	750	270		5016	3706	1.45	D	$7,284	$5,381	$1,902	0
Needle, Disposable	#22 G x 1.5"	Needl	18000		50000	18000	18000		2000		1200		16800		13780		119780	87780	0.06	D	$7,319	$5,363	$1,955	14684
Clamp	Umbilical Cord	Clamp	5000		500		2000		400		500		2352		300		11052	11052	0.48	O	$5,294	$5,294	$0	400

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ABC ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
Intra Uterine Device	Copper-T Coil	IUD	18		100		200		0		0		4000	400	0		4318	718	7.20	IDA	$31,110	$5,173	$25,937	0
Gown, Surgical	Disposable, St	Gown	3000		800		4006	3000	1000		1212		1200		0		11218	10212	0.50	O	$5,609	$5,106	$503	0
Soap	Dish Washing,	Botl	2000		450		144		3		18		432		3		3050	3050	1.60	O	$4,865	$4,865	$0	0
Bandage,Plaster of Paris	Roll, 10cm x 2.	Roll	3000		78		4000	1000	120		144		600		300		8242	5242	0.89	O	$7,335	$4,665	$2,670	167
Bandage,Elastic,Non-Ad	Roll, 15cm	Roll	1852		0		1100	600	200		84		1560	750	250		5046	3736	1.19	D	$6,000	$4,442	$1,558	0
Tape, Autoclave	Roll, 1" x 60yd	Roll	300		300		144		70		42		240		0		1096	1096	4.01	O	$4,395	$4,395	$0	50
Catheter	Foley, 12-FR-	Cath	600		200		1120	600	100		72		600		0		2692	2172	1.95	O	$5,249	$4,235	$1,014	36
Tube, Stomach	14 FR	Tube	500		100		1500	500	150		0		1200	500	300		3750	2050	2.06	D	$7,740	$4,231	$3,509	100
Cotton Wool	Absorbent,Non	Roll	4000		0		0		0		0		0		0		4000	4000	1.05	O	$4,200	$4,200	$0	0
Tape, Autoclave	Roll, 3/4" x 60y	Roll	300		300		144		75		0		240		0		1059	1059	3.91	D	$4,140	$4,140	$0	0
Bag, Urine	Infant	Bag	2000		400		1288	600	0		48		300		0		4036	3348	1.21	D	$4,873	$4,043	$831	0
Applicator	Cotton Tipped	Applic	18000		5000		5600		3000		1200		60000	6000	65		92865	38865	0.10	D	$9,138	$3,824	$5,314	2400
Syringe, Disposable	3cc + Needle 2	Syrng	0		7200		46300	15000	4000		5000		60800	15000	14500		137800	60700	0.06	O	$8,544	$3,763	$4,780	0
Thermometer, Clinical	Oral	Therm	2000		500		230		172		180		864	500	425		4371	4007	0.93	D	$4,079	$3,739	$340	200
Catheter	Foley, 20-FR-	Cath	900		150		1120	600	100		72		600		300		3242	2722	1.34	D	$4,338	$3,642	$696	76
BP Apparatus, Repair Kit		Each	24		0		24	12	0		0		11		0		59	47	72.50	O	$4,278	$3,408	$870	0
Bandage, Crepe	10cm x 4m	Roll	2000		180		1840	900	170		186		2040	900	425		6841	4761	0.71	O	$4,857	$3,380	$1,477	36
Tube, Feeding	Infant, 3.5 FR	Tube	400		300		1000	400	0		42		1200	400	200		3142	1742	1.93	D	$6,049	$3,354	$2,695	50
Needle, Spinal	#20 G x 3.5	Needl	150		500		432		50		0		1200	500	0		2332	1632	1.99	D	$4,645	$3,251	$1,394	0
Needle, Spinal	#25 G x 3.5	Needl	150		500		432		50		0		1200	500	0		2332	1632	1.99	E	$4,641	$3,248	$1,393	0
Needle, Spinal	#22 G x 3.5	Needl	150		500		432		50		0		1200	500	0		2332	1632	1.99	E	$4,641	$3,248	$1,393	0
Tube, Feeding	8F	Tube	2000		200		1000	500	0		78		1200	500	200		4678	3478	0.91	D	$4,237	$3,150	$1,087	100
Towels, Paper	2 Ply	Roll	480		144		726	480	1230	480	264		864	480	450		4158	2778	1.11	O	$4,624	$3,089	$1,535	0
Catheter	Foley, 16-FR-	Cath	600		200		1312	600	120		144		600		300		3276	2564	1.20	D	$3,923	$3,071	$853	48
Catheter	Foley, 14-FR-	Cath	600		200		1120	600	120		72		600		300		3012	2492	1.22	D	$3,684	$3,048	$636	36
Toilet Paper	2 Ply	Roll	960		1600	1000	1944	1000	2030	1000	900		2036	1000	2500	1000	11970	6860	0.44	O	$5,315	$3,046	$2,269	0
Dispenser	Soap	Each	60		50		18		50		12		60		7		257	257	11.82	O	$3,038	$3,038	$0	0
Mask, Surgical		Mask	8000		50		15000	2000	2000		0		1200		0		26250	13250	0.22	D	$5,888	$2,972	$2,916	2000
Tube, Feeding	5F	Tube	2000		150		1000	500	0		78		1200	500	200		4628	3428	0.85	D	$3,948	$2,924	$1,024	100
Catheter	Foley, 22-FR-	Cath	600		150		1120	600	100		72		600		300		2942	2422	1.19	D	$3,492	$2,874	$617	36
Sterilizing Fluid	0.00	Botl	32		48		52		0		70		4175	70	0		4377	272	10.48	D	$45,859	$2,850	$43,009	2
Sponge	Lap, 18 x 18	Spnge	2400		400		5000	1200	200		0		0		0		8000	4200	0.67	D	$5,360	$2,814	$2,546	0
Sponge	Lap, 12 x 12	Spnge	2400		400		5000	1200	200		0		0		0		8000	4200	0.67	D	$5,360	$2,814	$2,546	0

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Condom	Single Package	Cond	0		4000		1500		1500		500		24000	4000	0		31500	11500	0.23	O	$7,245	$2,645	$4,600	0
Bag, Urine	Adult	Bag	2500		600		2000	1000	200		36		300		0		5636	4636	0.57	D	$3,199	$2,631	$568	666
Catheter	Foley, 18-FR-	Cath	500		200		1120	600	150		144		600		0		2714	2194	1.20	D	$3,250	$2,628	$623	98
Padding, P.O.P.	20 cm x 2.7 m	Wad	1300		20		3000	600	200		144		600		600		5864	3464	0.74	O	$4,345	$2,567	$1,778	0
Cleaner, Disinfectant		Botl	200		50		144	50	96		120		0		0		610	516	4.95	O	$3,020	$2,554	$465	0
Sponge, Laparatomy	4 Ply, 8" x 36"	Spnge	2400		0		5000	1200	200		0		0		0		7600	3800	0.67	D	$5,092	$2,546	$2,546	0
Needle, Disposable	#25 G x 1.5"	Needl	9000		50000	9000	21600	9000	2000		1200		16800	9000	9500	9000	110100	48200	0.05	D	$5,780	$2,531	$3,250	8106
Bandage, Crepe	7.5cm x 4m	Roll	2000		180		1840	900	170		186		600		425		5401	4461	0.53	O	$2,863	$2,364	$498	36
Blade, Surgical	Disposable,Ste	Blade	6000		200		4000	2000	100		450		4800	2000	1200		16750	11950	0.20	D	$3,278	$2,339	$939	500
Bandage, W.O.W.	Roll, 10cm x10	Roll	7000		0		0		100		0		492		200		7792	7792	0.30	O	$2,338	$2,338	$0	0
Syringe, Disposable	60cc + Needle	Syrng	1000		0		1000		100		300		1200	1000	500		4100	3900	0.60	D	$2,443	$2,324	$119	25
Needle, Disposable	#21 G x 1.5"	Needl	17000		50000	12000	12000		2300		900		16800	12000	11200		110200	67400	0.03	D	$3,780	$2,312	$1,468	2000
Suture, Chromic	Catgut, + Need	Sutr	400		148		730	400	100		1224	400	264		50		2916	1762	1.28	O	$3,738	$2,259	$1,479	0
Suture, Chromic	Catgut, + Need	Sutr	400		148		730	400	100		1224	400	264		50		2916	1762	1.28	O	$3,738	$2,259	$1,479	0
Needle, Disposable	#23 G x 1.5"	Needl	6500		50000	6500	12000	6500	2000		1500		16800	6500	11500	6500	100300	36000	0.06	D	$6,128	$2,200	$3,929	1300
Blade, Surgical	Disposable,Ste	Blade	6000		200		4000	2000	100		450		4800	2000	1300		16850	12050	0.18	D	$3,046	$2,179	$868	500
Bandage, W.O.W.	Roll, 2.5cm x 5	Roll	7000		0		0		100		0		492		250		7842	7842	0.27	O	$2,117	$2,117	$0	0
Speculum, Disposable	Vaginal	Spect	200		600		2088	600	460		244		0		0		3592	2104	1.00	E	$3,592	$2,104	$1,488	50
Suture, Chromic	Catgut, + Need	Sutr	400		148		1460	400	100		300		264		15		2687	1627	1.28	O	$3,445	$2,086	$1,359	0
Suture, Chromic	Catgut, + Need	Sutr	400		100		730	400	50		324		264		50		1918	1588	1.28	O	$2,459	$2,036	$423	0
Needle, Disposable	#20 G x 1.5"	Needl	13000		50000	13000	12000		1000		300		16800	13000	6500		99600	58800	0.03	D	$3,416	$2,017	$1,399	11760
Suture, Chromic	Catgut, + Need	Sutr	400		0		730	400	100		1200	400	264		30		2724	1594	1.23	O	$3,342	$1,956	$1,387	0
Humidifier	Capacity 2 gall	Machn	24		3		10		6		1		0		0		44	44	44.39	O	$1,953	$1,953	$0	3
Bandage, W.O.W.	Roll, 5cm x 5m	Roll	7000		0		0		50		0		492		250		7792	7792	0.25	O	$1,948	$1,948	$0	1200
Needle, Disposable	#26 G x 1.5"	Needl	7000		50000	7000	12000	7000	2000		300		16800	7000	5800		93900	36100	0.05	D	$4,930	$1,895	$3,035	0
Padding, P.O.P.	15 cm x 2.7 m	Wad	1300		20		3000	600	100		144		600		600		5764	3364	0.56	O	$3,205	$1,870	$1,334	0
Syringe, Disposable	20cc + Needle	Syrng	5000		0		6500	1200	200		324		1200		1000		14224	8924	0.21	D	$2,969	$1,862	$1,106	500
Blade, Skin Graft	Humby' Blade,	Blade	300		300		60		0		0		4800	300	0		5460	960	1.90	O	$10,374	$1,824	$8,550	0
Needle, Disposable	Dental, Long, 2	Needl	5000		12000	5000	1800		0		2400		16800	5000	0		38000	19200	0.09	D	$3,583	$1,811	$1,773	2000
Bag, Urine	Collection Unit,	Bag	2000		400		1144	500	0		48		300		0		3892	3248	0.55	D	$2,146	$1,791	$355	400
Cleaner, Alkaline	Liquid	Botl	200		24		144	50	56		0		0		0		424	330	5.38	O	$2,279	$1,774	$505	0
BP Sphygmomanometer	Pre-Calibrated	Cuff	36		0		24	12	10		2		43	12	0		115	72	24.44	D	$2,810	$1,759	$1,051	0
Mask, Face		Mask	0		50		15000	2000	2000		360		1200		0		18610	5610	0.31	IDA	$5,779	$1,742	$4,037	0

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ABC ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
Suture, Mersilk	Silk + Needle; '	Sutr	400		148		2000	400	100		600	400	264		60		3572	1772	0.95	O	$3,397	$1,685	$1,712	0
Suture, Plain	Plain + Needle;	Sutr	400		100		2000	400	50		600	400	264		15		3429	1629	1.02	E	$3,498	$1,662	$1,836	0
Suture, Plain	Plain + Needle;	Sutr	400		100		2000	400	50		600	400	264		10		3424	1624	1.02	E	$3,492	$1,656	$1,836	0
Suture, Ethilon	Ethilon + Needl	Sutr	400		148		2000	400	100		624	400	264		10		3546	1722	0.95	O	$3,372	$1,638	$1,735	0
Suture, Chromic	Catgut; '4/0'	Sutr	400		148		730	400	50		0		264		15		1607	1277	1.28	O	$2,060	$1,637	$423	0
Depressor, Tongue	Tongue Depres	Box	17000		8000		24000	12000	250	8000	21600	12000	144	12000	1800	8000	72794	77000	0.02	D	$1,543	$1,632	($89)	1000
Suture, Ethilon	Ethilon + Needl	Sutr	400		100		2000	400	100		624	400	264		10		3496	1674	0.95	E	$3,323	$1,590	$1,733	0
Suture, Plain	Plain; '2/0'	Sutr	400		0		2000	400	100		0		264		10		2774	1174	1.34	E	$3,717	$1,573	$2,144	0
Suture, Plain	Plain; '1'	Sutr	400		0		2000	400	100		0		264		10		2774	1174	1.34	E	$3,717	$1,573	$2,144	0
Suture, Mersilk	Silk + Needle; '	Sutr	400		148		730	400	25		600	400	264		10		2177	1647	0.95	O	$2,070	$1,566	$504	0
Suture, Plain	Plain + Needle;	Sutr	400		0		730	400	50		600	400	264		10		2054	1524	1.02	O	$2,099	$1,558	$542	0
Bandage, Strip	Strip, 1"x3",Si	Strip	12000		1000		2800		1200		1200		27600	2800	0		45800	21000	0.07	O	$3,394	$1,556	$1,838	18
Suture, Mersilk	Silk + Needle; '	Sutr	400		148		730	400	50		600	400	264		30		2222	1692	0.90	O	$1,991	$1,516	$475	0
Suture, Plain	Plain; '0'	Sutr	400		0		730	400	50		0		264		10		1454	1124	1.34	O	$1,944	$1,503	$441	0
Needle, Disposable	#18 G x 1.5"	Needl	9000		50000	9000	2000		1000		0		16800	9000	1000		79800	31000	0.05	D	$3,854	$1,497	$2,357	0
Bed Pan		Pan	65		24		40		12		12		38		0		191	191	7.66	O	$1,463	$1,463	$0	0
Suture, Mersilk	Silk + Needle; '	Sutr	400		100		730	400	50		600	400	264		15		2159	1629	0.90	O	$1,934	$1,460	$475	0
Suture, Mersilk	Silk + Needle; '	Sutr	400		0		2000	400	25		624	400	264		45		3358	1534	0.95	O	$3,193	$1,459	$1,735	0
Suture, Ethilon	Ethilon + Needl	Sutr	400		0		730	400	50		600	400	264		10		2054	1524	0.93	O	$1,914	$1,420	$494	0
Suture, Chromic	Catgut; '2/0'	Sutr	400		100		730	400	100		0		264		15		1609	1279	1.09	O	$1,751	$1,392	$359	0
Suture, Ethilon	Ethilon + Needl	Sutr	400		100		2000	400	50		624	400	264		10		3448	1624	0.80	E	$2,758	$1,299	$1,459	0
Suture, Chromic	Catgut; '3/0'	Sutr	400		0		730	400	100		0		264		24		1518	1188	1.09	O	$1,652	$1,293	$359	0
Tube, Stomach	12FR	Tube	600		100		1000	500	150		72		1200	500	300		3422	2222	0.57	D	$1,956	$1,270	$686	100
Suture, Ethilon	Ethilon + Needl	Sutr	400		0		730	400	25		600	400	264		10		2029	1499	0.80	O	$1,623	$1,199	$424	0
BP Apparatus	Luminoscope	Each	0		8		0		8		0		26	12	0		42	28	42.45	O	$1,783	$1,189	$594	0
Tray, Catheter		Tray	60		144	30	30		4		5		0		0		243	129	9.15	O	$2,223	$1,180	$1,043	2
Syringe, Disposable	2cc + Needle	Syrng	0		0		24120	12000	500		500		60800	12000	6000		91920	31000	0.04	D	$3,429	$1,156	$2,272	0
Bandage, W.O.W.	Roll, 7.5cm x 5	Roll	7000		0		0		50		0		492		150		7692	7692	0.15	O	$1,154	$1,154	$0	1200
Diapers, Disposable		Box	50		300		4320	300	16		12		264		0		4962	942	1.20	O	$5,954	$1,130	$4,824	0
Suture, Virgin Silk	Silk + Needle; '	Sutr	400		0		305		50		0		264		10		1029	1029	1.06	O	$1,093	$1,093	$0	0
Cover for Shoes		Cover	2000		28		10000	1200	100		300		1200		0		13628	4828	0.22	D	$3,062	$1,085	$1,977	200
BP Sphygmomanometer	B.P. Apparatus	Kit	28		0		24	12	12		2		43	12	0		109	66	16.30	D	$1,776	$1,076	$701	10
Air-Ways (--?-)	Small	-?-	240		0		10		0		0		0		0		250	250	4.02	D	$1,006	$1,006	$0	0

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ABC ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
Air-Ways (--?-)	Large	-?-	240		0		10		0		0		0		0		250	250	4.02	D	$1,006	$1,006	$0	0
Air-Ways (--?-)	Medium	-?-	240		0		10		0		0		0		0		250	250	4.02	D	$1,006	$1,006	$0	0
Suture, Prolene	Prolene + Need	Sutr	400		100		730	400	25		0		264		10		1529	1199	0.83	E	$1,274	$999	$275	0
Padding, P.O.P.	7.5 cm x 2.5 m		1300		15		3000	600	100		144		600		400		5559	3159	0.30	O	$1,679	$954	$725	0
BP Sphygmomanometer	Pre-Calibrated	Cuff	36		8		24	12	0		2		0		0		70	58	16.30	D	$1,141	$945	$196	0
Gloves	Non-Sterile, In	Pair	336		1500		164		1206		50		9360	1500	850		13466	5606	0.17	O	$2,222	$925	$1,297	400
Suture, Prolene	Prolene + Need	Sutr	400		0		730	400	25		0		264		10		1429	1099	0.83	E	$1,191	$916	$275	0
Thermometer, Clinical	Rectal	Therm	50		200		128		100		48		864	300	300		1690	1126	0.81	D	$1,361	$907	$454	0
Sheets, Disposable		Each	2400		200		2012		0		600		6840	2000	0		12052	7212	0.12	D	$1,499	$897	$602	200
Suture, Prolene	Prolene + Need	Sutr	400		0		365		25		0		264		10		1064	1064	0.83	E	$887	$887	$0	0
Suture, Mersilk	Silk 2/0	Sutr	400		100		1000	400	25		0		264		20		1809	1209	0.71	E	$1,284	$858	$426	0
Suture, Chromic		Sutr	400		0		0		0		0		264		0		664	664	1.28	O	$851	$851	$0	0
Suture, Mersilk	Silk 3/0	Sutr	400		0		2000	400	50		0		264		20		2734	1134	0.71	O	$1,938	$804	$1,134	0
Syringe, Disposable	30cc + Needle	Syrng	150		0		1800	500	200		300		1200	500	1000	500	4650	2150	0.37	D	$1,723	$797	$926	25
Forcep	(sizes/types no	Each	106		110		24		0		180		0		0		420	420	1.76	O	$737	$737	$0	0
BP Apparatus	Standing Type	Each	11		18	12	24	12	6		2		26	12	2		89	57	12.40	O	$1,104	$707	$397	0
BP Apparatus, Bulb	For Standing T	Each	18		0		24	12	0		0		26	12	0		68	42	16.50	O	$1,122	$693	$429	0
Scissors	(sizes/types no	Each	20		30	20	60	20	104	20	15		28	20	0		257	115	6.00	O	$1,542	$690	$852	2
BP Apparatus, Tubes	For Desk Type	Each	72		0		48	12	0		0		0		0		120	84	7.80	O	$936	$655	$281	0
Dish, Kidney	Large	Dish	20		12		84		25		36		46		0		223	223	2.88	IDA	$643	$643	$0	0
Tubing, Suction	Conductive	Tube	10		240	50	20		50		0		1200	50	0		1520	180	3.50	O	$5,320	$630	$4,690	3
Dish, Kidney	Medium	Dish	20		12		84		52		4		46		0		218	218	2.88	IDA	$628	$628	$0	0
Dish, Kidney	Small	Dish	20		12		84		52		36		46		0		250	250	2.20	IDA	$549	$549	$0	0
Tray, Instrument	(specs ??)	Tray	10		10		30	10	4		5		0		0		59	39	13.87	IDA	$818	$541	$277	0
Stethoscope	Binaural Compl	Each	30		30	20	8		2		0		58	20	0		128	80	6.31	D	$808	$505	$303	10
Bed Pan Brush		Each	12		12		16		12		12		32		0		95	95	4.55	O	$432	$432	$0	0
Tube, Endotracheal	40 mm	Tube	72		20		12		100	50	0		0		0		204	154	2.74	D	$558	$421	$137	10
Tube, Endotracheal	50 mm	Tube	72		20		12		100	50	0		0		0		204	154	2.74	D	$558	$421	$137	10
Jaconet' Roll	(specs ??); 50	Roll	60		0		0		4		0		0		0		64	64	6.05	O	$387	$387	$0	50
Bag, Rubber	Hot Water/Ice;	Bag	40		24		10		12		18		24		0		128	128	2.75	O	$352	$352	$0	5
Tray	Peritoneal Dial	Tray	26		10		12		6		0		0		0		54	54	6.50	O	$351	$351	$0	5
Disinfectant Solution	"Milton", 600m	Botl	0		54		0		0		0		0		300	54	354	108	2.82	O	$997	$304	$692	0
Catheter	I.V., 20x 1.25G	Cath	4000		200		2160	600	150		0		600		0		7110	5550	0.05	D	$382	$298	$84	250

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BP Apparatus, Bladder	For Desk Type	Each	18		0		0		0		0		26	12	0		44	30	9.25	O	$407	$278	$130	0
Syringe, Glass	20 cc	Syrng	0		0		52		0		0		30400	50	500	50	30952	152	1.69	IDA	$52,406	$257	$52,148	0
Syringe, Glass	10 cc	Syrng	0		0		52		0		0		60800	50	500	50	61352	152	1.69	IDA	$103,877	$257	$103,619	0
Measuring Glass	Pharmacy, Cali	Glass	10		2		2		0		3		13		5		35	35	6.84	E	$240	$240	$0	0
Measuring Glass	Pharmacy, Cali	Glass	30		4		2		0		6		13		16		71	71	2.55	E	$181	$181	$0	0
Measuring Glass	Pharmacy, Cali	Glass	30		4		2		0		6		13		16		71	71	2.39	E	$169	$169	$0	0
Stethoscope	Paediatric	Each	10		9		4		2		6		58	10	0		89	41	4.13	O	$367	$169	$198	0
Measuring Glass	Pharmacy, Cali	Glass	10		3		2		0		3		13		5		36	36	3.71	E	$134	$134	$0	0
O Ring, Set	#90	Each	10		0		0		0		0		0		0		10	10	9.12	D	$91	$91	$0	0
O Ring, Set	#85	Each	10		0		0		0		0		0		0		10	10	9.12	D	$91	$91	$0	0
O Ring, Set	#75	Each	10		0		0		0		0		0		0		10	10	9.12	D	$91	$91	$0	0
O Ring, Set	#80	Each	10		0		0		0		0		0		0		10	10	9.12	D	$91	$91	$0	0
Mackintosh" Roll	(specs ??); 50	Roll	300		0		7		6		2		10		0		325	325	0.28	O	$91	$91	$0	0
Disinfectant Solution	"Milton", 300m	Botl	0		24		0		3		0		0		300	24	327	51	1.41	E	$461	$72	$389	0
Guaze, Swab	X-Ray, 10cm x	Each	1200		300		500		100		0		1200	500	100		3400	2700	0.02	E	$83	$66	$17	0
BP Apparatus, Bulb	For Desk Type	Each	18		0		24	12	0		0		26	12	0		68	42	1.50	O	$102	$63	$39	0
Flashlight	(--specs ??)	Lite	48		12		24		12		2		20		0		118	118	0.49	O	$58	$58	$0	0
Cotton Wool	BVD	Roll	4000		0		0		0		0		0		0		4000	4000	0.01	O	$40	$40	$0	0
Bilotropin (1x6caps) -- X-Ray		Pack	0		0		24		0		0		15		0		39	39	0.49	O	$19	$19	$0	0
AIDS Test Kit		Kit	0		3		0		0		0		0		0		3	3	4.61	D	$14	$14	$0	0
Add-on Metriset, no Shut Off		Case	0		0		0		0		0		0		0		0	0	55.00	O	$0	$0	$0	0
Antiseptic Concentrate - C&S		Gal	0		0		0		0		0		0		0		0	0	16.00	O	$0	$0	$0	0
Blade, Surgical	Disposable,Ster	Other															0	0	0.25	D	$0	$0	$0	2500
Catheter	Foley, other	Cath															0	0	1.80	O	$0	$0	$0	60
Giving Set IV	Admin Set, I.V.	Set	6000	0	2000	0	12000	0	800	0	12	0	1680	0	400	0	22892	Duplicate	1.55	O	$35,483	$0	$35,483	0
Gravideyx-90(60)		MSC	0		0		0		0		0		0		0		0	0	75.00	O	$0	$0	$0	0
Hypo Needles		Each			20000	0 -DUP	0		0		0		0		0		20000	0	0.25	D	$4,920	$0	$4,920	0
Pig Feed	'Wheat Brand'	Bag			0		0		0		0		0		0		0	0	6.70	O	$0	$0	$0	0
Toner Solution - Nu Tone		Gal	0		0		0		0		0		0		0		0	0	12.13	O	$0	$0	$0	0
Urografin 30% -- X-Ray		Amp	0		0		0		0		0		0		0		0	0	13.86	O	$0	$0	$0	0
X-Ray Pharm'l(Bilotropin)		Amp	0		0		0		0		0		0		0		0	0	2.47	O	$0	$0	$0	0
"Short Cut"		Case	0		0		0		0		0		0		0		0	0	110.00	O	$0	$0	$0	0
																			Subtotal		$1,951,041	$1,256,087	$694,954	0

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BULK GALENICALS:																								
Isopropyl Alcohol	Pharmaceutical	55	24		3		3		5		2		2		2		41	41	240.00	ECDS	$9,831	$9,831	$0	0
Glycerin	Pharmaceutical	25	12		35	12	4		0		12		4		12		79	56	74.64	O	$5,897	$4,180	$1,717	0
Pilocarpine Nitrate	Pharmaceutical	100	3		0		2		0		0		5	2	0		10	7	364.80	O	$3,648	$2,554	$1,094	0
Chloramphenicol	Pharmaceutical	5	2		0		1		1		0		1		1		6	6	508.00	O	$3,048	$3,048	$0	0
Petrolatum	Pharmaceutical	110	2		1		2	1	0		1		2		1		9	8	329.00	O	$3,020	$2,632	$388	0
Rectified Spirit	Pharmaceutical	45	3		2		1		3	2	1		2		2		15	14	184.00	O	$2,693	$2,509	$184	0
Propylene Glycol (Med)	Pharmaceutical	25	6		1		2		2		2		3		12		28	28	74.72	O	$2,092	$2,092	$0	0
Magnesium Trisilicate	Pharmaceutical	25	4		2		2		2		1		3		4		18	18	116.22	O	$2,045	$2,045	$0	0
Liquorice, Fluid Extract	Pharmaceutical	2	30		13		12		12		0		12		6		85	85	23.10	O	$1,964	$1,964	$0	25
Beeswax, Yellow, Cakes	Pharmaceutical	5	12		0		3		10	5	0		1		2		28	23	68.80	O	$1,926	$1,582	$344	0
Ethyl Alcohol	Pharmaceutical	55	0		0		0		2		0		2		0		4	4	450.00	O	$1,845	$1,845	$0	0
Chloramphenicol Palmitat	Pharmaceutical	5	1		0		1		0		0		1		0		3	3	508.00	O	$1,524	$1,524	$0	0
Paraffin, Soft, White	Pharmaceutical	25	12		2		2		3		1		3		0		23	23	65.92	O	$1,516	$1,516	$0	5
Beeswax, White, Disks	Pharmaceutical	5	5		0		3		10	5	0		1		2		21	16	68.80	O	$1,445	$1,101	$344	0
Castor Oil	Pharmaceutical	20	3		1		1		0		0		12	3	0		17	8	67.55	O	$1,148	$540	$608	0
Diphenhydramine	Pharmaceutical	1	10		2		3		8	3	2		2		3		30	25	36.74	O	$1,102	$919	$184	0
Cetrimide	Pharmaceutical	5	12		5		10	5	3		0		1		3		34	29	27.00	I	$918	$783	$135	1
Piperazine Citrate	Pharmaceutical	5	4		2		5		1		0		2		4		18	18	50.72	O	$913	$913	$0	0
Ferrous Sulfate	Pharmaceutical	5	12		5		5		2		1		5		3		33	33	26.21	O	$870	$870	$0	0
Calamine, Powder	Pharmaceutical	5	12		4		3		0		5		12	5	2		38	31	22.08	O	$839	$684	$155	1
Neutral Spirit	Pharmaceutical	45	1		0		0		0		0		0		0		1	1	832.00	O	$832	$832	$0	0
Ammonia, Aromatic Spirit	Pharmaceutical	2	6		15	6	6		2		3		9		7		47	38	17.34	O	$820	$664	$156	0
Thiamine HCl	Pharmaceutical	1	3		1		1		4	3	1		1		2		13	12	62.40	O	$811	$749	$62	0
Benzyl Benzoate,Conc.(9	Pharmaceutical	1	0		50	12	12		5		0		12		25	12	104	53	7.68	O	$799	$407	$392	0
Ammonium Chloride	Pharmaceutical	25	2		1		1		1		1		1		3		10	10	75.89	O	$738	$738	$0	0
Promethazine HCl	Pharmaceutical	1	2		2		0		3		0		1		2		10	10	72.96	O	$730	$730	$0	0
Paraffin Liq. Heavy (Med)	Pharmaceutical	25	3		2		2		1		0		2		0		10	10	64.96	O	$681	$681	$0	2
Formaldehyde, 40%	Pharmaceutical	25	4		1		1		0		0		2		0		8	8	70.24	O	$596	$596	$0	0
Riboflavine	Pharmaceutical	500	3		1		2		2		1		1		4		14	14	41.76	O	$585	$585	$0	0
Zinc Oxide	Pharmaceutical	25	2		0		0		1		0		1		2		7	7	80.38	O	$547	$547	$0	0
Chloroform	Pharmaceutical	2	8		5		4		3		5		4		4		33	33	15.14	O	$500	$500	$0	0

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED REVISIONS - ABC ORDER

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Consul-tant's Total	Coro-zal Annual Total	Consul-tant's Total	Orange Walk Annual Total	Consul-tant's Total	Belmo-pan Annual Total	Consul-tant's Total	San Ignacio Annual Total	Consul-tant's Total	Dangri-ga Annual Total	Consul-tant's Total	Toledo Annual Total	Consul-tant's Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	Total # Units Revised From Forecasts	MSH List Estimated Available Unit Cost US$	Source	Estimated Value of Original Forecast INT'L COST US$	Estimated Value of Suggested Revised Total INT'L COST US$	Decrease US$	CMS Jul 90 Total Reported Monthly Issue Rate
Magnesium Sulphate	Pharmaceutical	25	0		1		1		2		0		1		1		6	6	83.20	O	$499	$499	$0	0
Kaolin Powder, Light	Pharmaceutical	5	6		12	6	10	6	2		0		5		0		35	25	12.96	O	$454	$324	$130	1
Silver Nitrate, Sticks; 5g e	Pharmaceutical	1	144		200	24	12		1		0		24		0		381	205	1.18	O	$450	$242	$208	0
Peppermint Oil	Pharmaceutical	1	6		3		2		3		2		2		5		23	23	19.36	O	$445	$445	$0	0
Lanolin, Hydrous, BP	Pharmaceutical	1	20		4		12		0		10		12		3		61	61	7.04	O	$429	$429	$0	0
Collodion, Flexible	Pharmaceutical	500	6		0		6		0		0		1		0		13	13	32.62	O	$424	$424	$0	0
Iodine,Crystals	Pharmaceutical	500	4		2		3		2		0		1		1		13	13	31.60	O	$411	$411	$0	0
Phenol, Liquified, 80%	Pharmaceutical	2	12		1		2		5		1		6		3		30	30	13.60	O	$401	$401	$0	0
Benzoin Co., Tincture	Pharmaceutical	2	6		3		4		2		0		1		1		17	17	21.98	O	$374	$374	$0	0
Citric Acid, Monohydrate	Pharmaceutical	35	0		1		2		3		0		12	3	0		18	9	20.64	D	$371	$186	$186	0
Potassium Iodide	Pharmaceutical	1	6		0		3		1		0		1		2		13	13	26.13	O	$340	$340	$0	0
Benzoic Acid	Pharmaceutical	5	10		4		5		2		1		1		2		25	25	12.12	O	$303	$303	$0	0
Podophyllin Resin	Pharmaceutical	100	6		4		5		2		1		1		2		21	21	14.40	O	$302	$302	$0	0
Sodium Bicarbonate	Pharmaceutical	25	3		2		2		2		0		1		3		13	13	21.60	O	$289	$289	$0	0
Flavoring, Raspberry	Pharmaceutical	500	21		6		4		4		3		3		0		41	41	6.98	O	$286	$286	$0	0
Potassium Citrate, Granul	Pharmaceutical	5	3		2		2		1		0		3		2		13	13	21.76	O	$283	$283	$0	0
Proflavine Hemisulfate	Pharmaceutical	500	2		0		0		0		0		0		0		2	2	137.60	O	$275	$275	$0	0
Amaranth, Food Grade, 8	Food Grade	1000	1		2		0		2		1		1		2		9	9	25.50	O	$230	$230	$0	0
Coal Tar Solution	Pharmaceutical	2	6		1		0		2		0		3		1		13	13	14.70	O	$191	$191	$0	0
Flavoring, Cherry	Pharmaceutical	500	6		6		4		2		6		3		0		27	27	6.98	O	$188	$188	$0	10
Ether Solvent	Pharmaceutical	500	24		0		6		0		0		0		0		30	30	6.10	O	$183	$183	$0	0
Camphor, Synthetic, B.P.	Pharmaceutical	1	6		1		3		0		0		1		1		12	12	8.48	O	$102	$102	$0	0
Phenylmercuric Acetate	Pharmaceutical	100	1		0		0		0		0		5	1	0		6	2	13.60	O	$82	$27	$54	0
Acacia	Pharmaceutical	1000	2		0		0		0		0		0		1		3	3	21.12	O	$63	$63	$0	0
Sodium Benzoate	Pharmaceutical	5	1		0		0		0		0		1		0		2	2	26.19	O	$52	$52	$0	0
Soda Lime (Ca&NaOH's)	Pharmaceutical	35	0		0		1		3		0		0		0		4	4	9.00	O	$39	$39	$0	1
Sodium Thiosulfate	Pharmaceutical	1	6		1		0		0		0		1		0		8	8	3.20	O	$26	$26	$0	0
Cod Liver Oil	Pharmaceutical	25	0		1		0		1		0		3		0		5	5	4.75	O	$24	$24	$0	0
																			Subtotal		$63,438	$57,097	$6,340	
																			TOTAL		$3,282,237	$2,221,429	$1,060,808	

APPENDIX 8: SUGGESTED ADDITIONS TO FORMULARY

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED ADDITIONS TO FORMULARY

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Coro-zal Annual Total	Orange Walk Annual Total	Belmo-pan Annual Total	San Ignacio Annual Total	Dangri-ga Annual Total	Toledo Annual Total	TOTAL QUANTITY AND VALUE - 11/90 Forecasts: Total # Units From All Original Forecasts	MSH List Estimated Available Unit Cost US$	Source	CMS Jul 90 Total Reported Monthly Issue Rate
SUGGESTED ADDITIONS:													
ADD-ON FORMULARY DRUGS:													
Albumin, Human N 25% 50ml					6					6	1.18	I	
Allopurinol 300mg Tabs					8000					8000	0.03	D	
Ascorbic acid 50mg Tabs					5000					5000	0.00	D	
Aspirin and Codeine Tabs		tab									0.04	E	10000
Atenolol 50mg Tabs Tenormin								12000		12000	0.16	O	
Atracurium Bromide Tracrium					365					365	12.47	O	100
Betamethasone Dip Becotide											24.17	O	25
Bupivacaine Inj 0.2 Marcaine					365					365	3.25	D	
Bupivacaine Inj 0.5 Marcaine					365	24				389	3.25	D	
Bupivacaine Inj 0.7 Marcaine					365					365	3.25	D	
Calcium Gluconate 300 mg Tabs		tab									0.02	D	240
Captopril, 25mg Tablets					6000					6000	0.05	ECDS	
Cephalexin 250mg Tabs						24000				24000	0.14	D	
Cephtazimide Inj 1g											55.00	O	50
Chlorambucil 2mg Tabs								2000		2000	0.26	D	
Chlorpheniramine Inj 1mg											0.10	D	100
Chlorpheniramine Syrup											4.50	O	50
Chlorpromazine 25mg Tabs		tab									0.01	E	
Cimetidine 300mg Tabs		tab			180000					180000	0.02	E	
Dextran-40 Injection, 1000ml					100					100	12.44	D	
Dextrose 5%/Saline 1L bottle					1500					1500	0.00	I	
Dextrose 5%/Water, bottle		inj									1.00	E	
Dimenhydrinate 50 mg Tablets					9600					9600	0.01	D	4000
Dimenhydrinate Inj 10ml											0.29	D	100

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED ADDITIONS TO FORMULARY

			DISTRICT REQUIREMENTS							TOTAL QUANTITY AND VALUE - 11/90 Forecasts			
GENERIC NAME	FORMAT	UNIT	Belize City Hospital Annual Total	Coro-zal Annual Total	Orange Walk Annual Total	Belmo-pan Annual Total	San Ignacio Annual Total	Dangri-ga Annual Total	Toledo Annual Total	Total # Units From All Original Forecasts	MSH List Estimated Available Unit Cost US$	Source	CMS Jul 90 Total Reported Monthly Issue Rate
Disopyramide 250mg Tabs		tab									0.30	O	1000
Ethanolamine Oleate Inj					365					365	0.00	O	
Flourescein Sodium Ophth Strips, 50s						24				24	1.55	I	
Folic Acid 5mg Tabs		tab									0.00	D	9000
Glibenclamide 5mg Tabs								6000		6000	0.01	I	
Glycerin suppositories, Adult					2000					2000	0.07	D	
Heparin Inj 25,000 unit											1.27	PAHO	100
Hydrochlorothiazite 50mg Tabs		tab									0.00	I	15000
Hydrocortisone cre 25g tube		cream									0.70	I	
Ibuprofen 400mg Tablets		tab									0.01	I	5000
Kanamycin 250mg/ 4ml vial		inj									4.00	O	100
Levamisole 150mg Tabs		tab									0.02	I	1000
Lidocaine 1% (&Preservatives)10mg/ml											0.01	I	200
Lidocaine 2% (&Preservatives)10mg/ml											0.01	I	150
Lindane cream 1% 100g		cream									0.01	E	
Melphelan 2mg Tab Alkeran								6000		6000	1.41	D	
Mertinon 60mg Tabs		tab									0.10	O	2000
Methotrexate 100mg Inj											12.18	D	50
Miconazole vaginal 2%		Tube	1800							1800	1.55	D	
Nalidixic acid 500mg Tabs		tab									0.08	I	3000
Niclosamide 500mg tabs					1200					1200	0.03	I	
Nifedipine 10mg Capsules					180000					180000	0.03	I	
Nystatin 500000iu	Oral tabs	tab									0.04	I	1000
Nystatin vaginal cream		Tube	1080			150				1230	2.38	D	
Penicillin VK 250mg Tablets						30000				30000	0.01	I	3000
Penicillin VK Suspe 250mg/5ml		100ml									0.91	D	50
Pethidine Inj 100mg		Amp	1200							1200	0.26	D	
Phenylbutazone 100mg Tabs		tab			180000					180000	0.01	D	80000

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED ADDITIONS TO FORMULARY

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Coro-zal Annual Total	Orange Walk Annual Total	Belmo-pan Annual Total	San Ignacio Annual Total	Dangri-ga Annual Total	Toledo Annual Total	TOTAL QUANTITY AND VALUE – 11/90 Forecasts: Total # Units From All Original Forecasts	MSH List Estimated Available Unit Cost US$	Source	CMS Jul 90 Total Reported Monthly Issue Rate
Piperazine citrate 500mg Tabs		tab									0.00	I	2000
Piperazine citrate Syrup											3.32	D	100
Povidine iodine Solution 5L					52					52	39.95	ECDS	
Promethazine 25mg Phenergan					6000					6000	0.08	D	400
Propranolol 1mg Inj		Amp			52					52	0.01	O	
Pyridoxine HCL 25mg Tabs		tab									0.02	ECDS	
Sodium Chloride 0. 250ml Bottle					1500					1500	0.33	I	
Sodium Valproate Susp 250mg/5ml											14.05	O	50
Spectinomycin 2G	Trobicin, inj				360					360	0.06	O	
Tamoxifen 10mg Tabs					3650					3650	0.08	ECDS	
Trichloroethylene In Trilene, bottle					20					20	0.29	O	
Tropicamide Opth Sol						50				50	0.06	O	
Tuberculin PPD	Inj 5tu										1.84	D	100
Vaccine, Pneumonia, Polyvalent		Vial			56					56	0.20	O	
ADD-ON GALENICALS:													
Ammonium Bicarbonate Bulk		kg									2.14	D	2
Aniseed Oil Bulk		KG									12.94	D	2
Chlorbutol BP		Bot									6.00	O	5
Chlorinated Lime		100kg	100							100	340.43	E	2
Cocaine HCl Powder		100G	100							100	3.02	E	
Codeine Phosphate Powder		1kg	2							2	3.02	E	
Diphenhydramine crystals		1kg	3							3	36.74	O	5
Emulsifying Wax		50kg	2							2	5.89	D	2
Gentian Violet	Crystals/Powder, 25Gm										5.26	D	5
Ichthammol		500G	6							6	0.01	I	
Ipecacahuana tincture		1L	30							30	4.00	I	

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED ADDITIONS TO FORMULARY

			DISTRICT REQUIREMENTS							TOTAL QUANTITY AND VALUE – 11/90 Forecasts			
GENERIC NAME	FORMAT	UNIT	Belize City Hospital Annual Total	Coro-zal Annual Total	Orange Walk Annual Total	Belmo-pan Annual Total	San Ignacio Annual Total	Dangri-ga Annual Total	Toledo Annual Total	Total # Units From All Original Forecasts	MSH List Estimated Available Unit Cost US$	Source	CMS Jul 90 Total Reported Monthly Issue Rate
Magnesium Carbon	Powder	1kg D									9.35	D	3
Paracetamol Bulk	Powder	kg									14.07	D	2
Phenobarbitone Na Bulk		1kg	2							2	11.52	D	
Salicylic Acid Bulk Powder		50Kg	50							50	13.20	I	
Sodium Citrate Bulk Powder		5kg	3							3	41.93	D	
Undecanoic Acid Bulk		500ml	6							6	77.17	D	
ADD-ON SUPPLIES:													
Adhesive Tape 2.5cm x 10m											0.48	E	120
Adhesive Tape 5cm x 10m											0.88	E	120
Alkaline phosphate test Kits					4					4	49.16	D	
Bactigrass 10cm x 10cm											0.15	IDA	410
Bactigrass 5cm x 5cm											0.07	E	410
Blood bags					720					720	0.56	E	
Breast pump					48					48	3.57	IDA	
Caps, surgical					2000					2000	0.30	O	400
Catheter, T-tube Misc Sizes					96					96	6.40	D	
Cholesterol reagent					6					6	234.36	D	
Colostomy bags					100					100	4.55	D	100
Cover slips for slides					4800					4800	4.56	D	
Culturettes					200					200	51.36	D	
Drapes, Surgical					160					160	0.00	O	
Dressing, sterile pad											25.00	O	70
Extension Set, I.V. Giving					1000					1000	0.34	D	
Filing cabinets					2					2	169.31	D	
Glass slides					400					400	0.09	D	
Glutaraldehyde Sol Cidex, 5L					12					12	10.48	D	

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED ADDITIONS TO FORMULARY

GENERIC NAME	FORMAT	UNIT	DISTRICT REQUIREMENTS: Belize City Hospital Annual Total	Coro-zal Annual Total	Orange Walk Annual Total	Belmo-pan Annual Total	San Ignacio Annual Total	Dangri-ga Annual Total	Toledo Annual Total	TOTAL QUANTITY AND VALUE – 11/90 Forecasts: Total # Units From All Original Forecasts	MSH List Estimated Available Unit Cost US$	Source	CMS Jul 90 Total Reported Monthly Issue Rate
Gowns					6					6	10.48	D	
Multisticks Test Strips, 100s					12					12	22.05	IDA	
Processing tanks					2					2	169.31	D	
PT PTT Test Kits					4					4	0.05	O	
Red bulbs, 100 watt					5					5	0.00	O	
R.P.R. Test Kit (Syphylis)					12					12	0.01	O	
Screws, Bone Large					100					100	0.04	O	
Sputum cups					3600					3600	0.05	D	
Suction Pump Machine											468.31	IDA	5
Suture linen					365					365	0.40	O	
Swabs, peanut					730					730	0.05	O	
S.G.O.T. Test Kit					4					4	1.11	O	
Uristicks Test Strips					12					12	0.07	IDA	
Vaginal scrapers					1200					1200	0.13	D	
White bulbs, 100 watt					5					5	0.01	O	
X-Ray Developer, 1Gal Bottle					18					18	1.64	D	
X-Ray film - 30x40		75PCS			24					24	122.12	IDA	
X-Ray films - 14x14					24					24	63.60	E	
X-Ray films - 17x14					24					24	63.60	E	
X-Ray films - 18x24		75PCS			36					36	45.82	IDA	
X-Ray films - 24x30		75PCS			36					36	75.61	IDA	
X-Ray Fixer, 1Gal Bottle					18					18	1.64	D	
NO QUANTITIES SPECIFIED:													
Amitript & diaze, 25/10mg		cap									8.11	IDA	
Amitriptylline 10mg Tabs		tab									0.01	E	
Anesthetic ear drops											0.13	O	

ANNUAL FORECAST LIST - BELIZE MINISTRY OF HEALTH SUGGESTED ADDITIONS TO FORMULARY

			DISTRICT REQUIREMENTS							TOTAL QUANTITY AND VALUE – 11/90 Forecasts			
GENERIC NAME	FORMAT	UNIT	Belize City Hospital Annual Total	Coro-zal Annual Total	Orange Walk Annual Total	Belmo-pan Annual Total	San Ignacio Annual Total	Dangri-ga Annual Total	Toledo Annual Total	Total # Units From All Original Forecasts	MSH List Estimated Available Unit Cost US$	Source	CMS Jul 90 Total Reported Monthly Issue Rate
Benzhexol HCl 2mg Tabs		tab									0.00	D	2000
Benzhexol HCl 5mg Tabs		tab									0.01	D	
Carbamazepine, 200mg Tabs		tab									0.10	D	2000
Chloramphenicol 5% Ear Drops											0.68	D	
Dextrose 10%/water Inj		inj									1.34	D	
Dispensing bags, Plastic											0.01	IDA	
Erythromycin Stear	Liquid, 25mg/ml	susp									1.75	D	
Folic Acid 5mg Tabs		tab									0.00	PAHO	
Glyceryl Trinitrate 6	Sust. release	tab									0.02	PAHO	
Isoniazid 50mg Tabs		tab									0.00	E	
Lignocaine Spray10	30ml	spray									4.50	O	50
Mannitol 10%	250ml	inj									5.68	E	
Meglumine Antimon Glucantime											7.50	PAHO	
Mineral oil, heavy	Litre										2.77	PAHO	
Prednisone 5mg Tabs		tab									6.60	PAHO	
Tape, Adhesive	1.25cm X 5cm										0.33	IDA	
Tetracycline opth. oint.											0.04	E	
Theophylline 125mg		tab									0.02	O	
Theophyllin/guaiphenesin Syrup											6.00	O	
Thiamine 10mg Tabs		tab									0.20	O	
Thioridazine 50mg Tabs		tab									2.63	O	