

Protecting the Poor and the Medically Indigent under Health Insurance: A Case Study of Jamaica

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Partnerships
for Health
Reform



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Partnerships
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Reform

Mission

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

- > better informed and more participatory policy processes in health sector reform;*
- > more equitable and sustainable health financing systems;*
- > improved incentives within health systems to encourage agents to use and deliver efficient and quality health services; and*
- > enhanced organization and management of health care systems and institutions to support specific health sector reforms.*

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

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Acronyms

ESSJ	Economic and Social Survey of Jamaica
HIU	Health Information Unit
MOH	Ministry of Health, Jamaica
NHIP	National Health Insurance Plan
PDU	Policy Development Unit
PHC	Primary Health Care
PIOJ	Planning Institute of Jamaica
STC	Special Treatment Charges

Foreword

Part of the mission of the Partnerships for Health Reform Project (PHR) is to advance knowledge and methodologies to develop, implement, and monitor health reforms and their impact. This goal is addressed not only through PHR's technical assistance work but also through its Applied Research program, designed to complement and support technical assistance activities. The main objective of the Applied Research program is to prepare and implement an agenda of research that will advance the knowledge about health sector reform at the global and individual country levels.

An important component of PHR's applied research is the Small Applied Research (SAR) program. SAR grants are awarded, on a competitive basis, to developing-country research institutions, individuals, and non-profit organizations to study policy-relevant issues in the realm of health sector reform. The SAR program has twin objectives: to provide data and analyses relevant to policy concerns in the researcher's own country, and to help strengthen the health policy research capacity of developing country organizations. While PHR provides technical advice and support to the SAR grantees, the content and conclusions in the final research reports are the responsibility of the grantees. They do not necessarily reflect the views of USAID or PHR.

A total of 16 small research grants have been awarded to researchers throughout the developing world. Topics studied include health financing strategies, the role of the private sector in health care delivery, and the efficiency of public health facilities.

SAR grant recipients are encouraged to disseminate the findings of their work locally. In addition, final reports of the SAR research studies are available from the PHR Resource Center and via the PHR website. A summary of the findings of each study are also disseminated through the PHR in brief series.

Small Applied Research Grants

Dr. Joseph K. Konde-Lule (Institute of Public Health, Makerere University). User Fees in Government Health Units in Uganda: Implementation, Impact and Scope.

Dr. R. Neil Soderlund (University of Witswatersrand). The Design of a Low Cost Insurance Package.

Pedro Francke (Independent). Targeting Public Health Expenditures in Peru: Evaluation of Ministry of Health Services and Procedures and Proposal of a Targeting System.

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Executive Summary

In 1997, The Jamaican Government circulated a Green Paper on a proposed National Health Insurance Plan (NHIP). There was much debate and controversy surrounding the proposals put forward in the Paper. The Government hopes to implement the NHIP by June, 2000. This study attempts to provide guidelines to the implementers.

The specific objectives of this study were as follows: (1) To identify the illness patterns and expenditure profiles of the patients with three main chronic illnesses; Cancer, Diabetes and Mental Illness; (2) Use the data to estimate the cost of treating and covering these diseases; (3) To examine the level of medical indigence or at risk-of-medical indigence experienced by the persons surveyed and (4) To examine the factors associated with medical indigence or at risk-of-medical indigence.

Primary Data were collected from three hundred and one patients suffering from Cancer, Diabetes and Mental Illness. The first two chronic diseases were chosen because they ranked among the first five causes of death in Jamaica. Mental Illness was included because there is a dearth of data on this chronic illness in Jamaica. Mental Illness is also proving to be very costly to the Jamaican Government since it incurs the longest average hospitalization for chronic illness.

One hundred patients suffering from each disease were interviewed using a structured questionnaire. These patients were drawn from both the private and the public health sectors in the urban areas with the assistance of the private doctors and officials of the Ministry of Health.

Cancer incurred the highest mean cost to patients, followed by Diabetes and Mental Illness in that order. Approximately 60 percent of the patients revealed that they were having financial difficulties. About 21 percent of the sample have foregone health care because of financial difficulties. The study showed that medical indigence is a more dynamic process than that proposed by the MOH. Medical indigence occurs when one cannot treat one's illness because of financial difficulties which may have existed before an illness made its presence felt or after the onslaught of that illness. Regression analyses revealed that the following groups were at risk of medical indigence: (1) those with an income of less than J\$42,000 per annum (can be defined as poor), (2) younger persons, (3) less educated persons (4) single persons (5) working persons (6) full time workers (7) those suffering from Cancer. Therefore the study indicated that the category "medically indigent" includes more than the official poor. In fact, persons who are working can find themselves in medical indigence once they are forced to pay the high costs associated with their chronic illnesses. These persons are more at risk because the health services will demand more from them.

The patients used several means to cope with the difficulties facing them because of their illnesses. There was a heavy dependence on family in time of financial distress. The second important coping strategy was "hoping for improvement". Other strategies included "budgeting" or "borrowing" to meet their needs.

Recognizing the economic instability facing the Government, we laud this attempt at reducing health costs. However, we fear that the quality of care and access to care may deteriorate in the process. Our policy recommendations include the following: (1) the Government needs approximately J\$20.35 million per annum to finance the curative aspects associated with Diabetes and Mental Illness. (2) Increase the catastrophic fund to more than J\$3,000,000.00 previously

suggested (3) Consider the inclusion of consultation visits as part of the basic package since these represent the second highest amount in health care for the patients of chronic illnesses. (4) A very effective and continuous assessment needs to be done to target the medically indigent. (5) Constant evaluation of the NHIP needs to be included as an on-going aspect of the system. This will ensure that all benefits and provisions remain relevant to the needs of the population

1. Introduction/Scope of Work

In 1997, the Jamaican Government circulated a Green Paper on a proposed National Health Insurance Plan. The Paper generated much lively discussion and heated debate, little of which was, however, based on empirical research. This study seeks to fill this gap. It examines the Green Paper and evaluates its potential to cover those persons suffering from chronic diseases who because of the nature, frequency and cost of their illnesses may be classified as medically indigent.

The main objective of this study was to evaluate the National Health Insurance Plan proposed in the Jamaican Government's Green Paper, to assess whether the decisions made with respect to inclusion/exclusions in the package adequately address the needs of these persons herein identified as the medically indigent.

The specific objectives of this study were as follows:

- > To identify the illness patterns and expenditure profiles of the patients with three main chronic illnesses; Cancer, Diabetes and Mental Illness
- > Use the data to estimate the cost of treating and covering these diseases and
- > To examine the level of medical indigence or at risk-of-medical indigence experienced by the persons surveyed
- > To examine the factors associated with medical indigence or at risk-of-medical indigence.

The study was limited to Kingston and St. Andrew due to constraints of costs and time. The findings will be of immense value to the Jamaican Government since the NHIP is yet to be implemented.

1.1 Profile of Jamaica

1.1.1 Macro-economic Environment

The latter part of the 1980s represented a period of intense macro-economic adjustments aimed at liberalizing the Jamaican economy while at the same time trying to contain the external debt, the budget deficit and inflation. This period of structural adjustment was the result of a highly regulated economy in the 1970s' with significant emphasis being placed on social expenditures and government controls. For example, government expenditures on the social sector rose from 6.4 percent of GDP in 1970 to 12 percent in 1975.

The incumbent administration in this period inherited this highly regulated economy which had severe macro-economic imbalances (Behram, 1988). Among the new measures adopted in the 1980s were the gradual removal of price controls and quantitative restrictions on imports, credit decontrol, privatization and a downward adjustment in public sector spending. The impact of these measures on export sector was however disappointing, as traditional exports fell by 0.7 percent between 1980 and

1994 and bauxite production, which had never fully recovered from the levy imposition as early as 1974 and other changes in the bauxite market, declined by 6.8 percent over the same period. As a result, the export of goods did not increase at an adequate rate to effect a recovery.

Tourism, on the other hand, recovered rapidly and became the new engine of growth for the economy in the 1990s. Tourism is now the primary foreign exchange earner and at the end of 1996, visitor arrivals soared to a record high of 1,820,627. At the same time, the total number of hotel rooms expanded and tourist expenditures amounted to US\$1.12 billion.

Table 1.1. Key Economic Indicators for Jamaica (%)

	1990	1991	1992	1993	1994	1995	1996	1997
Real GDP Growth per capita	5.7	2.0	4.4	1.5	0.2	-3.3	0.41	—
Investment/GDP	27.4	26.3	27.9	33.8	32.8	34.0	34.4	—
Inflation(CPI)	29.9	80.2	40.2	30.5	26.7	25.6	25.8	26.4
Unemployment rates	15.3	15.4	15.7	16.3	15.4	15.4	16.3	16.5
Population below poverty line	27.9	38.9	34.2	24.4	NA	32.6	26.1	19.9

Source: Economic and Social Surveys of Jamaica. PIOJ (various issues) and Policy Development Unit, Planning Institute of Jamaica

Debt continues to consume at least 40 percent of the Jamaica Government's revenue. Table 1.1 presents some key economic indicators for Jamaica. Since 1992, there has been little economic growth. Inflation rates rose to as high as 80.2 percent in 1991 and have continued in the twenties and the thirties while unemployment rates remain high. The latest poverty studies estimate that the proportion below the poverty line in 1997 was 19.9 percent.

1.1.2 Social Indicators

The health of the adult population is severely threatened by cardiovascular and cerebrovascular diseases, malignant neoplasms and diabetes, which rank among the top ten leading causes of death. Also threatening the overall health of the population, are trends in disease pattern which show increases in other non-communicable chronic diseases (NCCD). HIV, injuries and trauma are also on the increase. Table 1.2 sums up some of the basic social indicators for Jamaica.

Table 1.2. Selected Basic Social Services—Jamaica (1997)

Total population	2,500,025 (urban 50.2%)
Under 1 year	57,214 (2.3 %)
Under 5 years	280,302 (11.2%)
Infant Mortality (1993)	24.5/1,000 births
Under 5 Mortality Rate	13/1,000 births
Maternal Mortality Rate (1995)	85/100,000 live births
Total Fertility Rate (1993)	3.0
Life Expectancy at Birth	74 years
Percentage of children < 1 year old immunized	
BCG	97.4
DPT	89.8
Polio	89.9
Measles	88.3
Percentage of deaths < 5 due to diarrhea (1996)	0.01
School Enrolment Ratio	
Preprimary	85%
Primary	98%
Primary School Daily Attendance Rate	70%
Adult Literacy Rate(1994)	
Total	75.4%
Male	69.2%
Female	81.2%
Female Headed Households	43.7%
Unemployment Rates (1997)	
Total	15.5%
Male	9.8%
Female	22.3%

Source: UNICEF, Jamaica, October 1998

Despite the severe economic crisis experienced by Jamaica, the table above shows that there are some fairly laudable social indicators. Immunisation rates remain high in keeping with the Ministry of Health's focus on Maternal and Child Health. Males lag behind in their level of literacy while females record higher unemployment rates.

1.1.3 Health Care in Jamaica

Health services in Jamaica are provided in the public and the private sector. The Ministry of Health (MOH) is the main provider of care, owning and operating approximately 95 percent of all hospital beds. At the secondary level, there are 24 hospitals which offer mainly curative care with a total bed capacity of nearly 5000. Eighteen (18) of these hospitals are for acute care, while there are 6 specialty hospitals of which 4 are chronic care hospitals. The acute care institutions are classified

according to types - A, B and C, depending upon the level and sophistication of services offered. Primary health services are provided through a network of institutions spread across the island's 4 administrative units or Regional Health Authorities. There are 371 health centres. These are defined as Types I to V depending on the range of services and the size of the population catchment. Type 5 is of the highest order.

The private for-profit sector is quite intensely involved in the delivery of health care. These services are mainly provided through private pharmacies and doctors' offices. The private sector is also active in the provision of diagnostic services. There are 6 private hospitals in the island with a total bed capacity of approximately 270. Non-governmental or non-profit institutions also provide health services including support or counselling as well as actual delivery of care especially with respect to chronic illnesses.

We will briefly review the scope and efficacy of programmes in the health sector which are specially designed for disadvantaged groups. We will make a distinction between *direct* programmes *within* the health sector that target the poor, and *indirect* programmes, which do not necessarily form part of the National Health System, but which earmark the poor for health and health related services. Classification of these programmes and institutions is shown in Annex A.

1.1.3.1 Direct Programmes

Primary Health Services

The Ministry of Health's Primary Health Care (PHC) network is designed to promote a healthy lifestyle and prevent disease by making care accessible to all. Because PHC services are an important component of the health care system, the Ministry ensures that services reach the entire population especially the poor and vulnerable by (a) making the PHC system as inexpensive as possible, and (b) distributing the spread of facilities throughout the entire country. The physical infrastructure of the PHC system consists of a total of 371 health facilities inclusive of special family planning clinics and special dental clinics. The typical facilities are described below:

Type I health Centres - approximately 172 centres in all, these provide basic maternal and child health services - ante-natal, post-natal, child health, immunisation, family planning and nutrition counselling. The catchment population of Type I centres is roughly 2,000 to 4,000.

Type II Health Centre—These provide curative dental and environmental health care in addition to the services given at the Type I facility. The curative and dental services are not, however, provided on a full time basis. The Type II health centre serve a population of roughly 4,000 to 12,000. There are 85 of them in Jamaica.

Type III Health Centres—those which provide the services given at the Type II facility on a regular basis. In addition, some specialist services may be offered, such as the treatment of sexually transmitted diseases, and mental health. The targeted population ranges from 12,000 to 30,000. There are 66 such centres in the island.

Type IV—there are 5 such health centres in Jamaica which provide the health services similar to those provided at the Type III centre. Type IV centres are located in the capital townships of Spanish Town, Lucea, Port Antonio and Falmouth.

Type V centres—which provide comprehensive health care services including specialist services for densely populated urban areas. Laboratory support, facilities for research and accommodation for Zonal or parish administrative staff are also provided. There are 4 type V centres in Jamaica.

Community Hospital / Poly-Clinics—six (6) of these provide similar services to those provided in a Type III centre but also have functional maternity wards for intrapartum (delivery) care.

From a *supply* standpoint, the PHC system provides a spread of services which are geographically situated to serve defined catchment populations. The physical facility network is fairly equitably distributed. When one assesses the PHC system from a *demand* standpoint however, long queues for service, poor quality, and the frequent unavailability of drugs and supplies may serve to erode the systems effectiveness (World Bank 1994 Table 11).

Secondary Health Care

While the primary health system is available at no cost, user fees are charged at hospital facilities throughout Jamaica. The Ministry of Health, however, has a schedule of exemptions which recognize the needs of the indigent as well as other risk groups. This schedule identifies the indigent, that is, persons on poor relief, persons whose income is less than the minimum wage, persons whose sole income is the national insurance pension, and individuals receiving food aid as among those exempt. Identified as vulnerable with special needs are persons who use the following services: Family planning, immunisation, ante- natal visits, post natal and nutrition clinics and persons who use services for child health. A full list of the exemptions is shown in Annex B. An assessment procedure conducted at hospitals allows the patients within these categories to be identified.

Jamaica Drugs For The Elderly Programme

The Ministry of Health introduced the Jamaica Drugs for the Elderly Programme (JADEP) as a means of subsidising pharmaceuticals for major conditions which afflict the aged such as hypertension, diabetes, glaucoma, arthritis, asthma and heart disease. This move was motivated by high cost to Government for drugs to the elderly – approximately J\$30M in the 1996/97 budget (Health Reform Unit). JADEP now provides subsidised prices for at least 25 pharmaceuticals.

Drug Windows

The Ministry of Health operates a number of outlets that provide lower cost generic pharmaceuticals to the public. The programme provides cost effective pharmaceutical alternatives to patients for a small range of prescription and over the counter drugs. To date eight windows have been opened, two in Kingston, two in Westmoreland, two in St James and one each in Manchester and St Thomas.

The Food Stamp Programme

In 1984, the Jamaican Food Stamp (JFSP) Programme was introduced after the elimination of general food subsidies. The JSFP is a social program designed to transfer income in the form of food purchasing power to low income households. The program aims at protecting target groups from the effects of the rising cost of domestic and imported food items, and to sustain the nutritional status of these groups at a minimum acceptable level.

The programme is financed by the central government and forms part of the wider social welfare package. Those eligible are pregnant women, lactating mothers, children under 6 years, the elderly, Poor Relief and Public Assistance beneficiaries and indigent households.

Over the period 1989–1997, the JFSP had an average number of beneficiaries of 8 percent of the population (PIOJ 1997). In 1997, beneficiaries in the two categories children aged less than six and the elderly/poor/disabled accounted for 71 percent of the total number of stamps distributed (PIOJ 1997).

Mental Illness is increasingly gaining attention from the Jamaican Government as it becomes cognisant of the fact that “high disability adjusted life years’ (DALY) and the longest inpatient care are associated with mental disorders. Hospitalised care is provided mainly at the Bellevue Hospital in the Kingston Metropolitan area (KMA) (ESSJ, 1997). In 1997, the community mental health services saw approximately 11,500 active clients, an increase of 1500. Main sources of referral were hospitals (46.2 percent). A total of 30,238 interactions were conducted. Sixty percent of the clients were chronically ill. Schizophrenia 52.9 percent, Depression 17.6 percent and Substance Abuse 9.1 percent were three of the most prevalent types of mental illnesses seen.

1.1.3.2 Indirect Programmes

There are several non-governmental institutions which carry out programmes designed to target the disadvantaged people in the society.

Diabetes Association of Jamaica

Created in 1976, the Diabetes Association has responsibility to develop and implement a nationwide plan for diabetic treatment, education and training. The Diabetes Association is a private voluntary non-profit organisation. The organisation monitors and evaluates the effectiveness of the country’s public diabetes services, and provides subsidised care to its members and the public.

Jamaica Cancer Society

The Jamaica Cancer Society was founded in June 1955 by a group of doctors, as a National Society for the Control of Cancer. This was the beginning of a unique voluntary body that would henceforth pioneer the fight against this dreaded disease. The aim of the Society is to bring every person in the country, sufficient knowledge about cancer so that better safeguard can be taken against the disease.

The first detection clinic was opened in 1972 in Kingston and another at the Mandeville Hospital in March of the same year. The purpose of these clinics was to detect early cancer of the Breast and Cervix in women. Other clinics were started in the rural health centres at later dates; presently there are five branches.

The Jamaica Cancer Society aside from its secondary function as detection clinics, has adopted a primary role as educators to the public. Not only are patients taught how to examine themselves for Breast Cancer, but also they are told about the warning signs and encouraged to have regular check-ups. Patients are also given leaflets with information about early detection and prevention of Breast and Cervix cancer. Regular trips are made to towns and villages throughout the island where examinations are done, talks are given and films on the disease shown.

Hope Institute

In 1963 the Jamaica Cancer Society erected the Hope Institute, a 32-bed hospital on property in close proximity to the University Hospital.

The function of the Institute is the furthering of cancer treatment working in close conjunction with Kingston Public Hospital and the University Hospital. In 1972 a special wing was added to the hospital to accommodate recurrent and late cancer cases.

Heart Foundation Of Jamaica

The Heart Foundation of Jamaica is a registered non-profit organisation supported entirely by voluntary contributions and its own fund raising efforts. The objective of the Foundation is to reduce the incidence of death from heart disease in Jamaica by prevention through education, early detection through screening programmes and rehabilitation through education about healthy lifestyles.

The Foundation is governed by a Board of Directors, which is elected annually. The Board consists of five nominees from the Lions Club of Kingston, six from the University Hospital and one from the Kingston Public Hospital. Six other members are appointed by the Board, which meets monthly.

The Foundation is a Member of the International Society and Federation of Cardiology, based in Geneva. The ISFC provides regular updated medical information on cardiovascular and related diseases as well as reports on the activities of other Heart Associations/Foundations worldwide.

2. Literature Review

Governments in developing countries including the Caribbean, are becoming increasingly aware of the associations between, health, health care utilization, and overall long term economic development. In an attempt to ensure the consumption of medical care at appropriate levels, these governments have traditionally, tried to make health care programs available to the entire population as a matter of right. Health services were, therefore, traditionally financed from general tax revenues, and provided by public institutions, free of charges at the point of delivery (CGCED, 1996).

Commencing in the mid 1980s, several Caribbean territories experienced declines in public revenues. This was brought about by the oil price shock of the late 1970's, which resulted in decreased labour market participation, shrinkage in tax collections and mounting external debts. As a result, these states were forced to seek out new means of financial support for public programs. In the area of health care services, these efforts have largely surrounded improving efficiency (reform and rationalization), cost recovery, and a drive towards National Health Insurance (Huff- Rousselle, 1989; Roberts et al., 1996; HPMU 1996; Theodore et al 1996; Coopers and Lybrand Consulting Group 1994).

At the thirty-eight (38th) meeting of the Directing Council of the Pan American Health Organization (PAHO), many English speaking Caribbean territories re-confirmed their commitment to the national health insurance concept (PAHO, 1995). Health insurance was embraced as a viable financing mechanism, because of its perceived ability to bridge the gap between present realities in the health sector, and expectations of the population. The particular advantages of health insurance have been identified as its ability to (a) provide supplementary financing to the health sector, (b) enhance efficiency, and (c) ensure national health security or universal access to defined services (Health Economics Unit, 1999).

Like its counterparts in the region, Jamaica has also endorsed the NHI principle:

“The national health insurance comes with some intrinsic benefits to providers and users. These benefits account for its attractiveness and desirability.” Health Reform Unit, Ministry of Health. 1997, p. 16.

The Proposed National Health Insurance Plan (NHIP) for Jamaica is a compulsory contributory plan covering a stipulated package of services for all residents, regardless of age, income, employment or existing health condition. It is designed to assist individuals and families in meeting the high costs of health care without suffering financial distress and to provide dedicated resources for enhancing the availability and quality of health services. It is a critical component of the overall Health Reform Programme currently being implemented to improve the delivery, management and financing of health services (Green Paper NHIP April, 1997).

The main features of the NHIP are: All residents will be covered and will have access to the Standard Benefit Package. Secondly, the Benefit Package will include specified hospital in - patient services, laboratory and diagnostic tests and pharmaceuticals. This package will also be reviewed periodically. Health insurance will be mandatory, that is, all persons must have health insurance coverage for the Package either from a new public health insurance agency (to be established) or

competing private health insurance carriers or employer-provided health plans. Another feature of the NHIP is, contributions will be shared by employers and employees, paid in full by the self - employed and fully subsidized by the government for the medically indigent. The services in the Benefit Package will be accessible from public or private providers. Another feature of the NHIP is that, it will be regulated by an independent Health Insurance Commission. The NHIP will provide dedicated and accountable funds for health services and it will establish a Catastrophic Care Fund to assist with meeting the costs of very expensive and highly specialized services.

The goal of the Ministry of Health continues to be "Health for all by the year 2000". This represents the broad philosophical foundation of Jamaica's health system. The Ministry of Health sees the need for a Health Insurance Plan, as one of its efforts to ensure the provision of adequate, efficient and effective delivery of health care. The total expenditure for the Ministry of Health and its departments for the 1995/96 fiscal year totaled J\$4,676.8 million up from J\$4,138.6 million in the previous fiscal year, an increase of 13.0 percent compared with an increase of 43.0 percent between 1993/94 and 1994/95. Of the J\$4,676.8 million, J\$3,734.6 million, was allocated for the recurrent expenditure and J\$942.1 million towards capital expenditure (Statistical Yearbook 1997, STATIN).

In all Caribbean countries seeking to introduce national health insurance, the obligation of the state, to provide the medically indigent with access to the system, stands as a principal tenet (Huff-Rousselle, 1989; Roberts et al, 1996; HPMU 1996; Theodore et al 1996; Green Paper NHIP April, 1997). While this is so, there remains some ambiguity with respect to the definitional scope of this group. Theodore et al, (1996) for example, makes reference to government contributions on behalf of the *non-working population*, where *non-working* refers to the absence of income due to either, unemployment, retirement, disability, or insufficient earnings level. In addition, they further identify the need for special programmes to target specific vulnerable groups in the society such as mental health, and geriatric services.

The only official definition of "*medically indigent*" which is offered is given by the St. Vincent and the Grenadines officials:

"...persons who cannot afford health care because of insufficient income and/or lack of adequate health insurance." (Health Management Unit, 1996).

In a Jamaican policy framework presented by the Health Economics Unit (1999), two categories are identified as requiring state contribution: The unemployed, and citizens requiring special treatment. The latter group is to include, "... *those persons already receiving social welfare assistance, pensioners and low income workers*" (Health Economics Unit 1999, p.13). A clear distinction between medical indigence and special conditions is provided in the draft Policy Framework document for Jamaica, presented by the Health Reform Unit (1998):

"... the contributions for the medically indigent and other special groups will be met by the Government" (Health Reform Unit, Ministry of Health 1998, p.18).

This document, however, goes on to recommend that a study of the *poor* and *special groups* is necessary to allow identification and subsequent registration of the *indigent population*.

Policy proposals for national health insurance in the Caribbean region thus suggest that there are four (4) main determinants of medical indigence: poverty, unemployment, old- age, and the

contraction of special medical or health conditions. These proposals seem to view poverty and special health conditions independently, with little attention paid to the interrelationships between these two factors. Ron et al (1990), discuss at length the advantages of health insurance as a social security undertaking. They stress the concept of solidarity, and note that health insurance systems pool risks and resources among persons with different probabilities of requiring care, so enhancing the security of each individual. Further, solidarity also implies cross-subsidization from individuals with more resources to those less fortunate (Kutzin, 1995). A health insurance system designed in the absence of a concise understanding of the factors that may determine medical indigence, may run the risk of eroding the very nature of the solidarity principle upon which it is embraced.

The definitional scope of medical indigence is therefore integral to national health insurance. There is, however, a scarcity of literature that clearly defines this group. The Health Policy Management Unit defines the medically indigent as persons who cannot afford needed health care because of insufficient income and/or lack of adequate health insurance (Health Policy Management Unit 1996). This definition is linked to income, on the premise that low income will restrict a person's ability to make the necessary financial contributions to guarantee access to services. However, the type of illness that one suffers may directly influence the individual or household income, and thus the ability to access needed services.

Russell (1996) provides some useful insights into understanding the associations between illness and household income. He contends that apart from the specific cost of treatment, the nature, the frequency, as well as the duration of the illness will impact upon household income and its ability to afford care. According to Corbett (1989), if the sickness of an economically active adult becomes chronic or leads to disablement or death, this adversely affects the dependency ratio of households. Over et al (1992), note that the strategies, which a household employs to cope with the presence of a chronic illness, are costly. Further, coping processes themselves may serve as risk factors for prolonged or future indigence. A typical coping response, for example, was found to be the removal of children from school, either to care for the sick, or because household income was depleted. Such an action can be viewed as an investment decision and has long term consequences for the household economy (Over et al. 1992).

We are therefore prepared to argue in this paper that medical indigence covers a group much wider than the official poor. If the structure of the benefits and the entitlement rules governing a nationalized health insurance program discriminates against certain categories of diseases, this will determine to some extent, persons' ability to afford needed care through this means. This is especially true in the case of chronic illnesses requiring frequent contact with the medical system. If co-insurance rates for example are applied uniformly across all disease categories, care needed by high risk, low-income households becomes blocked because of financial barriers (Dunlop and Martins, 1997).

The need to balance the revenues and expenditure of an insurance undertaking is a delicate matter. Nationalized health insurance systems have always had to grapple with the issue of chronic illnesses and their propensity to result in cost escalation. Of particular interest to our present research therefore, is the manner in which diabetes, cancer and mental illnesses are incorporated into nationalized health insurance systems.

Diabetes is a disease in which the body does not produce or properly use insulin, a hormone secreted by the pancreas to convert sugar, starches and other food into the energy needed for daily life (Jamaica Diabetes Society, 1998). When insulin is not utilized correctly, glucose (or blood sugar) builds to dangerously high levels in the blood stream. Diabetes often leads to serious complications that may involve every tissue in the body. Nephropathy (kidney failure), peripheral vascular

problems, retinopathy, glaucoma, blindness, heart disease, nerve and vascular damage are some of the results of high levels of blood glucose, sustained over time.

There are two main types of Diabetes. Type one Diabetes which is Insulin-Dependent is the most severe form of Diabetes. It usually occurs among young children or adolescents. In order to stay alive, patients must take a daily injection of insulin. Insulin does not cure the disease but it controls it. Type two Diabetes (non-insulin dependent Diabetes) affects about 90 percent of the people with Diabetes. It commonly develops in people over the age of 40. Proper diet and exercise are essential to controlling the disease. Many people first become aware that they have Diabetes after they develop one of the serious complications e.g. heart disease, kidney disease or eye problems. Malnutrition related diabetes (Type 3) can also be caused by deficiency of micronutrients. Clinically it may resemble type 1 or type 2.

According to the Diabetes Association of Jamaica, over 300,000 Jamaicans suffer from Diabetes, almost half of them do not know. The Association claims that the lowest estimates of cost that are directly attributable to diabetes are J\$1.8 billion, annually. But according to Theodore (1996), the cost of treatment will depend on the particular complaint, the existence of complications, the type of treatment required and the type of facility. There are no *typical* costs, since there are no typical patient.

Cancer is one of the five leading causes of death in the English Speaking Caribbean (The Jamaican Cancer Society, 1998), Cervical Cancer and Breast Cancer are among the leading causes of death in women in the Caribbean. Women are susceptible to cancer of the breast, lung, stomach, colon and rectum and the cervix. Common cancers in Caribbean men occur in the prostate gland, lung, colon and rectum and the stomach.

In a landmark study in the United States, researchers attempted to determine who are the mentally ill (Kessler, 1994). Their study which surveyed 8098 individuals across 34 states revealed that the prevalence of mental illness and substance abuse was far higher than previously thought and that to some extent, these disorders are under-diagnosed and under-treated. Serious mental illness is defined as three or more episodes of major depression, manic depression, schizophrenia or substance abuse (including alcoholism). They were concerned that the proposed health plan set limits on mental health care and they believed that cutting costs by limiting mental health care is probably going to be very expensive in the long run.

Although no similar study has been completed in Jamaica, there is little doubt that the mental disorders are very costly to the Jamaican Government. Schizophrenia, schizotypal and delusional disorders were the leading diagnoses by days of care accounting for 84,914 or 9.1 percent days of care. This group had an average length of stay of 91.7 days (PIOJ, 1997).

In the traditional European model of health insurance, the NHI system was expected to provide coverage for curative illnesses and tended to focus on providing support for doctors' visits and prescription drugs. Preventive care was considered the responsibility of the agency responsible for public health. Since mental health services were for a long time considered a public health issue, its inclusion in health insurance benefits was often neglected. In the case of inpatient hospitalization, cost sharing arrangements were often attached to the receipt of benefit (Ron et al. 1990). The duration of inpatient care, however, poses particular difficulties for viability of systems. Long term care or convalescence translates to higher cost for the insurance system. It is for this reason, that this category was often excluded from the benefit package (Normand & Weber: 1994). Restrictions on benefit coverage such as those described above, tend to be found more extensively during the formative years of a country's national health insurance programme, when there is a lack of an adequate revenue base.

Social insurance is however attempting to grapple with these issues. According to Glaser (1991) when mental health was custodial, it had no place in health insurance, but as psychopharmacological and *surgical treatments* became effective, psychiatry seemed to fit an insurable medical model. The American Psychiatric Press (1987), notes, however, that not all health insurance financing methods adequately cover the continuum of services needed by the mentally ill, especially as it relates to mental illness in children and adolescents. They argue that further reimbursement should be provided for psychiatric treatments which include behavioral assessment and other evaluations, outpatient visits, work with families, individual and group therapy as well as consultations given in hospital, correctional institutions and other agencies.

Several countries have attempted to address the continuum of care required by the, mentally ill by according preferential treatment under the social insurance system. Cost sharing for inpatient acute hospitalization, is absent in many countries as are cost sharing requirements for psychiatric hospitalization (Glaser 1991). Cost sharing is avoided on the humanitarian grounds that psychiatric illness is particularly impoverishing for patients and their families - the patient has been disabled for a long time, and usually has a poor work history. It is often the case that the psychiatric inpatient is treated more generously than the acute care inpatient on the grounds that the former is particularly impoverished and doomed to stay longer. An example, France has long required cost sharing of all its acute- care inpatients: coinsurance during the period of per diems, co-payment under current global budgeting, and higher rates of cost sharing for longer stays. French patients suffering from severe illnesses- including mental illnesses- are however exempt (Glaser 1991).

In looking at diabetes, Leese (1992) noted that much of the burden of the care of people with diabetes in the UK falls on the general practitioner. What this means is that the insurance system should be tailored to allow general practitioner services to be included, and thereby made affordable. Since much of the cost associated with diabetes could be lessened through prevention, it could also stand to reason that general practitioner who organize preventive clinics could be covered since they are ideally placed for monitoring diet, weight and blood sugar levels.

The issue of restructuring health insurance programmes to offer protection against such diseases largely hinges on economic issues. “*(Market failure in the supply of private insurance leaves cover incomplete especially among poorer people and those who need treatment and care for chronic conditions).*” (Normand and Weber: 1994, 16). This failure stems from the gap between resources needed by the health sector and actual funds which can be mobilized via taxation and private insurance schemes. Bridging this gap raises several issues regarding the financial viability and equity of national health insurance schemes.

The feasibility of health insurance is largely a function of how the system is funded. These schemes are normally funded through payroll contributions to a health fund. Much of the problems associated with the high cost and affordability of chronic diseases can be addressed through the system’s reimbursement mechanism. Reimbursing care givers on a fee for service basis can create incentives for him to order more diagnostic tests or treatments or encourage the patient to make repeat visits. This is not the case if reimbursement is made on a capitation or case based basis for example. In addition, if hospitals are paid on the basis of a global budget, chronic patients cannot be charged co- insurance for each service, instead, they will be charged a fixed co-payment.

There are other characteristics of chronic diseases that make it more difficult to be financed by insurance. Adverse selection is more common in chronic disease than acute care insurance. If the insurance is organised on a private basis, the more vulnerable are more likely to choose generous and expensive benefit coverage. Compulsory insurance however deals with the problem of adverse selection (Barr 1989), it does not however deal with the question of moral hazard. For chronic

diseases, however, especially mental illness where the need for care is largely defined by the beneficiary who may become eager to use his entitlement. Utilization is therefore prolonged and sometimes even unnecessary. Only substantial cost sharing and strict entitlement limits can control over- utilization, unfortunately, however, in the case where the illness is prolonged and expensive, these restrictions may also result in inadequate coverage (Glaser 1991). Many countries therefore structure their social insurance system to relieve the extent of cost sharing required by chronically ill persons. This is achieved in many cases in the form of reimbursing co-payments or charging such persons lower ceilings on deductibles (Dunlop and Martins, 1997). The ability of the health insurance system to regulate use towards a rational pattern depends to a large extent upon the design of the system and the level of cost sharing which it necessitates.

The issue of *equity* is important in the implementation of National Health Insurance. Regarding equity, coverage for certain groups in the population can be improved and expanded if the national health insurance plan is successful in attracting additional resources to the health sector. Norm and Weber (1994) are of the opinion that these additional resources can replace government expenditure, which could then be targeted towards improving health services for subgroups not yet covered by national health insurance. But these national health insurance programmes can also worsen access to health by certain population groups. This is possible in the initial stages when governments target people in the formal sector with stable employment. Given limited resources, it is possible that the expenditure on these people crowd out expenditure on other subgroups.

A brief review of the national health insurance programmes in Surinam and Korea was completed. Jamaica may learn from their experiences. The following are areas for concern in these two countries: (1) the limited care to the patients of mental illness (2) the inequity in access (3) the high costs of health insurance and (4) the questionable quality of care which is provided for the insured.

3. Methodology

3.1 Introduction

The study was completed through the collaborative efforts of The Institute of Social and Economic Research, the Ministry of Health and the Medical Association of Jamaica. Two major workshops were held involving these parties and other interested stakeholders to exchange ideas, discuss policy implications and disseminate information.

3.2 Data Sources

Secondary data were collected from the following sources:

- > Ministry of Health—Health Information and Health Reform Units
- > Jamaica Surveys of Living Conditions (Health Section) 1989–1997,
- > Planning Institute of Jamaica
- > Literature on national health insurance in other countries

Primary data were collected from three hundred and one patients suffering from Cancer, Diabetes and Mental Illness. The first two chronic diseases were chosen because they ranked among the first five causes of death in Jamaica. Mental Illness was included because there is a dearth of data on this chronic illness in Jamaica. It was seen as an opportune moment to increase knowledge on this increasingly prevalent disease in Jamaica. Mental Illness is also proving to be very costly to the Jamaican Government since it incurs the longest average hospitalization for chronic illness.

Approximately one hundred patients suffering from each disease were interviewed using a structured questionnaire. These patients were drawn from both the private and the public health sectors in the urban areas with the assistance of the private doctors and officials of the Ministry of Health.

One hundred patients from these chronic diseases are a representative sample. We can see from Table 3.1, on a national level, 100 represents between 3.2 percent and 6 percent of the inpatients discharged from government hospitals. One needs to note that this study was confined to Kingston and St. Andrew, therefore 100 patients suffering from each chronic illness is quite representative of the urban areas.

Table 3.1. Number of Patients Discharged (1996)

Name of Illness	Number of Discharges	% of discharges that Sample of 100 Represents on a National Level
Cancer	2317	4.4%
Diabetes	3121	3.2%
Mental Illness	1655	6.0%

Source: Health Information Unit (MOH) Jamaica

Note: Discharges are from government hospitals, Bustamante Hospital, National Chest, Victoria Jubilee Hospital and Bellevue Hospital by category of first-listed diagnosis.

Primary data were also collected from a sample of 20 health practitioners in the health sector. They were drawn randomly from a list provided by the Medical Association of Jamaica. They were interviewed using a structured questionnaire to determine (1) medical costs of treating chronic illnesses in Jamaica and (2) their own costs for their services and (3) the numbers of patients that they treated in the last 6 months for these chronic illnesses.

The patients were questioned on the following: (1) their socio-economic background (2) their family background (3) their medical history (4) Illness related expenses (5) coping strategies.

3.3 Difficulties Encountered in the Field

Project related field work commenced with the random selection of twenty doctors from a sample provided by the Medical Association of Jamaica. Due to time constraints, including the unavailability of some doctors and the unwillingness of others to participate in the survey, some doctors had to be chosen via a departure from the random selection method.

Subsequent to the interview with the medical practitioner, the intention was to further elicit his/her cooperation to interview some of his/her patients in the chosen disease categories, namely Cancer, Diabetes and Mental Illness. A hundred patients were to be interviewed in each disease category.

A major problem experienced was the reluctance of most doctors to divulge the names of their patients. Despite our assurances that the strict confidentiality would be maintained and in spite of the project's efforts to obtain the active cooperation of the MAJ, many doctors, citing professional ethics refused to provide names of their patients.

A necessary bias was therefore introduced into the patient sampling methods because in the few instances when doctors cooperated, all the patients of those few doctors were sampled, subject to the agreement of the respective patients. That is why, cancer ended up with 101 respondents as opposed to the others which have only 100 each.

Efforts were made to further rectify the bias by sampling patients at public institutions, namely the University Hospital of the West Indies and the Kingston Public Hospital. An obvious disadvantage of this modus operandi is that the patient at these public institutions are subsidized since total treatment costs are not fully borne by the patients.

This disadvantage is to an extent offset at the important stage of purchasing the prescribed medication, because in the many instances when the hospital pharmacy does not have the required

medication, patients must necessarily resort to the private pharmacy for the purchase. Forty-five percent of patients surveyed purchased solely at private pharmacy, while an additional 10 percent got medication at both private pharmacy and public hospital. Only 30 percent of patients got medicines solely from public hospitals.

The disadvantage cited above is also offset by a final tally of private patients interviewed. Fifty-eight percent of patients were interviewed at a public facility. Thirty-one percent were interviewed at a private doctor's office and 8 percent were interviewed at both locations. The latter group needed to verify some of their expenses. The other 3 percent were interviewed at home.

The first major problem encountered was the difficulty in locating the addresses of patients. Patients with no telephone numbers (probably the most indigent) were initially excluded because it was deemed to be improper to show up at an address and seek an interview on the basis of medical information provided by their doctor. Problems experienced with establishing contact with patients with telephone numbers ranged from disconnected numbers to patients changing addresses. There were several instances of addresses being difficult to locate. To overcome many of the above problems, it was later proved to be more feasible to sit at the office of a doctor, particularly a specialist, and seek interviews with patients in the waiting area.

Also proving to be problematic were the memory lapses of several aged patients, particularly those with mental illness. To rectify this, interviewers were encouraged to involve attendant relatives in the interview process; this of course may have introduced some bias to the process.

Despite these constraints, this project was highly successful and fulfilled its objectives of interviewing at least 300 patients suffering from chronic illnesses.

4. Results

4.1 Data Analysis Practitioner Survey

4.1.1 Objectives of Survey of doctors

A total of 20 private medical practitioners in the Kingston area were interviewed. Eighty-five percent of these were general practitioners and the remainder were specialists. Questions pertaining to the size of their practice, the average number of treatments administered to patients in each disease category, and their associated service charges were asked. These questions were designed to gain information about the frequency of required treatment and service costs from the standpoint of the caregiver. In the case of cancer and mental illness, the survey did not define the type of the ailment, for example lung, breast or prostate cancer, schizophrenic, manic depressive or bi- polar depression as the case may be. Such clinical differentiations will affect the pattern of treatment and the related expenditures. Further, the survey did not distinguish the severity or stage of the disease. As a result, the conclusions drawn are for general treatments and expenditure patterns.

Mean service charges

The structure of charges for health services for chronic illnesses vary according to the disease and service type. Service charges discussed relate to the applicable fees for a single visit to the practitioner. These charges should be interpreted as follows; charge per visit, per diagnostic investigation i.e. all treatments per visit.¹ Amounts provided here are in Jamaican dollars. The mean charge for an office visit fluctuated between J\$791.17 for patients suffering from cardiovascular disease and J\$925.00 for the cancer patient. Charges for diagnostic tests ranged between J\$412.50 for cerebrovascular disease, to J\$580.00 for hypertensive and cardiovascular diseases while the cost charged for treatments which included the provision of drugs, were found to be lowest for cerebrovascular disease (\$323.33) and most expensive for cancer J\$600.00 (Table 4.1). The data presented here reflect the practitioner's fee schedule for the various services without respect to the illness history of a particular patient. The data therefore are purely from a supply standpoint. These results are in keeping with those found in the Survey of Living Conditions (SLC) which show that the mean individual patient expenditure for 1996 was J\$598.30 for visits to the doctor and J\$685 for drugs. (Annex C)

¹ Note that none of these fees include inpatient charges. Some practitioners treat in their offices, especially in cases where the patient needs immediate stabilization.

Table 4.1. Mean Service charges for chronic diseases (J\$)²

Disease	Cost J\$ (J\$35= US\$1.)		
	Visits	Diagnostics	Treatments*
Diabetes	877.77	444.44	570.00
Mental Illness	826.66	Na	525.00
Cancer	925.00	500.00	600.00
Hypertension	855.55	580.00	360.00
Cardiovascular disease	791.17	580.00	412.50
Cerebrovascular disease	802.77	412.50	323.33

* - treatment includes drugs and nursing care
na- not available

Mean number of visits

Holding severity, stage and type constant, this survey of physicians reported that patients with chronic diseases require, an average of three (3) office visits and two (2) diagnostic tests over a six month period to diagnose and treat their conditions. The survey also distinguished treatments as a category which includes drugs and medicine and nursing care. The mean number required was approximately two (2) for most diseases, however, for mental illness, as many as 15 treatments were reported as the average over the six month period (Table 4.2).³ We can gain a better understanding of the impact of these service charges on the individual by focusing on specific diseases and assess the expenditure data available from the survey of patients.

Table 4.2. Mean Number of Visits Required Over the Six-Month Reference Period

Disease	Number of Contacts Required			
	Office Visit	Diagnostic Tests	Treatments	Specialized Counseling
Diabetes	3.6	2.4	2.13	NA
Mental Illness	3.3	NA	15.0	4.44
Cancer	2.6	1.5	2.75	2.5
Hypertension	3.0	1.6	2.22	NA
Cardiovascular disease	3.3	1.5	2.38	2.6
Cerebrovascular disease	2.6	1.1	2.00	2.2

This study also collected data on patient expenditure. Patients were also asked during their interviews to report on their expenditure on chronic illnesses. This patient expenditure includes fees from both the private and the public sector since the patients are accessing the services from both these sectors to treat their illnesses. The mean expenditure on hospitalization reflects the amount spent only on those who were hospitalized. Although, there is a very detailed discussion on the characteristics of the patients provided later, the data is presented here in order to compare with the doctor's fees. Figure 4.1 summarizes some of the mean expenditures.

² The data in Table 4.1 were collected by simply asking the physicians what the average costs of their services were.

³ The unit of measurement was the administration of treatments. For example, over a six-month period, a person with diabetes will require an average of two treatments (whatever type) administered to him/her.

Reported Patient Expenditure—Diabetes

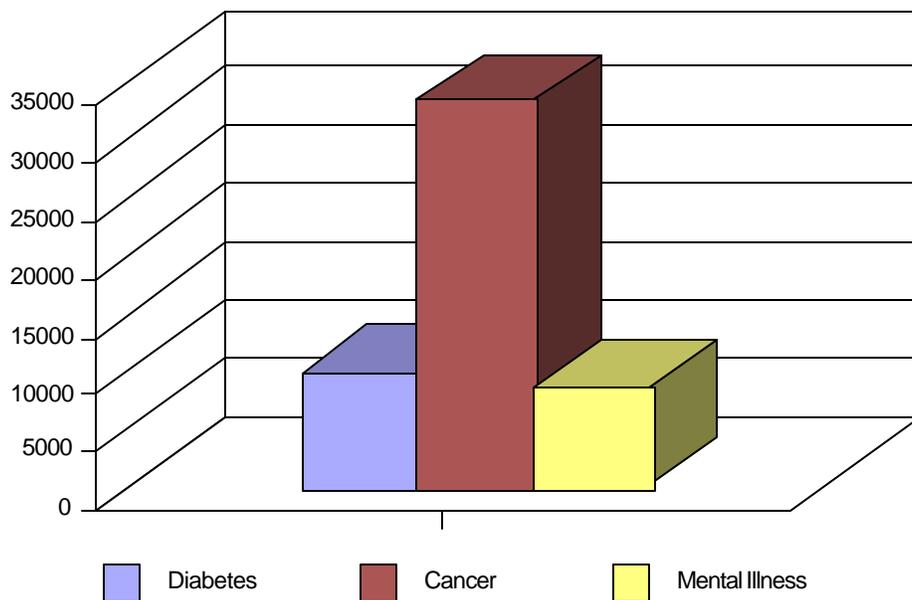
Diabetic patients reported that over a six month period, their mean expenditure on doctor's visits was J\$2255.43⁴, while expenses on diagnostics, drugs and medicine and consultations were J\$1446.35, J\$5451.75 and J\$26916.67 respectively. For the average diabetic, the costs related to consultations, followed by hospitalization (\$1706.50) were the most expensive cost items incurred. This therefore lends some support to theory that proper management is the most cost-effective approach to treating diabetes.

Expenditures on home treatments (e.g. herbal medicine) were also substantial amounting to J\$14,400 over the reference period. Doctors have confirmed that their patients do spend a lot on home treatments which are sometimes in conflict with the treatments prescribed by the doctors. In total, the mean patient expenditure incurred by diabetics over the six months was reported at J\$10,001.84 (Table 4.3). This confirms that some patients will attempt some curative home medicine for their diabetes. This means that the average diabetic can be expected to spend approximately J\$20,003.68 per annum to treat the disease.

Reported Patient Expenditure—Cancer

According to the survey, without distinguishing type or stage, patients with cancer, incurred mean annual expenses of J\$66,506.02 or J\$33,253.01 over six months on health care for their illness. Mean expenditures on specific service categories to treat cancer were as follows: Visits, J\$3,028.60, drugs and medicine, J\$16,304.28, and consultation, J\$7,805.56. The most expensive expenditure category faced by persons with cancer was again in meeting the expenses associated with in-patient hospitalization- J\$24,788.24.

Figure 4.1. Mean Patient Expenditure over the Last 6 Months



⁴ If we need to compare this data with the results in Table 4.2. The mean number of visits required by the diabetic is 3.6. Therefore, this would yield an actual patient expenditure of J\$626.50 per visit.

Reported Patient Expenditure—Mental Illness

Mean expenditure on visits over a six-month period for mental ill patients was J\$2402.22⁵ (Table 4.3). Hospitalization expenses were reported at a mean value of J\$13,523.08 over the six months, and charges for consultations- reported at J\$6,000. These were reported as significant cost items in treating mental illness. Overall, however, patients reported a mean expenditure of J\$8507.60 for the six months or J\$17015.20 per annum. Interestingly, these results reveal that the overall average expenditure spent in treating mental illness is lower than that for any of the other chronic diseases. The reported costs for psychotherapy, however, were quite high- J\$14,000. When one compares the reported expenses made in this area, as opposed to those for drugs and medicine, the picture, which emerges, seems to suggest that drug therapy is the cheaper and perhaps a more cost effective treatment than psychotherapy.

Table 4.3. Mean Patient Expenditure on Chronic Diseases Over a Six-month Reference Period (Expenditure J\$)

Category	Expenditure		
	Diabetes	Cancer	Mental Illness
Doctor's Visit	2255.43	3028.60	2402.22
Consultation (specialist)	26916.67	7805.56	6000.00
Drugs and Medicine	5451.75	16304.28	2155.74
Diagnostic Test	1446.35	5447.24	1453.08
Hospital	17062.50	24788.24	13523.08
Home treatment	14400.00	NA	NA
Specialized counseling/ Psychotherapy	NA	NA	14000
Other treatment	4033.33	21604.55	500.00
Other	1077.50	3107.73	5896.19
Mean total	10001.84	33253.01	8507.60

Table 4.4 presents a total picture of the annualized mean expenditure for the three chronic diseases. As we see, Cancer is the most expensive to treat followed by Diabetes and finally Mental illness.

Table 4.4. Annualized Results, Mean Expenditure (All Health Service Areas) Reported for Diabetes, Cancer, Mental Illness

Disease Category	Mean Annual Expenditure J\$
Diabetes	20,003.68
Cancer	66,506.02
Mental Illness	17,015.20

⁵ If we need to compare this data with the results in Table 4.2. The mean number of visits required by the mentally ill patient is 3.3. Therefore, this would yield an actual patient expenditure of J\$727.95 per visit.

4.2 Data Analysis—Patients

4.2.1 General Characteristics of the Sample Population

Three hundred and one patients were interviewed, one hundred and one suffering from Cancer and one hundred each suffering from Diabetes and Mental health. The mean age of the respondents was 50 years. Some of the results will be compared with findings from the annual Jamaica Survey of Living Conditions (SLC) which is a cross-sectional survey administered since 1988 and is designed to monitor the welfare of the Jamaican population. It is funded by the World Bank. The SLC 1991 was the only survey however which made a special effort to report chronic illnesses. The other SLCs record self-reported illnesses only without the actual illnesses being named. In SLC 1991, the highest proportion of persons suffering from chronic illnesses were 50 years old and over. Therefore, this sample population is similar to the larger one in this respect. Most patients were between 31 and 60 years old (Annex D). The majority of the sample (65.4 percent) were female in keeping with the general trend that more females than males suffer from illness. The *Jamaica Survey of Living Conditions, 1997* reports that 10.9 percent of females reported illness compared with 8.5 percent of males. Difference by gender proved to be significant in both cases.

Only 1.7 percent of the respondents had no education while about 15.9 percent had completed post secondary education. For the largest proportion of them, 33.6 percent, a secondary school was the last educational institution attended. This educational profile is in keeping with the findings of the SLC 1997 which found that about 32.9 percent of the sample were enrolled in secondary school. A large proportion (25.3 percent) were unemployed (table 4.5) while another 22.0 percent earned between J\$43,000 and J\$100,000 per annum.

Table 4.5. Percentage Distribution of Respondents by Income (per annum)

Income Category	Percent
\$42,000	7.7
\$43,000-\$100,000	22.0
\$100,001-\$300,000	16.7
\$300,001-\$500,00	3.3
\$500,001-\$1,000,000	3.3
> J\$1,000,001	.7
< J\$42,000	4.7
Unemployed	25.3
Retired	6.0
Student	2.0
No answer	8.3
Missing	.3

N= 301

N.B. the amounts are in Jamaican dollars

At the time of the survey the exchange was US\$1.00 = J\$35.

Annex D also presents the percentage distribution of the union status of the respondents in the sample population. The largest proportion (41 percent) were single with 33.3 percent being married. *The Reproductive Health Survey 1997*, with a sample of 6384 women between the ages of 15 and 49 years, found that about 24.5 percent of the women had no steady partner. The 41 percent reported in this study may appear high but one needs to bear in mind that our sample includes only patients suffering from chronic illness. The choice to become intimately involved may be influenced by health status and consequently many patients of chronic illnesses may desire to remain single (McPheeters, 1977.)

The largest proportion of the sample (35.9 percent) were unskilled workers with about 20 percent being professional. For purposes of the analysis, professionals included teachers, senior public officers, engineers, technicians; non-professional encompassed mainly clerical workers; skilled workers had artistic skills, construction e.g. carpentry, plumbing, etc while unskilled workers included casual labourers and domestic helpers; the categories of students/minor and retired are self-explanatory. In terms of the employment status, a fairly sizeable proportion of the sample of the patients was working. As Hagley (1995) explains once the chronic illness is managed, the patient can continue to live a normal life.

Based on comparison with the findings from previous studies, the basic characteristics of the sample population in this study are fairly representative of the general population. Of course, the sample includes only sufferers of chronic illnesses and therefore they would have characteristics peculiar to themselves.

4.2.2 Medical History of the Patients

As expected, the patients had suffered from their illnesses for a fairly long time with the mean age of reported length of time with illness estimated at 5.8 years (Annex E). Data Analysis by type of illness revealed that for Cancer and Diabetes, the largest proportions of patients were between 46 to 75 years (Table 4.6.). However, a large proportion of persons (77 percent) suffering from Mental Illness were aged 15 to 45 years old. This is in keeping with the findings from the ESSJ 1997, that 79 percent of reported cases of mental illness were between the ages of 15 and 54 years. Using the chi square test to investigate the hypothesis that disease is independent of age, there is evidence ($p=0.0000$), to support a strong association between disease and age.

Table 4.6. Percentage Distribution of Main illnesses by Age

	Cancer (%)	Diabetes (%)	Mental Illness (%)
0 to 14 years	4	—	—
15 to 30 years	10	2	40
31 to 45 years	17	19	37
46 to 60 years	30	40	17
61 to 75 years	29	30	5
76 to 90 years	11	9	1

N= 301

The mean number of months of impairment was 2.9 months. Approximately, 37.3 percent of the respondents were hospitalized. This is fairly high compared with the SLC, 1997 which reported only 8.5 percent of those who reported illness were hospitalized. Their mean length of stay at the hospital was 29.4 days. However, this sample includes only patients of chronic illnesses. The largest proportion of them (40.9 percent) were hospitalized for between one and two weeks. Some of them, therefore, had fairly long hospitalization periods which explains the mean escalating to 29.4 days. Only 10 per cent of the sample had a family history of illness and a fairly sizeable proportion (21.9 percent) reported having health insurance coverage, which is fairly high compared to the *Jamaica Survey of Living Conditions* which reported that 12.6 percent of the sample had obtained health insurance.

Further analysis by disease (Table 4.7) reveals that Diabetes had the longest duration (6.9 years) with Cancer having the least. However, Cancer had the highest mean days on impairment (3.3 months). Mental Illness had the longest hospitalization period of approximately one month. The ESSJ, 1997 found that the longest inpatient care was associated with mental disorders with the average length of stay for this group being 91.7 days. However, cost associated with hospitalization with Cancer prove to be highest because Cancer had the highest mean expenditure on Hospitalization(J\$24,788.24) with Mental Illness the lowest. Hospitalization with cancer may involve more expensive treatment than mental illness although the latter recorded the longest hospitalization period.

Generally, the same proportion of persons with each type of chronic illness enjoyed health insurance. The proportions are low, however and payment for treatment largely falls on the shoulders of the patient and the family and friends.

Table 4.7. Medical History of Patients by Type of Disease

	Cancer	Diabetes	Mental Illness
Mean duration of illness	2.4 years	6.9 years	6.4 years
Mean days of impairment	3.3 months.	1.8 months.	1.6 months.
Yes Hospitalized	27.6 percent	26 percent	30 percent
Mean length of hospitalization	27.6 days	28 days	33 days
Health Insurance	22 percent	21 percent	22. percent
Family History of illness	3.0 percent	16 percent	10 percent

N=301

4.2.3 Medical Indigence or At-risk for Medical Indigence

It is argued in this study that medical indigence or at risk-for-medical indigence is not to be associated *only* with low income and that the nature and treatment of chronic illness may place *any* individual in *any* income group at risk for medical indigence. An attempt is made here to prove that the Ministry of Health’s definition as discussed in Chapter 2 is too restrictive and does not take into account the fact that the frequency and severity of a chronic illness may place *anyone* at the medical indigent level. To determine the medical indigent and/or the at risk group for medical indigence, the following question was asked, “*Is your illness causing you any financial difficulties?*”

Of all the respondents, 59.1 percent of the total sample answered “yes” to the above question. In Table 4.8 we note that the illness with the largest proportion of medically indigent or at risk-for-

medical indigence individuals (67 percent) were cancer patients with mental illness having the smallest proportion (51 percent). This is not surprising because cancer had the highest mean patient expenditure (\$33,253.01). However, there seems to be no statistically significant association between main illness and financial difficulty due to illness (chi-square test statistics (p=0.10275).

Table 4.8. Percentage Distribution of Those At Risk of Medical Indigence by Illness

Illness	Yes (causing financial problems) Percent
Cancer	67.0
Diabetes	57.0
Mental Illness	51.0
Total	59.1

N=301

Data analysis by income and medically indigence or at risk-for-medical indigence revealed that for all income groups the percentage of individuals having financial difficulty was greater than the proportion not having any difficulty (table 4.9). The hypothesis that all proportions were equal, that is there is no association between an individual's income and illness causing financial problems was tested. Using the chi-squared test statistic, a significant (p=0.00106) association between income and illness causing financial problems was obtained. The regression analyses provided later in this section will determine the actual direction of the influence of income on the probability of being in a state of medical indigence.

Table 4.9. Percentage Distribution of Medically Indigent Respondents by Income

Income Category per annum	Percent
\$42,000 to J\$100,000	61.8
\$100,001 to J\$300,000	62.0
\$300,001 to J\$500,000	20.0
\$500,001 to J\$1,000,000	20.0
>\$1,000.000	—
<\$42,000	78.0
Unemployed	61.8
Retired	72.2
Student	50.0
No answer	53.8

N= 301

N.B. the amounts are in Jamaican dollars

At the time of the survey the exchange was US\$1.00 = J\$35.00

Annex F revealed that a larger proportion of females were medically indigent or at risk for medical indigence. All age groups appear to be at risk-for-medical indigence, with the age group 0 to 14 years reporting the highest levels of risk. Since this group is among the household's dependents, do not earn income, and therefore, cannot themselves encounter financial difficulties, this result should be interpreted in terms of a deepening of the household's dependency ratio.

The lowest levels of education also seem to be more at risk for medical indigence while widowed and divorced persons reported higher levels of risk. The possession of savings did not necessarily protect one from being medically indigent or at risk for medical indigence because the 41.6 percent of those who were experiencing financial difficulty had savings. In fact, one would suspect that current levels of savings are being used as a buffer.

Twenty-one percent of the medically indigent had foregone an aspect of their health care because of medical indigence. The health care foregone included doctor's visit, medication, treatment, diagnostic test (Table 4.10).

Table 4.10. Percentage Distribution of Health Care Foregone Because of Medical Indigence

Type of Health Care Foregone	Percent
Doctor's visit	13.5
Medication/Treatment	70.3
Doctor and Medicine	5.4
Diagnostic Test	10.8

N=37

We can attempt to compute a rate of risk for medical indigence. 59 percent of those interviewed claimed that they were experiencing financial problems and 21 percent had on at least one occasion foregone treatment because of financial difficulties. Therefore, the rate of risk of medical indigence in the sample was 12 percent (0.59 by(*) 0.21).

Generally, there was a high level of compliance with at least 95 percent of the respondents answering "yes" to the following questions:

- > When the doctor *last* prescribed medicine/treatment, did you take the necessary medicine/treatment immediately as prescribed or advised?
- > Did you take the medicine/treatment for the full length of time?

For those who did not take the medicine for the full length of time (5 percent), the main reason given was financial difficulties (Table 4.11). Therefore medical indigence or at risk-for-medical indigence affects a patient compliance (Lawrence, 1996)

Table 4.11. Percentage Distribution of Reasons Why Respondents Are Not Taking Medicine/Treatment

	Percent
Financial Difficulties	32.0
Felt Better	20.0
Thought it was not necessary	28.0
Side Effects	8.0
Tired of taking it	12.0

N=25

When compliance by disease type was analyzed, Mental Illness had the lowest compliance (93 percent) and the smallest proportion of persons complaining about financial difficulty. Other reasons given by the mentally ill patients for not taking the treatment as prescribed were: felt better, 17.6 percent; not necessary 35.3 percent; side effects, 11.8 percent and tired of taking it, 11.8 percent. A very small proportion of patients shared medicine (Table 4.12)

Table 4.12. Patients' Compliance with Treatment, by Disease Type

	Cancer	Diabetes	Mental Illness
Patient took the necessary medicine as prescribed immediately	96.0	98.0	93.0
Patient took the necessary medicine as prescribed for the full length of time	94.1	98.0	85.0
Patient did not take medicine as prescribed because of financial difficulties	50.0	50.0	23.5
Patient shared medicine with other family members	—	1.0	2.0

N=301

4.2.3.1 Factors Influencing Medical Indigence or At-risk for Medical Indigence

Logistic Regression was employed to examine the statistical influence of some variables e.g. age, income and marital status on the state of medical indigence or at-risk-for medical indigence (See Appendix A for brief description of the method). The analysis was conducted using a Logit model (Logistic regression). The response variable was the probability of a person being medically indigent.

One should determine beforehand whether the individuals were correctly classified by comparing the predicted and the observed outcomes. This can be done using a classification table. Overall 68.09 percent of the individuals were correctly classified (Table 4.13). This fairly high percentage indicates that one may proceed with further analyses.

Table 4.13. Classification Table for Question “ Is your illness causing you any financial problems?”

	Predicted (No)	Predicted (Yes)	Percent Correct
Observed (No)	40	18	68.97 percent
Observed (Yes)	20	41	67.21 percent

Overall 68.09 percent

Three regression analyses were carried out in order to compare results and determine which variables had any significant influence on the state of medical indigence or the possibility of being at risk for medical indigence.

Regression one (general model): all the variables (1) income, (2) period (full-time/part-time employment) (3) education (4) age ; where the ages are categorized (5) union status (6) working.

Regression two: The same as regression one with age remaining in its initial continuous state and disease included, and Diabetes serving as the reference group.

Regression Three: (with only significant predictors at 5 percent level) : education and income.

General Model with all the variables included

In regression one, the categorical variables were coded (as dummy variables) such that the coefficients for each variable represent the comparison of each category with a reference category (Annex H). The coefficients for income, education, age and some levels of union status were negative which implies that compared to the reference category the log odds of the other level decreased the likelihood of medical indigence.

For income reference group of <\$42, 000 per annum, the other categories are associated with decreased log odds of medical indigence (Annex H. Medical indigence seems to decrease with age and education. If one is married, divorced or have a visiting relationship one is less likely to become medically indigent when compared to a single person. This may be because one may still be receiving some financial support from the partner even if you are divorced. Widows when compared to single individuals tend to be more likely to become medically indigent.

The positive coefficient for period of employment (period) and employment (work) indicate that when full time, seasonal/temporary and self employed individuals were compared to part-time workers the log odds of medical indigence increase with all three categories but most with full time workers. Working individuals were found to be more likely to become medically indigent than individuals who were not working. Russell, (1996:p. 219) has underscored the great difficulty that persons may encounter on paying for health services:

“Families do on occasion encounter great difficulty in paying for health services... The money used to pay for health care may otherwise be used for food, agricultural development or education”

To determine “the goodness of fit” for the model, the quasi R² was calculated (See appendix A for more details on the calculation). The quasi R² was estimated at .54.

From regression two, we learn that for disease the presence of cancer would increase the likelihood of being medically indigent when compared to diabetes(Annex I). For mental illness the likelihood is decreased. This validates our earlier findings from the doctors’ survey that Cancer was the most expensive disease to treat. In this analysis when continuous age was included, it was found that with each year increase in age the likelihood of being medically indigence is decreased. The quasi R² was estimated at .48.

Regression three: model with only significant predictors (at 5% significance level)

Table 4.14. Classification Table for Question “ Is your illness causing you any financial problems?”

	Predicted (No)	Predicted (Yes)	Percent Correct
Observed (No)	33	41	44.59%
Observed (Yes)	23	76	76.77%

Overall 63.01 percent

Overall 63.01 percent of the individuals were correctly classified (Table 4.14). The significant predictors of medical indigence were education and income. Basically as your education level and income increased the less likely one is to become medically indigent (Annex J). The quasi R^2 was estimated at 0.52

From the above analyses, it appears that regression one provided the best model to examine the factors which influence medical indigence or at risk for medical indigence.

Analysing the probability of foregoing treatment

A fourth regression analysis was carried out to examine another important issue which has a direct impact on the health of an individual . In order to examine the likelihood of foregoing medicine when experiencing financial difficulty, the subset of all individuals who had indicated that they were having financial difficulty was chosen. The independent variable was “foregoing treatment”. The probability of foregoing treatment given your illness is causing financial difficulty was modeled using logistic regression.

Table 4.15. Classification Table for the Question; “Over the last six months, did you forego or abandon any required treatment because you could not pay for it?”

	Predicted (No)	Predicted (Yes)	Percent Correct
Observed (No)	45	1	97.83%
Observed (Yes)	8	8	50.0%

Regression four: The same variables used in regression number one were used i.e. age, education, income, period, type of illness, union status. Overall 85.4 percent of the individuals were correctly classified (Table 4.15). None of the predictors of abandoning treatment, given that one is having financial difficulty were statistically significant. However, examining the direction of the relationship, one concluded that:

- > Older individuals compared to the younger category (0–30 years) were less likely to forego treatment.
- > The more educated individuals were more likely than those having only primary education.
- > Full-time workers compared to part-time workers were less likely to forego treatment.
- > Those having cancer and mental illness, compared to diabetes were less likely to abandon treatment
- > Married and widowed individuals were more likely to forego treatment compared to single individuals

The quasi R^2 was estimated at 0.42

4.2.4 Discussion

From the first three regression analyses, we may ascertain that those at risk for medical indigence were (1) those who earned less than J\$42,000 per annum (can be defined as poor) (2) younger persons (3) less educated persons (4) single persons (5) working persons (6) full time

workers (7) those suffering from cancer. As we see, the category “medical indigence” includes more than the official poor. Those who are working can find themselves in medical indigence once they are forced to pay the high costs associated with their chronic illnesses. They are more at risk because the health services will demand more from them.

4.2.5 Coping Strategies

There was a heavy dependence on family in time of financial distress. (Table 4.16) The second important coping strategy was “hoping for improvement”. Another 28 percent budgeted or borrowed to meet their needs. These coping strategies are similar to those revealed in the study done by Henry-Lee and Chevannes (1999).

Table 4.16. Percentage Distribution of Coping Strategies by Type

Type	Percent
Insurance	2.3
Budget	14
Borrow	14.8
Family assistance	40.3
Hang on/hoping to cope	24.3
Savings	3.8

N= 176

Annex C0 shows that those aged 15 to 45 years used all the coping strategies mentioned. Insurance was popular from age 15 to 30 and increased in importance between 61 and 75. Thirty-three percent of those who saved were between the ages of 31 and 45. Another 33 percent were aged between 76 to 90 years

Married persons used all the coping strategies when faced with financial difficulties. This is not surprising since there would be more options open to them. Widowed persons and divorced persons did not save much while it would appear that there was a heavy dependence on health insurance among the divorced individuals (Gruber, 1996).

Those who had none or little formal education did not employ many coping strategies. This may beg the question what strategies they would use at the point of desperation. As Strachan (1996) claims the poor will employ illegal means to meet their financial deficit. Primary school, secondary and post secondary graduates used all strategies available. Those who worked were more flexible with the kinds of coping strategies they used while the retired did a little borrowing.

Those who used “other” coping strategies were all aged 15 years old, lived in common-law union, with the highest level of education attained at a secondary school and yet they were all incapable of working.

4.3 Estimating the cost of financing services for the vulnerable group.

We will focus on estimating the total expenditure requirements needed to provide primary health care services in an ambulatory setting for the three chronic diseases. Data on prevalence rates for these diseases, as well as the associated service costs are the necessary inputs to provide such an estimation. While we have information on the mean private cost, there are no current data on the prevalence rates. Data on the number of curative visits for these diseases are, however, available. In the absence of prevalence statistics, we will use this as a proxy. Table 5.1 shows the number of curative visits for 1997 along with the mean service charges reported in the practitioners' survey. Using this combined information allows us to estimate the total annual expenditure requirements associated with primary care visits for these diseases. No data were however, available for neoplasms. These results show that approximately J\$20.35M will be required per annum to finance the curative aspects associated with diabetes and mental illnesses if private charges apply. This is a general guideline which can be used to inform the expenditure requirements of the National Health Insurance System. However, this estimation⁶ only covers the primary health services and does not include the casualty and outpatient departments.

Table 5.1. Number of Curative Visits, Mean Service Cost per Visit, Total Financing Requirements

Category	No. of Curative Visits to Primary Health Facilities 1997	Mean Cost per Doctor Visit J\$	Total Financing Required J\$M
Diabetes Mellitus	61752	877.77	5.42
Psychiatric Disorders	18070	826.66	14.93

Source: Survey calculations using *Economic and Social Survey, 1997*

⁶ Please note that this is *only* an estimate and the following are implied; a) that non-consultation costs are not included in the estimation and b) people may in fact consume more if price barriers are removed.

5. Summary and Policy Recommendations

5.1 Summary of Findings

This study had four main objectives: (1) To identify the illness patterns and expenditure profiles of the patients with three main chronic illnesses; cancer, diabetes and mental illness (2) Use the data to estimate the cost of treating and covering these diseases and (3) To examine the level of medical indigence or at risk-of-medical indigence experienced by the persons surveyed (4) To examine the factors associated with medical indigence or at risk-of-medical indigence

The survey of the doctors revealed the following: (1) Visits to the doctor proved to be more expensive than diagnostics and treatment (2) An average of three visits and two diagnostic tests were required for patients of diabetes, cancer and mental illness (3) Mental illness required at least 15 treatments (4) For diabetes, costs related to consultations, followed by those related to hospitalization were the most expensive costs incurred (5) The most expensive costs to cancer was in-patient hospitalization (6) For the patients of mental illness the most expensive costs were those associated with consultation (7) Cancer was the most expensive to treat.

Some of the main findings from the survey of the patients were: (1) More females suffered from chronic illness than males (2) Older persons suffered from cancer and diabetes but quite a significant number of persons with mental illness were aged between 15 to 45 years (3) A significant number (25.3 percent) were unemployed (4) Although mental illness incurred the longest duration for hospitalization but cancer incurred the highest costs for hospitalization. (5) The patients used several means to cope with the difficulties facing them because of their illnesses. There was a heavy dependence on family in time of financial distress. The second important coping strategy was “hoping for improvement”. Other strategies included “budgeting” or “borrowing” to meet their health needs.

An important aspect of this study was to contribute to the debate on “*who constitutes the medical indigent?*”. There remain some ambiguity with respect to the definitional scope of this group. There is an emphasis in all definitions in the literature (including that provided by MOH) on the unemployed, the poor, low income and those with contraction of special medical or health conditions. This study shows that the emphasis should in fact be placed on the illness and not income and that it is because of the frequency, and severity and treatment of a disease, a person can acquire the status of medical indigence or be at risk for medical indigence.

Using regression analysis, we attempt to examine the socioeconomic variables which would influence the state of medical indigence. Those who earned less than J\$42,00, were younger, less educated, single persons, working persons and those suffering from cancer were found to be more likely to become medically indigent or to be placed at risk-for-medical indigence. We conclude from these findings that one should not equate medical indigence with poverty and that given the costly nature of chronic illnesses, working persons are more likely than their non-working counterparts (*who may already be there*) to move from a status of non-medical indigence to one of medical indigence. Working persons are more likely to be at-risk of medical indigence because they cannot benefit from those programmes for the poor. Non-working people are the ones who will benefit from these programmes.

None of the predictors of abandoning treatment, given that one is having financial difficulty were statistically significant. However, examining the direction of the relationship, one concluded that ; (1)Older individuals compared to the younger category (0- 30 years) were less likely to forego treatment. (2) The more educated individuals were more likely than those having only primary education.(3) Full time workers compared to part-time workers were less likely to forego illness (4) Those having cancer and mental illness, compared to diabetes were less likely to abandon treatment (5) Married and widowed individuals were more likely to forego treatment compared to single individuals.

Estimation of costs of the treatment of the disease revealed that at least J\$20.35M will have to be allocated to the costs of curative care for Diabetes and Mental Health.

5.2 Policy Recommendations

Given its present economic problems, Jamaica lacks the financial resources to provide all the potentially useful health services to all. The best solution therefore seems to be a National Insurance Scheme (with premiums being paid by employed persons), although politically, the Government does not present this as the main reason for proposing a National Health Insurance Scheme.

We laud the Government's efforts at attempting to provide medically essential services to a large proportion of persons. However, we believe that some of the reservations expressed by the Medical Association of Jamaica are deserving of attention. As the study shows, hospitalization fees proved to be the highest expenditure for Chronically ill patients. However, the NHIP plans to cover only specified services associated with hospital inpatient care (surgery, drugs, room and board). They also plan to cover (1) prescribed drugs from ambulatory visits and (2) prescribed diagnostic services.

As this study shows the consultation fees proved to be the second highest expenditure of the sample of chronic patients and therefore some more provision needs to be made to cover the costs of consultations. We agree with Leese (1995) that the insurance system should be tailored to allow general practitioner services to be included. Long term costs associated with the treatment of chronic illnesses can be reduced if more emphasis is placed on preventive health care.

We believe that this study adequately shows that not only the poor or low income groups are at risk for medical indigence or at risk for medical indigence. In fact given the epidemiological transition taking place in Jamaica, (*and even more so as Jamaica's severe economic situation deepens*), more persons irrespective of their income will be at risk-for-medical indigence. Chronic illnesses are very expensive to treat and therefore the NHIP in its proposed state cannot adequately provide care for the sufferers of these diseases. As is known, early detection can go a far way in reducing costs incurred treating the diseases in their advanced stages. Therefore, more emphasis should be placed on the prognosis stage and not after the patient has been diagnosed with a chronic illness.

In a broad sense, the fundamental challenge facing the health sector is the sustainability and sharing of these health gains given current and projected financial constraints. Another recently debated concept is the "basic health care package" or core benefits to be covered by health insurance. Inequities may widen as the government implements its national health insurance. These newly developing health insurance systems may want to limit the scope of medical care benefits offered in the initial stage. However, these systems will have to leave sufficient room for the dynamics of change in medical science, leaving scope for patients to access and utilize new and diagnostic and therapeutic measures, if they are found to be more cost effective (Ron et. Al, 1990). They must also

be tailored to reduce over-utilization but not too constricting so as to deny appropriate levels of coverage by persons with chronic diseases.

Obviously, we do not expect the NHIP to cover all the possible candidates for medical indigence but we do believe the proposed plan in its current state will not cover even half of the expenses associated with the treatment of chronic illnesses. The proposed NHIP in its present format bears little relevance to the current epidemiological transition that the country is experiencing. Mental illness is also facing increasing problems. We believe that the current move to decrease by half the in-patients at the main psychiatric hospital, Bellevue Hospital may be detrimental in the long run if adequate rehabilitative services are not put in place for the patients who will be sent home. Some of our policy recommendations include 1. Increase the catastrophic fund to more than J\$3,000,000.00. 2. Consider the inclusion of consultation visits in the NHIP, since these represent the second highest amount in health care for the patients of chronic illnesses 3. A very effective and continuous assessment needs to be done to target the medically indigent. 4. Constant evaluation of the programme needs to be completed. 5. At least J\$20.35M will have to be allocated to the costs of curative care for Diabetes and Mental Health.

Annex A. Classification of Institutions of the National Health System Serving the Poor

Central Government	National Private non-financial co-operations	Local Government	Social Security	Non Profit Institutions Serving Households
Ministry of Health				
National Poverty Eradication Programme NPEP			National Insurance	Jamaica Cancer Society
Food Stamp Programme				Heart Foundation of Jamaica
Poor Relief Programme				Project Hope
Central Relief Emergency Services				Jamaica Aids Support
Rehabilitation Grant				Diabetics Association of Jamaica
Incapacity Allowance				Red Cross
Drugs for the Elderly				
Programme for Persons with Disabilities				
Drug Windows				

Source: Economic and Social Survey of Jamaica, 1989- 1997

Annex B. Schedule of Persons/ Service Areas Exempted from Fees at Ministry of Health's Facilities

Family Planning Related Visits

Immunization

Antenatal visits

Post Natal and Nutrition clinic

Child Health clinic visits

Food Aid

Police

Source: MOH, HIU.

Ex-servicemen

Indigent—poor relief recipients

Persons whose only source of income is the National Insurance Pension, or persons whose income is less than the minimum wage

Firemen

Prisoners

Inmates of infirmaries

Institutionalized persons

Annex C. Mean Patient Expenditure on Health Care in Public and Private Facilities in the Four-week Reference Period

Year	Visits				Drugs			
	Private		Public		Private		Public	
	Nominal	Real	Nominal	Real	Nominal	Real	Nominal	Real
	\$	1990 J\$						
1989	57	74	11	14	48	62	5	6
1990	72	72	11	11	43	43	4	4
1991	82	44	11	6	95	51	8	4
1992	167	63	14	5	234	88	17	6
1993	298	85	115	33	331	94	131	37
1994	461	109	91	21	417	98	163	38
1995	496	98.8	130	26	509	101	234	47
1996	598	103.6	148	26	685	119	176	31

Source: PIOJ, SLC 1996

Annex D. Percentage Distribution of Respondents by Age, Highest Academic Institution Attended, Sex, Union or Marital Status, Employment Status

Category	Percentage Distribution
Age	
0- 14	1.3
14-30	17.3
31- 45	24.3
46-60	28.9
61-75	21.3
75-90	7.0
Sex	
Male	34.6
Female	65.4
Highest Academic Institution Attended	
None	1.7
Primary	22.6
All-age school (grade 1 to 6)	16.3
All-age school (grade 7 to 9)	9.6
Secondary	33.6
Post Secondary	15.9
Don't know/cannot remember	0.3
Union or marital status	
Married	33.3
Common Law	10.0
Visiting	3.7
Single	41.0
Widow/widower	8.7
Divorced	3.3

Category	Percentage Distribution
Main Occupation	
Professional	20.5
Non-Professional	13.4
Skilled	26.2
Unskilled	35.9
Students/minor	3.1
Retired	0.5
Employment Status	
Working	44.3
With a job but not working	1.7
Looking for a work	4.7
Keeping house	3.3
At school	2.3
Incapable of working	10.0
Not working	29.0
Retired	0.3

N= 301

Annex E. Medical History of the Respondents

	Percent
Length of time diagnosed with illness:	
<6 mths.	15.7
6 mths. < 1 yr	11.7
1 < 3 yrs.	18.3
3 < 5 yrs.	13.0
5 < 10 yrs.	18.7
> 10 yrs.	22.7
Mean	5.8 years
Days of impairment	
None	66.0
< 1 week	6.0
1-2 weeks	5.3
< 1 month	7.3
1-3 months	7.7
3-6 months	7.7
Mean	2.9 months
Hospitalization	
Yes hospitalized	37.3
Length of time hospitalized	
< 1 week	21.8
1-2 weeks	40.9
< 1 month	22.7
1-3 months	11.8
3-6 months	0.9
more than 6 months	1.8
mean length of stay in hospital	29.4 days
Health Insurance	21.9
Family History of illness	10.0

N=301

Annex F. Percentage Distribution of Medically Indigent Respondents by Age, Highest Academic Institution Attended, Sex, Union or Marital Status, Employment Status

Category	Percentage Distribution
Age	
0- 14	75
14-30	55.8
31- 45	56.2
46-60	59.8
61-75	62.5
75-90	61.9
Sex	
Male	56.1
Female	60.4
Highest Academic Institution Attended	
None	40.0
Primary	69.1
All-age school (grade 1 to 6)	71.4
All-age school (grade 7 to 9)	72.4
Secondary	52.5
Post Secondary	41.7
Union or marital status	
Married	53.0
Common Law	53.3
Visiting	63.6
Single	62.6
Widow/widower	69.2
Divorced	70.0

Category	Percentage Distribution
Main Occupation	
Professional	
Non-Professional	40.0
Skilled	66.7
Unskilled	60.8
Students/minor	67.1
Retired	50.0
Treatment Foregone	21
Have savings	41.6
Employment Status	
Working	51.9
With a job but not working	60.0
Looking for a work	57.1
Keeping house	50.0
At school	57.1
Incapable of working	66.7
Not working	67.8
Retired	69.2

N= 176

Annex G. Variables Used in the Regression Analyses and their Reference Groups

Question One

Age1

0 = other

1 = 31-60

Age2

0=other

1= 61-90

Reference group = 0-30

Question 3

Union1

0 = other

1 = married/Common law

Union2

0 = other

1 = Widow/Widower

Union3

0 = other

1 = Divorced

Union4

0 = other

1 = Visiting

Reference group = Single

Question 5

Period1

0 = other

Question 2

Educ1

0 = other

1 = All-age

Educ2

0 = other

1 = Secondary

Educ3

0 = other

1 = Post secondary

Reference group = Primary

Question 4

Work1

0 = other

1 = Working

Work2

0 = other

1 = Looking work

Work3

0 = other

1 = Keeping house

Work4

0 = other

1 = At school

Work5

0 = other

1 = Incapable of working

Work6

1 = full time

0 = other

Period2

1 = retired

0 = other

Reference Group = not working

1 = seasonal/temporary

Period3

0 = other

1 = self employed

Reference group = part time

Question 16

Question 22

Income1

0 = other

Sick 1

1 = 42,000 –100,000

0=other

1=Cancer

Income2

0 = other

Sick 2

1 = 101 – 500

0=other

Income3

1=mental illness

0 = other 1 = > 500:reference group<\$42,000

Reference group=Diabetes

Annex H. Results of Regression Number One

----- Variables in the Equation -----

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
INCOME1(1)	-1.6935	1.3294	1.6228	1	.2027	.0000	.1839
INCOME2(1)	-1.0873	1.3355	.6628	1	.4156	.0000	.3371
INCOME3(1)	-3.0142	1.6123	3.4949	1	.0616	-.0952	.0491
PERIOD1(1)	.9601	.6302	2.3208	1	.1277	.0441	2.6118
PERIOD2(1)	.5791	1.3620	.1808	1	.6707	.0000	1.7845
PERIOD3(1)	.4225	.7728	.2989	1	.5846	.0000	1.5257
EDUC1(1)	-1.9833	.9471	4.3852	1	.0363	-.1203	.1376
EDUC2(1)	-3.0816	.9233	11.1395	1	.0008	-.2354	.0459
EDUC3(1)	-2.8753	.9547	9.0695	1	.0026	-.2071	.0564
AGE1(1)	-.3535	.6263	.3185	1	.5725	.0000	.7023
AGE2(1)	-3.5571	1.8842	3.5641	1	.0590	-.0974	.0285
UNION1(1)	-.5809	.4984	1.3585	1	.2438	.0000	.5594
UNION2(1)	.9472	1.9416	.2380	1	.6257	.0000	2.5784
UNION3(1)	-1.0369	1.4372	.5205	1	.4706	.0000	.3546
UNION4(1)	-.7706	1.0198	.5710	1	.4499	.0000	.4628
WORK1(1)	.9732	1.6128	.3641	1	.5462	.0000	2.6464
Constant	-4.9852	2.5289	3.8859	1	.0487		

Annex I. Results of Regression Number Two

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
Q1(age)	-.5276	.3343	2.4910	1	.1145	-.0546	.5900
EDUC1(1)	-1.7212	.8851	3.7814	1	.0518	-.1039	.1789
EDUC2(1)	-2.8699	.8866	10.4767	1	.0012	-.2267	.0567
EDUC3(1)	-2.5884	.8976	8.3164	1	.0039	-.1957	.0751
INCOME1(1)	-1.2820	1.3695	.8764	1	.3492	.0000	.2775
INCOME2(1)	-.8092	1.3867	.3405	1	.5595	.0000	.4452
INCOME3(1)	-2.9788	1.7350	2.9475	1	.0860	-.0758	.0509
PERIOD1(1)	1.1570	.6636	3.0397	1	.0813	.0794	3.1803
PERIOD2(1)	.3809	1.4257	.0714	1	.7893	.0000	1.4637
PERIOD3(1)	.2900	.7645	.1439	1	.7044	.0000	1.3364
UNION1(1)	-.8219	.5275	2.4284	1	.1192	-.0510	.4396
UNION2(1)	.4455	1.7511	.0647	1	.7992	.0000	1.5613
UNION3(1)	-.4870	1.4460	.1134	1	.7363	.0000	.6145
UNION4(1)	-.8684	1.0044	.7474	1	.3873	.0000	.4196
WORK1(1)	.6560	1.6437	.1593	1	.6898	.0000	1.9270
SICK1(1)	.8429	.6193	1.8524	1	.1735	.0000	2.3231
SICK2(1)	-.2340	.6037	.1503	1	.6982	.0000	.7913
Constant	-1.3709	2.6171	.2744	1	.6004		

Annex J. Results of Regression Number 3

Variables in the Equation -----

Variable	B	S.E.	Wald	df	Sig.	R	Exp(B)
INCOME1(1)	-.7549	.7030	1.1531	1	.2829	.0000	.4700
INCOME2(1)	-.8450	.7272	1.3501	1	.2453	.0000	.4296
INCOME3(1)	-2.5089	1.0611	5.5906	1	.0181	-.1233	.0814
EDUC1(1)	-.2892	.5159	.3142	1	.5751	.0000	.7489
EDUC2(1)	-1.0212	.4951	4.2548	1	.0391	-.0977	.3602
EDUC3(1)	-1.2173	.5437	5.0129	1	.0252	-.1129	.296
Constant	-1.5042	.6452	5.4356	1	0.197		

Annex K. Results from Regression Number Four

Variable	B	S.E	WALD	DF	SIG	R	EXP. (B)
AGE1	-1.8143	1.1649	2.4255	1	.1194	-.0775	.1630
AGE2	-4.6683	60.5173	.0060	1	.9385	.0000	.0094
EDUC1	1.8728	1.2706	2.1724	1	.1405	.0493	6.5063
EDUC2	.0077	1.6336	.0000	1	.9962	.0000	1.0078
EDUC3	.8531	1.4999	.3235	1	.5695	.0000	2.3470
INCOME1	3.6279	2.9642	1.4979	1	.2210	.0000	37.6319
INCOME2	1.3445	2.7923	.2319	1	.6301	.0000	3.8365
INCOME3	5.0802	3.8510	1.7403	1	.1871	.0000	160.8101
PERIOD1	-.0506	1.3058	.0015	1	.9691	.0000	.9507
PERIOD2	3.6888	2.5848	2.0366	1	.1536	.0227	39.9958
PERIOD3	.3785	1.1276	.1127	1	.7371	.0000	1.4601
SICK1	1.9118	1.1914	2.5749	1	.1086	-.0901	.1478
SICK2	-.5748	1.2542	.2101	1	.6467	.0000	.5628
UNION1	1.3310	.9835	1.8314	1	.1760	.0000	3.7848
UNION2	7.8986	60.4503	.0171	1	.8960	.0000	2693.472
UNION3	-9.4577	38.4516	.0605	1	.8057	.0000	.0001
UNION4	4.3528	2.3770	3.3532	1	.0671	.1382	77.6925
Constant	-3.3319	3.1625	1.1100	1	.2921		

Annex L. Percentage Distribution of Coping Strategies by Age, Highest Academic Institution Attended, Sex, Marital Status and Employment Status

	Insurance Policy	Budget	Borrow Money	Family Assistance	Hang on/ Hope	Savings	Other
Age							
0 to 14	-	—	3.8	---	4.7	-	--
15 to 30	25	6	7.7	16.9	18.6	16.7	100.0
31 to 45	25	28	30.8	21.1	16.3	33.3	--
46 to 60	—	28	34.6	28.2	32.6	16.7	--
61 to 75	50	24	15.4	23.9	25.6	--	--
76 to 90	--	4	7.7	9.9	2.3	33.3	--
Marital Status							
Married	25.0	36	30.8	22.5	39.5	33.3	-
C/Law	-	16	15.5	5.6	4.7	16.7	100.0
Visiting	-	--	-	4.2	7.0	16.7	-
Single	-	40	50.	43.7	37.2	33.3	-
Widowed	-	4.0	-	16.9	11.6	—	-
Divorced	75	--	-	---	--	-	-
Highest Academic achievement							
None	-	-	-	1.4	2.3	-	-
Primary	25	28	34.6	19.7	30.2	50	-
All age (Gs. 1 to 6)	25	8	19.2	29.6	14.0	-	-
All Age (Gs. 7 to 9)	-	16	15.4	12.7	9.3	-	-
Secondary	25	32	19.2	31.0	30.2	33.3	100.0
Post-Secondary	25	16	11.5	5.6	16.7	14.0	-
Employment Status							
Working With a job and not	50.	52	57.7	31	30.2	66.7	-

	Insurance Policy	Budget	Borrow Money	Family Assistance	Hang on/ Hope	Savings	Other
working	-	4	-	-	2.3	16.7	-
Looking for a job	-	4	3.8	4.2	7.0	-	-
Keeping house	-	-	-	2.8	7.0	-	-
A School	-	4	3.8	-	4.7	-	-
Incapable of working	-	8	11.5	15.5	9.3	-	100.0
Not working	-	20	19.2	40.8	39.8	-	-
Retired	50.0	8	-	5.6	-	16.7	-
	-	-	3.8	-	-	-	-

N=176

Annex M. List of Formulas

Logistic Regression

Logistic regression involves modeling categorical response data whereas in normal regression the response data is continuous. The response variable is usually coded as follows:

1 = if the outcome is a success

0 = if the outcome is a failure

In SPSS the first category is usually coded as 0 (that is failure).

Distribution of the Ys

For binary data it is assumed that the Ys follow a Bernoulli distribution such that the probability function is of the form:

$F(Y_i) = p_i^{Y_i}(1-p_i)^{1-Y_i}$ where p_i is the probability of a success outcome. We also assume that p depends on some explanatory variables. So we need to find a function that relates p to a linear combination of the explanatory variables; hence the need for the logit link/function.

One cannot fit a normal regression to binary data because

- 1) The Y_i 's are not normally distributed .
- 2) Variance not constant as variance of $Y_i = p_i(1-p_i)$ is variable if $0.2 \leq p_i \leq 0.8$.
- 3) The estimated p_i may not lie in the interval (0,1) and as p_i is a probability it has to lie within this range.

Calculation of the quasi R^2

$$\text{Quasi } R^2 = 1 - \frac{\sum [Y_i - \text{anti-log}(\ln Y_i)]^2}{\sum [Y_i - \bar{Y}]^2}$$

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