



## CHAPTER II

### REVIEW OF LITERATURE

This chapter will give a descriptive overview of the Philippine demographics, the Philippine health care system and the social health insurance systems, both previous and present, and studies on geographic variation in other countries. Some literature on health inequality measurements are also included. Likewise, this chapter includes related studies on the Andersen model of health care utilization which was employed as conceptual framework of this study.

#### **1. Philippine Demographics and the Philippine Health Care System**

##### *1.1. Land and Climate*

The Philippines, the second largest archipelago in the world (after Indonesia), is a tropical country of 7,100 islands lying in the Pacific Ocean off the coast of Southeast Asia. The islands have a total area of 300,000 square kilometers. The two largest islands are Luzon in the north and Mindanao in the south. Between these islands lie a group of small to medium-sized islands called the Visayas. Of its many islands, some 880 are inhabited and 462 have an area of 2.6 square kilometers (1 square mile) or more. Manila is the capital city. Metropolitan Manila, which is made up of 12 cities and 5 municipalities, is the biggest urban center in the country.

The country is divided into regions, which are further subdivided into provinces. Municipalities and cities make up the next level of political subdivision and barangays represent the smallest political unit. At present, the Philippines is administratively grouped into 16 regions, 78 provinces, 1,525 municipalities, 82 cities, 41,939 barangays or villages.

The Philippines is mountainous with narrow strips of lowland along the coast and some broad inland plains. Tropical forests used to cover most of the country, but very large areas are now devoid of forest leading to soil erosion and flash floods. The country has an extensive coastline and many fine bays and harbors. A wide variety of tropical plants and animals can be found in its mountains, rivers and lakes and along its coastal areas. Except for a few plants, the medicinal values of these flora remain to be untapped.

The climate is hot and humid with an average temperature of 32°C. The hottest months are from March to June when temperatures may reach 38°C. The weather from November to December is pleasantly cool and dry with temperatures around 23°C. Rains and typhoons prevail from July to October. The Philippines is prone to natural disasters brought about by volcanic eruptions, earthquakes, floods and typhoons. The tropical temperature favors the existence of disease vectors and parasites.

### ***1.2. People***

Modern Filipinos are of Malay origin and descended from Indonesians and Malays who settled in the Philippines about 3000 BC. They intermixed with more recent

immigrants that include the Chinese, Indians, Spaniards and Americans, among others. The complex mix of people has created a blend of eastern and western influences that is uniquely Filipino.

In 2000, Filipinos are estimated to be about 77 million. This figure is projected to increase to 82 million in 2004, which makes the Philippines one of the world's most populous countries for its size. The population density is estimated at 251.63 people per square kilometer, but this is unevenly distributed throughout the islands. About 56% of the population lives on the island of Luzon, with the greatest concentration in Metropolitan Manila where the population density is 16,051 people per square kilometer. The least populated area is the Cordillera Administrative Region (CAR) with a population density of 75 people per square kilometer.

The population is increasing at an annual rate of 2.32% but is projected to decrease to an annual growth rate of 1.9% in 2004. About 38% of the population are under 15 years old. Those aged 65 years and over comprise the 3.5% of the population and are expected to increase to 4.3% in 2004. The population is almost equally divided between sexes with males comprising 50.4% of the total population. Women of reproductive age comprise around 23% of the population.

The Philippines is the only predominantly Christian country in Asia. The majority of Filipinos are Roman Catholics. There are at least 110 ethnolinguistic groups. The indigenous people account for about 18% (13 million) of the population. Most Filipinos

are bilingual, speaking both English and Filipino or any of the other local languages. The presence of a well-established educational system accounts for the high literacy rate of 83.8%, with females (85.9%) having a higher literacy rate than men (81.7%). In urban areas, where the people have easier access to educational facilities, including the mass media, the functional literacy rate is higher at 88.4% compared to only 79.1% in the rural areas.

Although the functional literacy rate is high, folk beliefs, misconceptions and practices detrimental to health are still rampant. Socio-cultural barriers to health are prevalent and more apparent in indigenous communities.

The family is the basic unit of Filipino society. It is usual to find extended families where the members include grandparents, parents, siblings and other relatives other than the husband, wife and children. Families are closely knit, strongly influenced by tradition and have a sense of loyalty to family and the community. The family support system is very strong, especially in times of need.

The Philippines is still predominantly rural with about 52.4% or 7,441,800 families living in rural areas. Urbanized areas are rapidly expanding and offer a wide range of economic, educational, recreational and other facilities. These attract migrants from rural communities. Settlements in remote frontier areas are also increasing. There are also “rurban” areas that are in transition to urban areas such as areas in the National Capital Region (NCR) and in the fringes of the developing metropolitan areas.

Rural-to-urban and urban-to-rural migration increase the burden of adequately providing basic social services like health care, shelter, water, sanitation and education. The congestion and pollution in urban areas are harmful to health and facilitate the transmission of many communicable diseases such as pulmonary tuberculosis and typhoid. In usually remote areas, the people's health is affected by difficult access to health services and the presence of locally endemic diseases like malaria, filariasis and schistosomiasis.

### ***1.3. Government***

Under the constitution, the Philippines is a democratic and republican state with three branches of government—executive, legislative and judicial. The executive power is vested in the President who is elected directly by the people. The President is also the head of the state and commander-in-chief of the armed forces. The cabinet members assist the President in executing the laws, policies and programs of the government.

The lawmaking power is vested in a bicameral congress composed of the Senate and the House of Representatives. The Senate has 24 senators directly elected nationwide by the people. The House of Representatives has 250 members elected by congressional districts and by party list system. Judicial power is vested in the Supreme Court and a system of several lower courts. The Supreme Court is composed of the Chief Justice and 14 associate justices.

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unsteady overall economic growth, the inheritance of a historic policy bias in favor of capital-intensive, inward oriented development, continued uneven distribution of human capital development and limited success of “safety net” programs.

Recently, the Philippine economic growth has been spurred by the service sector especially in telecommunications and health. The economic growth is partly due to the deployment of Filipino workers in other countries. The overseas earnings of Filipino workers sustained the economy even during low external and internal investment periods. The major trading partners of the Philippines are the United States, Japan, the European Union and its ASEAN neighbors. However, the country is still highly dependent on imported health care products like drugs, vaccines, equipment and medical supplies.

### *1.5. Health status*

On the whole, modest gains have been achieved in terms of improving the Filipinos' health. The average life expectancy at birth rose from an average of 61.6 years in 1980 to 64.6 in 1990 and finally to 68.6 years in 1999. Life expectancy of females (71.28 in 1999) always exceed that of males (66.03 in 1999).

Large variations in the average life expectancy occur among the different regions of the country. Central Luzon and Southern Tagalog have the highest life expectancy while the Autonomous Region of Muslim Mindanao (ARMM) and Eastern Visayas have the lowest. The life expectancy is forecasted to continue rising over the years and implies an increasing proportion of elderly in the population. With this trend comes the increase

in the occurrence of degenerative diseases and disabilities associated with an aging population.

In terms of health problems, the Philippines is in epidemiologic transition (age of receding epidemics) with a double burden of disease (Table 2.1). The country is still struggling with the control of communicable diseases, which especially afflicts the susceptible segments of the population. At the same time it must also deal with emerging lifestyle diseases and other chronic illnesses that are all brought about by the rapid urbanization of some parts of the country.

**Table 2. 1. Trend of Five Leading Causes of Mortality, 1975-1995**

<b>Rank</b>	<b>1975</b>	<b>1980</b>	<b>1985</b>	<b>1990</b>	<b>1995</b>
1	Pneumonias	Pneumonias	Pneumonias	Heart Diseases	Heart Diseases
2	Tuberculosis	Heart Diseases	Heart Diseases	Pneumonias	Diseases of the vascular system
3	Heart Diseases	Tuberculosis	Tuberculosis	Diseases of the vascular system	Pneumonias
4	Diseases of the vascular system	Diseases of the vascular system	Diseases of the vascular system	Tuberculosis	Malignant Neoplasms
5	Malignant Neoplasms	Malignant Neoplasms	Malignant Neoplasms	Malignant Neoplasms	Tuberculosis

Source: DOH

### ***1.6. Health care delivery system***

The state recognizes health as a basic human right. It protects and promotes the right to health of the people and instills health consciousness among them.

Some significant events in the country's public health care system in the past 25 years are: adoption of Primary Health Care in 1979; integration of public health and hospital services in 1983 as per Executive Order (EO) 851; reorganization of the



Department of Health (DOH) in 1987 in accordance with EO 119 and devolution of health services in 1992 to LGUs as mandated under the Local Government Code of 1991 (RA 7160).

The DOH is the lead agency in health. It maintains specialty hospitals, regional hospitals and medical centers. The DOH has a regional field office in every region. Prior to devolution, the primary responsibility of DOH was to ensure the delivery of accessible, quality services. It has since then relinquished that role to the LGUs and has figured as the lead agency for the health sector in terms of formulation and enforcement of national health policies, standards and regulation. The DOH works closely with partner agencies, NGOs and other organizations to ensure that health right is being enjoyed as a birth right of every Filipino.

With the devolution of health services to the LGUs, the provincial and district hospitals are under the provincial government while the municipal government manages the rural health units (RHUs) and barangay health stations (BHSs). Seventy two provincial governments fund and manage the provincial and district hospitals and more than 1,600 municipalities and cities independently manage and finance their respective RHUs and BHSs. The DOH regional and provincial offices provide the LGUs with technical assistance and guidance in the implementation of national policies and delivery of efficient and effective medical services. The DOH must license all health care facilities.

Public hospitals, 36 percent of all hospitals in 1998, provide slightly more than half of all the beds in the country's 1,713 hospitals. In 1997, at the primary and municipal levels, 2,405 RHUs each served about 30,000 people; the 13,096 BHS had catchment populations of around 5,300 each. Many of the facilities are in poor physical condition and lack essential equipment. The distribution of the hospital system is tilted in favor of urban areas (Flavier *et al.*, 2002).

The private sector's involvement in maintaining the people's health is enormous. This includes providing health services in clinics and hospitals, health insurance, manufacture of drugs, medicines, vaccines, medical supplies, equipment and other health and nutrition products, research and development, human resource development and other health-related services. These providers however, are also concentrated in the cities.

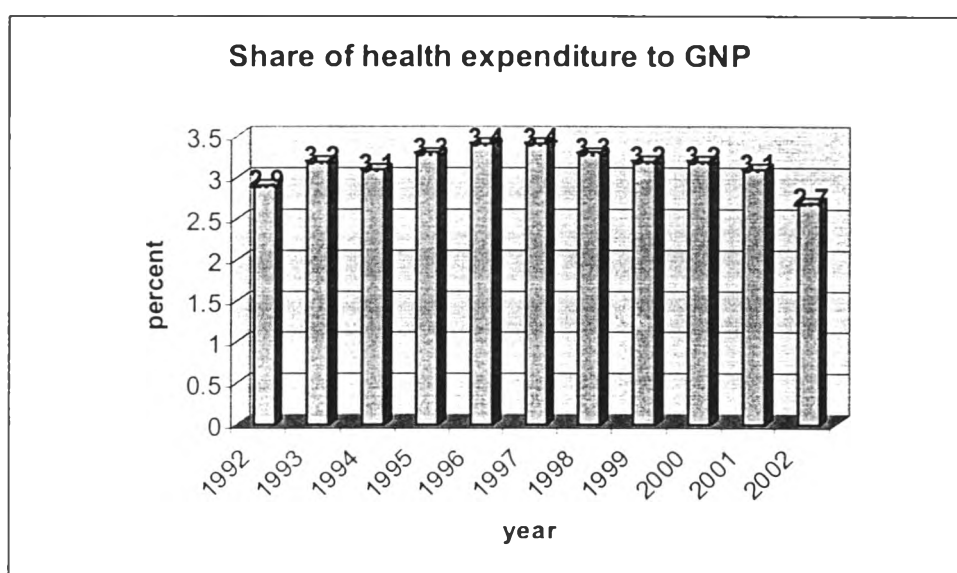
Data on utilization of health services suggests that first-referral hospitals are underutilized while secondary and tertiary hospitals are swamped. Utilization of primary health care services is reported only by public facilities. Lack of health facilities and professionals in rural and remote areas limits the residents' access to health care. The poor also have limited financial access to secondary and tertiary health care.

In 1997, 2,582 doctors, 1,370 dentists, 4,096 nurses and 13,275 midwives were practicing in the public sector. However up to 10 percent of the doctors, dentists and pharmacists; 20 percent of the nurses and medical technicians and 35 percent of the midwives practice in the rural areas where more than half of the population resides. The

National Capital Region alone accounts for about 43 percent of all private and public doctors. This uneven distribution of medical personnel results in inequity.

### *1.7. Health Services Financing and Spending*

The share of GNP devoted to health care expenditure falls below the 5% standard set by the World Health Organization (WHO) for developing countries, for several years now. An increasing trend was observed from 1991 to 1997 where it rose from 2.86% to 3.43% (Figure 2.1) followed by a decreasing trend in 1998. In 2002, the share stood at 2.7%, the lowest in 12 years.



**Figure 2. 1. Share of the GNP allotted to health care (Source: PNHA 2001 and 2002)**

The total health expenditure of the country reached P115.4 billion in 2002, posting a decrease of 1% from a minimal 1.5% growth registered in 2001. In real terms, health expenditure continues to decline to P32.0 billion which translated to a 4.0% drop

in 2002 from a decline of 4.3% in 2001. Health spending in real terms also went down in 1998 (Table 2.2).

**Table 2. 2. Comparison of health expenditure in current and real terms**

Statistics	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total health expenditure (in billion pesos, at current prices)	39.6	47.4	54.6	65.2	76.2	87.1	93.5	103.4	114.9	116.6	115.4
Health expenditure growth rate (in billion pesos, at current prices)	10.4	19.6	15.3	19.4	16.9	14.3	7.4	10.6	9.6	1.5	(1.0)
Total health expenditure (in billion pesos, at 1985 prices)	21.2	23.7	25.2	27.9	29.9	32.2	31.6	32.7	34.9	33.4	32.0
Health expenditure growth rate (in billion pesos, at 1985 prices)	1.7	11.8	6.4	10.6	7.1	7.9	(2.0)	3.7	5.0	(4.3)	(4.0)

Source: PNHA 2001 and 2002, NSCB

With population showing a faster growth rate over total health expenditure at current and at constant prices, per capita health spending ranged from P575 in 1991 to P1,378 in 1999. In real terms, per capita expenditures increased from P334 in 1991 to only P436 in 1999. This slightly increased to P448 in 2000 (P1,477) but declined in 2001 to P424 (P1,484) and further shrank to P398 (P1,435) in 2002 (PNHA 2001 and 2002, NSCB).

Through the years, the private sources have been providing the lion's share of the country's health expenditure (more than 50%), highest of which was in 2002 with 59.5% (Figure 2.2). The government's share on the other hand, is declining from 41.0% in 2000 to 37.5% in 2001 to an even lower 30.0% in 2002. Reflecting decentralization, the

national share declined from 31% in 1992 to 17% in 2001 while the local government's share rose from 4.4% to 21%. The country's social health insurance showed an upward trend of 7.1% in 2000, 7.8% in 2001 to 9.2% in 2002. This is so far the largest contribution of the social insurance sector since 1991 (PNHA 2001 and 2002, NSCB).

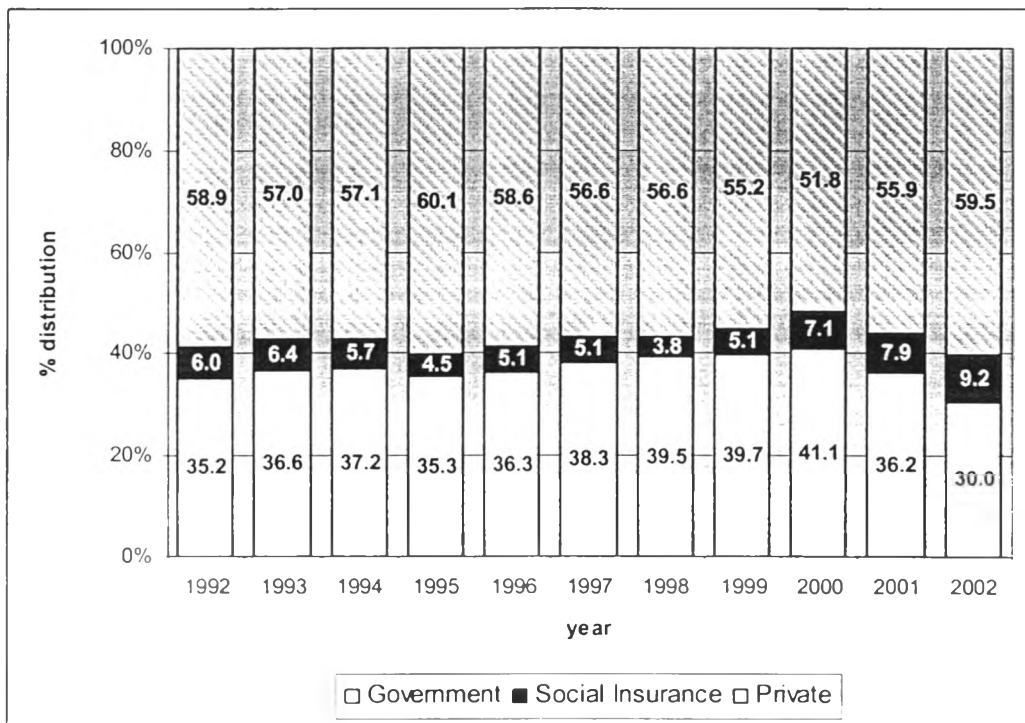


Figure 2. 2. Distribution of health expenditure by source of funds, 1992- 2002 (Source: PNHA 2001& 2002)

The country's health spending pattern (Figure 2.3) in terms of the categorization of health care services remained pretty constant with personal health care services accounting the most percentage (about 77% in 2002), followed by public health care services and other services (administrative, operating expenses, research and training).

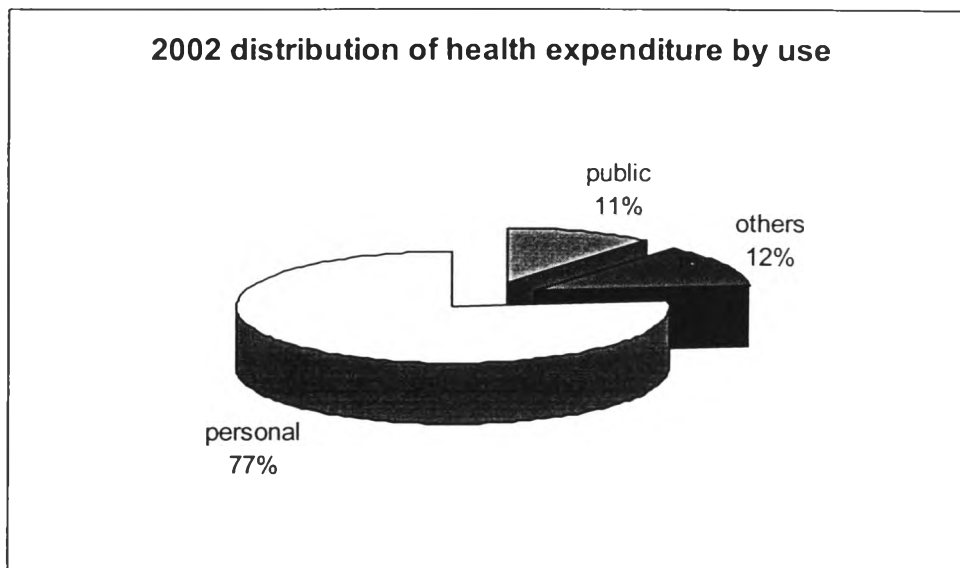


Figure 2. 3. Distribution of health expenditure by use for year 2002 (Source: PNHA 2002)

## 2. Health insurance in the Philippines

As previously stated, one of the financial sources in the provision of health care in the Philippines, although minimal at present, is its social health insurance scheme or the NHIP. The NHIP is foreseen as a prescription to the emerging concern of accessibility to health care most especially among the more marginalized sector of the society. The following is a description of the country's social health insurance schemes, both previous and present—the Medicare and the NHIP, respectively. Medicare was the country's first attempt to universal health coverage.

### *2.1. The Medicare Program*

The Medicare program, otherwise known as the Philippine Medical Care Program (PMCP), was a compulsory health insurance scheme established by RA 6111 in August 1969 and implemented on January 1, 1972, with the creation of the Philippine Medical

Care Commission (PMCC). The PMCC, as a government agency, was supervised administratively by the DOH. It was governed by a board of commissioners headed by the DOH secretary and a DOH undersecretary with the following as members; the SSS (Social Security System) administrator, the GSIS (Government Security Insurance System) general manger, the secretaries of labor, finance and local government, and a representative each from hospitals, doctors, beneficiaries and employees.

The PMCC formulated the rules and regulations to implement the Medicare program, monitored cases of abuse, conducted information campaigns, did research on the support value of Medicare benefits and recommended premium payments and benefit packages.

The Medicare program was committed to providing comprehensive medical care to Filipinos in a gradual and evolutionary manner consistent with the nation's ability to pay, recognizing that the patient must share in the financial burden of the medical services he obtains. This was the country's first attempt at universal health care coverage.

### ***2.1.1. Coverage and Program Implementation***

Medicare was implemented in two stages; Program I which initially covered public and private sector employees and their dependents but later included retirees and the self-employed (on a voluntary basis) and Program II which was intended for the informal sector but the implementation was set back by financial and administrative difficulties.

Of the 23.5 million Filipinos (38% of the total population) covered by Medicare in 1990, about 16.8 million were under SSS and 6.7 million under GSIS. Despite its compulsory nature and the fact that it dealt with the organized sector, Program I reached only 20% of its target. This may be partly explained by the structure of the labor force—45% are in agriculture, 39% in the service sector and 16% in manufacturing. This fact only indicated that it would be more difficult to extend Program II to the non-formal sector.

### ***2.1.2. Benefits and Payment Mechanism***

The Program I of the PMCP provided inpatient medical benefits. There were maximum peso allowances for each type of hospital service (room and board, medical, operating room use) and each hospital category (primary, secondary or tertiary). The type of illness, surgical or non-surgical, determines the professional compensation. A surgeon is paid according to a relative value scale (RVS) developed by the PMCC, while an anesthesiologist earns a third as much. A non-surgeon gets a fixed amount per day, which is higher for specialists accredited by medical specialty societies than for general practitioners. Medical expenses in excess of those benefits are shouldered by the patient. Medicare did not cover out-patient services, cosmetic and optometric services, mental illness and rehabilitative services performed outside the hospital.

Medicare benefits are availed of at all public and private hospitals and drugstores and with all the doctors and dentists accredited by PMCC. After using health services, the beneficiary files a claim form with the hospital, which then requests reimbursement from



the SSS or the GSIS. If the claim is in order, the provider is reimbursed according to the prevailing benefit limits (Figure 2.4). On the average, SSS settled claims within 30 days while the GSIS took up to 4 or 5 months, a source of frequent complaints among service providers.

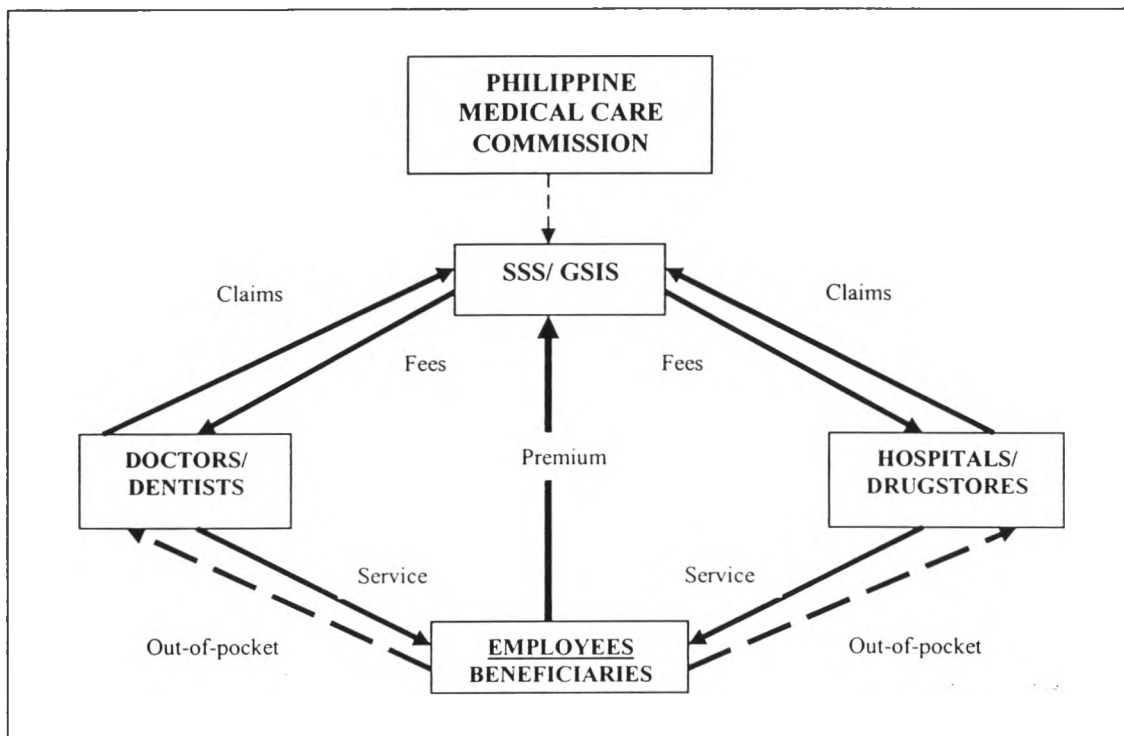


Figure 2. 4. The Medicare system

### *2.1.3. Program utilization, collection and benefit payments*

Between 1972 and 1990, the rate of availment (beneficiaries served/total coverage x 100) for the entire program averaged 6.45%. SSS averaged 5.36%, almost half of the GSIS' 10.36%. Several reasons could account for this difference in availment rates. GSIS had covered retirees since 1974 while SSS started doing so only in 1990. GSIS covered members of the Armed Forces of the Philippines and the policemen, which are high risk

groups. Furthermore, the benefits provided by private employers, included pre-employment and annual medical check-ups, and thus may have discouraged their employees from claiming Medicare benefits.

In 1990, SSS collected P777 million in premiums and paid P710 million in benefits while GSIS collected P349 million in premiums and paid P442 million in benefits. Tables 2.3 and 2.4 show that SSS had consistently paid more benefits than GSIS since the start of Medicare in 1972, although GSIS benefits, as a percentage of collection income were nearly twice SSS. Per beneficiary, GSIS beneficiaries received higher benefits in 1990 (P814) than their counterparts in SSS (P654). These variations may be accounted to the illnesses, hospital preferences and types of medical expenses of Medicare beneficiaries.

**Table 2.3. Collection and fund utilization, SSS**

Year	Collection (million pesos)	Benefits paid				Operating expenses			
		Amount	% of collection income	Per beneficiary	% change per beneficiary	Amount (million pesos)	% of collection income	Per beneficiary	% change per beneficiary
1972	56.71	7.70	13.6	177.46		0.41	0.7	9.45	
1973	100.63	26.73	26.6	153.28	-13.6	1.46	1.5	8.37	-11.4
1974	106.50	119.86	112.5	259.03	69.0	2.99	2.8	6.46	-22.8
1975	122.03	126.49	103.7	229.65	-11.3	3.03	2.5	5.50	-14.9
1976	140.66	161.70	115.0	242.61	5.6	3.79	2.7	5.69	3.4
1977	155.38	137.57	88.5	199.45	-17.8	4.43	2.9	6.42	12.9
1978	173.74	178.19	102.6	244.37	22.5	3.24	1.9	4.44	-30.8
1979	264.67	208.53	78.8	261.41	7.0	3.59	1.4	4.50	1.3
1980	290.55	203.83	70.2	253.08	-3.2	3.82	1.3	4.74	5.4
1981	313.75	214.68	68.4	258.45	2.1	7.06	2.3	8.50	79.2
1982	330.78	251.50	76.0	286.35	10.8	7.12	2.2	8.11	-4.6
1983	340.60	259.10	76.1	279.90	-2.3	7.30	2.1	7.89	-2.7
1984	342.40	241.20	70.4	280.06	0.1	8.90	2.6	10.33	31.0
1985	332.80	265.10	72.5	272.50	-2.7	9.10	2.7	10.28	-0.5
1986	335.20	280.30	79.1	297.19	9.1	27.30	8.1	30.60	197.7
1987	546.20	350.20	51.3	312.50	5.2	33.20	6.1	37.01	20.9
1988	616.05	475.03	56.8	448.08	-43.4	41.90	6.8	53.61	44.8
1989	731.13	449.52	65.0	689.30	53.8	44.41	6.1	64.44	20.2
1990	777.44	710.50	57.8	654.05	-5.1	60.22	7.7	87.62	36
<b>Average</b>					<b>9.08</b>				<b>19.22</b>

Adapted from Gamboa *et al.*, Health Insurance in the Philippines, 1993

Table 2. 4. Collection and fund utilization, GSIS

Year	Collection (million pesos)	Benefits paid				Operating expenses			
		Amount	% of collection income	Per beneficiary	% change per beneficiary	Amount (million pesos)	% of collection income	Per beneficiary	% change per beneficiary
1972	43.96	5.12	11.6	229.72		0.72	1.6	32.30	
1973	39.74	24.23	61.0	176.43	-23.2	4.30	10.8	31.31	-3.1
1974	57.90	55.95	96.6	212.33	20.3	5.14	8.9	19.51	-37.7
1975	63.26	71.99	113.8	207.46	-2.3	6.43	10.2	18.53	-5.0
1976	71.72	85.12	118.7	213.86	3.1	5.62	7.8	14.12	-23.8
1977	70.39	87.54	124.4	196.69	-8.0	4.79	6.8	10.76	-23.8
1978	77.54	85.74	110.6	184.06	-6.4	6.03	7.8	12.94	20.3
1979	138.21	106.12	76.8	209.57	13.9	8.89	6.4	17.56	35.6
1980	156.17	114.82	73.5	224.97	7.3	15.00	9.6	29.39	67.4
1981	180.94	125.05	69.1	246.15	9.4	19.34	10.7	38.07	29.5
1982	190.05	128.23	67.5	233.05	-5.3	5.00	2.6	9.09	-76.1
1983	212.60	141.20	66.4	229.48	-1.5	7.30	3.4	11.86	30.6
1984	233.90	173.20	74.0	298.34	30.0	10.60	4.5	18.26	53.9
1985	181.50	174.00	95.9	304.63	2.1	13.40	7.4	23.46	28.5
1986	190.70	170.90	89.6	276.47	-9.2	7.30	3.8	11.81	-49.7
1987	278.10	224.60	80.8	340.96	23.3	6.70	2.4	10.17	-13.9
1988	245.48	239.32	97.5	413.02	21.1	6.50	2.6	11.22	10.3
1989	325.72	276.55	84.9	449.44	8.8	7.32	2.2	11.90	6.0
1990	349.40	441.82	122.7	813.97	81.1	8.46	2.4	15.59	31.0
<b>Average</b>					8.66				4.22

Adapted from Gamboa *et al.*, Health Insurance in the Philippines, 1993

The two systems (SSS and GSIS) also differed widely in their operating expenses (Tables 2.3 and 2.4). In 1990, SSS spent about P60 million while GSIS spent about P8.5 million. The sharp increase in SSS' operating expenses since 1986 may be explained by its greater vigor in fraud monitoring, its computerization program and the decentralization to regions which also led to a more efficient operating system as compared to GSIS, i.e. faster processing of claims and cutting down on unnecessary availments.

Other than premiums collected, SSS derived a sizeable part of its total income from investments. In 1990, investment income was 52% of the total income; collections

accounted for the balance. GSIS, on the other hand relied heavily on premium collections which made up 71% of the total income in 1990.

In terms of reserves in 1990, SSS had a significantly higher reserve of P4.5 billion having a reserve capacity of 6 years in contrast with GSIS who had P620 million reserves with 1.4 years reserve capacity.

Medicare support values or the portion of the hospitalization expenses paid for by the Medicare, had fallen short of the targeted 70%. Support was much higher for confinement in a government versus a private hospital particularly at the primary level where a support value of 91% was achieved in 1989. Generally among the three hospital types, support value had been highest at the primary level, followed by the secondary, then tertiary. Drugs and medicine took up the most share of expenses in both government and local hospitals followed by room and board.

#### ***2.1.4. Financing Mechanism***

Program I benefits are financed through compulsory contributions collected through a payroll tax. Each employee contributes 2.5% of his salary base and employer and employee share equally in the cost. Beyond the salary base ceiling, contributions are the same regardless of salary.

The members' contributions are collected and disbursed by the SSS for private-sector employees and the GSIS for government employees. These contributions together

with the income (i.e. earnings from investments, other incomes such as penalties imposed on employers for not remitting contributions on time) accruing to them make up two separate and distinct Health Insurance Funds (HIFs or reserves).

#### ***2.1.5. Assessment of the Medicare Program (Gamboa et al., 1993)***

Medicare allowed the formal sector and a segment of the self-employed to pool funds for the use of hospitalized members. It introduced the concept of cost-sharing, where the member shares in the costs of his treatment. But Medicare did not cover all the employed nor extended its benefits to the informal sector and to more of the self-employed.

Medicare had given its members financial access to services, although not to the level of support value it aspired to. Services were also limited in that it failed to provide for out-patient services. It had mixed success in promoting equity. From the standpoint of premium cross-subsidy, equity was not served by the regressive nature of the premium contributions—as a member earns more, his proportionate contribution decreases. But from the perspective of the healthy members subsidizing the sick, or individuals without dependents supporting retirees or members with spouses and children, Medicare promoted equity.

Medicare was able to link public financing and private provision. Beneficiaries can choose among the accredited government and private hospitals. Moreover, a PMCC-

HMO tie up was experimented on in Manila that explored the use of private HMOs in providing in-patient and out-patient services to Medicare members.

The impact of Medicare in promoting improved use of resources through cost containment and quality delivery was limited which was largely reflected in the limited policies and initiatives in these areas. These are important considerations since the financing of health needs does not merely imply additional resources but also means efficiency, effectiveness and equity in the use of resources and delivery of resources.

The fragmentation of responsibility for the Medicare policy making and operation among the three different government agencies kept Medicare from taking full advantage of economies of scale and operating more efficiently. For instance:

- The SSS decentralized its claims processing system but not with GSIS which led to a longer time for reimbursement with the latter.
- Efforts to coordinate the activities and schedule of the SSS, GSIS and PMCC inspection teams monitoring service providers have not led to the desired efficiency and have instead aroused discontent in the team.
- The two systems followed different accounting policies and financial reporting standards which made it difficult to consolidate reports and get a total picture of the Medicare program
- The Medicare program structure was not conducive to uniformity in investment policies and does not provide for uniform performance standards for premium collection and claims processing.

The PMCC did not have a line authority over the two systems, acting simply as a regulatory agency. The segmentation of the functions of the three agencies had its strengths and weaknesses. The limited organizational capacities of these three agencies fostered a system that was ill-equipped technically and administratively to explore alternative benefit systems and improve the use of medical resources. The situation is worsened by the lack of regular and standardized financial, utilization and cost data from the two systems.

In terms of financial efficiency, SSS clearly had done better in this area as demonstrated by the 6-year reserve capacity in contrast with 1.4-year reserve capacity for GSIS.

## ***2.2. The National Health Insurance Program (NHIP)***

The National Health Insurance Program is the Philippines' largest and premiere social health insurance program instituted in 1995 by virtue of RA 7875, popularly known as the National Health Insurance Act of 1995.

The NHIP aims to provide health insurance coverage and ensure affordable, acceptable, available and accessible health care services for all citizens of the Philippines within a period of 15 years . It serves as the means for the healthy to pay for the care of the sick and for those who can afford medical care to subsidize those who cannot.

The NHIP replaced the old Medicare program to:

- Accelerate universal coverage – to give all Filipinos access to relevant and quality health care services through an affordable health insurance program
- Enhance and expand the benefits to include more outpatient services
- Consolidate the Medicare program previously administered separately by the SSS, GSIS and Overseas Workers Welfare Association (OWWA) and
- Ensure a sustainable National Health Insurance Program for all

In order to carry out the implementation of the NHIP, the Philippine Health Insurance Corporation (PHIC or PhilHealth) was instituted. It is a tax-exempt government owned and controlled corporation created by virtue of the National Health Insurance Act. It is mandated by law to administer and manage the NHIP that will not only ensure better benefits at an affordable cost but also extend quality and relevant health care services to a broader membership base that will lead to universal coverage. Phil Health is governed by a Board of Directors composed of 11 members with the Secretary of Health as Chairperson and the President of the Corporation as Vice Chairperson. Other members of the board are the secretaries (or representatives) of Labor and Employment, Interior and Local Government, Social Welfare and Development; representatives of the following sectors—labor, employees, self-employed and health care providers; SSS administrator and the GSIS general manager (or their representatives).



It is the objective of the NHIP to provide all Filipinos with the mechanism to gain financial access to quality health care services.

### ***2.2.1. Coverage and Program Implementation***

At present, NHIP has 4 programs. They are the:

- Individually Paying Program (IPP)
- Employed Sector
- Non-Paying Program
- Sponsored Program (formerly called the Indigent Program [IP])

The Individually Paying Program is a voluntary health insurance scheme that covers the following:

- Self-employed
- Overseas Filipino Workers (OFWs)
- Employers /employees of international organizations and foreign governments based in the Philippines
- Privately sponsored
- Others including the following:
  - Individuals who are separated from employment and who intend to continue membership
  - Parents who are not qualified as legal dependents, indigents or retirees/pensioners
  - Children who are not qualified as legal dependents

- Unemployed persons who are not qualified as indigents
- Citizens of the Philippines residing in other countries

The Employed Sector includes all government and private sector employees and considered compulsory members of the NHIP.

The Non-Paying Program covers all retirees and pensioners of the GSIS and SSS prior to the effectivity of RA 7875 on March 4, 1995. Members who reach the age of retirement (60 years old except for those covered by special laws) and have paid at least 120 monthly premium contributions shall register with the Corporation as a non-paying member.

The Sponsored Program, formerly called the Indigent program (IP) and also referred to as “Medicare para sa Masa”, aims to provide Medicare (or medical) privileges to the marginalized sector of the Filipino Society. Target members of the program are those belonging to the lowest 25% of the population. The determination of indigent members will be undertaken through the conduct of a social research survey referred to as the means test to determine the current socio-economic and health profile of the indigent sector. The means test being used is the Community Based Information System-Minimum Basic Needs (CBIS-MBN).

As of June 2003, the estimated coverage of NHIP is about 45.5 million (Table 2.5). Approximately 43% comes from the private sector, 22% from the government

sector, 17% from the IPP and 16% from the Indigent program. About 60% of the beneficiaries are in Luzon, 21% in Mindanao and the rest in the Visayas. Almost half of those in Luzon reside in the National Capital Region.

**Table 2. 5. Estimated NHIP Coverage: 2000- 1<sup>st</sup> Sem 2003**

<b>Sector</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>1<sup>st</sup> Sem 2003</b>
Private	19,125,596	20,767,114	19,576,453	19,576,454
Government	6,967,111	8,948,003	10,198,550	10,198,543
IPP	1,907,722	4,181,648	6,754,792	7,759,987
Indigent	1,596,703	2,847,464	6,304,320	7,258,925
<b>Total*</b>	<b>29,596,703</b>	<b>37,460,401</b>	<b>43,546,611</b>	<b>45,529,271</b>

\*Includes non-paying members/ retirees (Adapted from PhilHealth, 2003)

### ***2.2.2. Benefits and Payment Mechanism***

PhilHealth implemented a unified benefit package for all members and their dependents, effective December 1999 that maybe availed of in all accredited health institutions and health professionals (Table 2.6). This benefit package includes the following categories of personal health care services:

#### **Inpatient hospital care:**

- room and board
- services of health care professionals
- diagnostic, laboratory and other medical examination services; use of surgical or medical equipment and facilities
- prescription drugs and biologicals
- inpatient education packages
- normal delivery (up to the 2<sup>nd</sup> child)

**Outpatient cases:**

- surgical procedures done in accredited OR
- vasectomy
- BTL
- Chemotherapy
- Dialysis
- Radiotherapy
- Cataract surgery

Outpatient services in accredited rural health centers are offered for those beneficiaries under the Sponsored Program. These services include primary consultations with general physicians and laboratory fees for complete blood count, fecalysis, urinalysis, sputum microscopy and chest x-ray.

The following services are not reimbursed by the program:

- non-prescription drugs
- out-patient psychotherapy
- drug and alcohol abuse treatment
- home and rehabilitation services
- optometric services
- circumcision
- less than 24 hours confinement

PhilHealth computes the benefits based on case type of illness and the hospital category. They are paid through fee-for-service mechanism. A cap is set for each of the reimbursable item and the patient pays whatever amount that exceeds the cap (Table 2.6). For drugs and medicines, only essential drugs will be paid. These drugs must be included in the Philippine National Drug Formulary (PNDF) and must be in generic name. Likewise, only essential laboratory exams and supplies shall be compensated. For the professional fees, they are computed in the same manner as that of the Medicare system where they are paid according to the relative value scale (RVS).

A Relative Value Scale is a systematic listing and coding of surgical procedures where each procedure is assigned a corresponding Relative Value Unit (RVU). An RVU is a number assigned to surgical procedures identified by the Corporation that reflects its relative weight or its degree of complexity as compared to another. The RVU is then multiplied by the Peso Conversion Factor (PCF) to compute for the surgeon's compensation.

After using the health services, the beneficiary files a claim form with the hospital, which then requests reimbursement from PhilHealth. If the claim is in order, the provider is reimbursed according to the prevailing benefit limits. No direct payment to the member is allowed except in cases where the member or dependent was confined abroad; drugs, medicines and other medical supplies were bought by the member within the confinement period and supported with official receipts and which were used during such confinement; full payment was by the member because of failure to submit the

required documents; and the member paid professional fees directly. The processing of claims takes about 60 days. Check payments will be sent to the member/ hospital through registered mail. Members will receive a Benefits payment notice upon issuance of payment.

**Table 2. 6. Unified Medicare benefits**

<b>UNIFIED MEDICARE BENEFITS</b>			
<b>BENEFITS</b>	<b>HOSPITAL CATEGORY</b>		
	<b>PRIMARY</b>	<b>SECONDARY</b>	<b>TERTIARY</b>
<b>Room &amp; Board (per day)</b> Not exceeding 45 days for each member & another 45 days to be shared by his dependents	200	300	400
<b>Drugs &amp; medicines</b> Per single period of confinement			
a. ordinary	1,500	1,700	3,000
b. intensive	2,500	4,000	9,000
c. catastrophic	0	8,000	16,000
<b>X-ray, Lab, etc.</b> Per single period of confinement			
a. ordinary	350	850	1,700
b. intensive	700	2,000	4,000
c. catastrophic	0	4,000	14,000
<b>Professional fees</b> Per single period of confinement shall not exceed 150/day for General practitioner and 250/day for Specialist			
a. Ordinary			
General practitioner	600	600	600
Specialist	1,000	1,000	1,000
b. Intensive			
General practitioner	900	900	900
Specialist	1,500	1,500	1,500
c. Catastrophic			
General practitioner	900	900	900
Specialist	1,500	1,500	2,500
<b>Others</b>			
<b>Operating Room</b>			
a. RVU of 30 and below	385	670	1,060
b. RVU of 31 to 80	0	1,140	1,350
c. RVU of 81 and above	0	2,160	3,490
<b>Surgeon</b>	Maximum of 16,000		
<b>Anesthesiologist</b>	Maximum of 5,000		
<b>Surgical Family Planning</b>			
Vasectomy	900	900	900
Tubal ligation	1,125	1,125	1,125

Adapted from PhilHealth, 2003 (Amounts are in PhP)

The outpatient services offered to the beneficiaries of the Sponsored Program is paid by capitation. The rural health centers are paid a fixed amount of Php300 per indigent household per year.

### ***2.2.3. Program Utilization, Collection and Benefit Payments***

A profile of the utilization rates of health insurance program by sector and by region are shown in the following tables (2.7 and 2.8):

**Table 2. 7. Utilization Rates by Sector: 2000- 1<sup>st</sup> Sem 2003**

<b>Sector</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>1<sup>st</sup> Sem 2003</b>
Private	4.33%	4.16%	4.63%	2.60%
Government	6.78%	5.61%	5.35%	2.88%
IPP	*	0.32%	0.73%	0.39%
Indigent	0.59%	1.29%	1.17%	1.10%
<b>Total**</b>	<b>4.43%</b>	<b>3.78%</b>	<b>3.62%</b>	<b>2.00%</b>

\*Segregation of the number of claims paid (used in deriving the utilization rate) from the private sector began in 2001. However, there are IPP claims still lumped in the private sector

\*\*Includes non-paying members/ retirees

Note: Based on the number of claims paid and estimated beneficiaries  
(Adapted from PhilHealth, 2003)

**Table 2. 8. Utilization Rate by PRO: 2000- 1<sup>st</sup> Sem 2003**

<b>PRO</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>1<sup>st</sup> Sem 2003</b>
NCR/ Rizal	2.48%	4.00%	4.30%	2.30%
CAR	5.64%	5.20%	3.60%	1.70%
I	5.03%	3.90%	3.00%	1.70%
II	3.60%	3.40%	2.60%	1.40%
III	4.14%	2.50%	2.50%	1.50%
IV-A	3.91%	3.10%	3.00%	1.80%
IV-B	6.16%	3.40%	3.20%	2.10%
V	6.88%	4.80%	4.00%	1.90%
VI	5.50%	3.00%	3.10%	1.50%
VII	5.22%	3.80%	3.70%	1.80%
VIII	4.69%	2.70%	2.90%	1.40%
IX	4.80%	2.40%	2.80%	2.00%
X	9.51%	4.70%	3.40%	2.60%
XI	7.56%	4.70%	5.70%	2.60%
XII	12.62%	8.80%	5.50%	3.30%
CARAGA	7.38%	3.90%	3.40%	1.50%
<b>TOTAL</b>	<b>4.43%</b>	<b>3.80%</b>	<b>3.60%</b>	<b>2.00%</b>

Note: Based on the number of claims paid and estimated beneficiaries (Adapted from PhilHealth, 2003)

The benefit payments paid by PhilHealth has been increasing since the program was implemented (Figure 2.5).

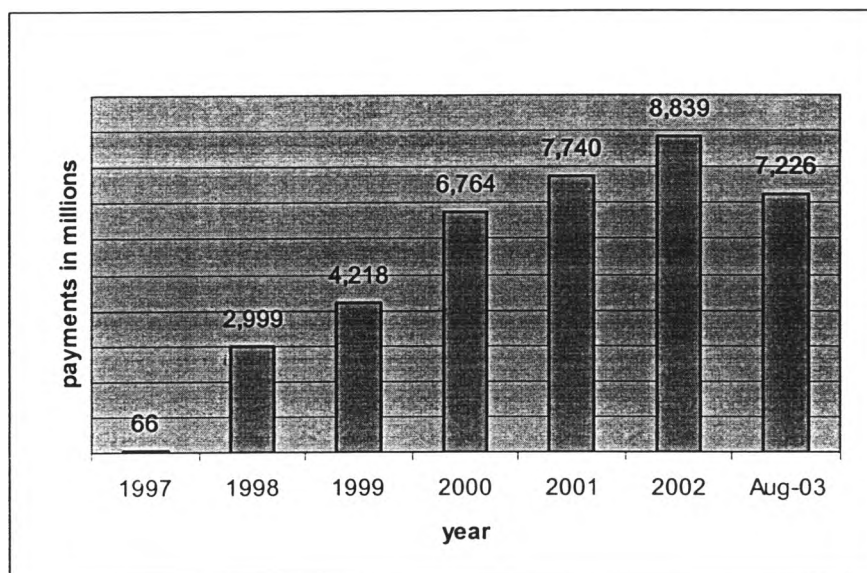


Figure 2. 5. PhilHealth Benefit payments: 1997- August 2003 (Adapted from PhilHealth, 2003)

Drugs and medicines continue to take up the largest share of 31.9% followed by professional fees at 22.6%. In the case of indigents, drugs and medicines also take up the largest share while room and board follows at 24.6%

#### ***2.2.4. Financing Mechanism***

The NHIP is financed in various ways such as premium collections, government subsidy and donations depending on the type of scheme or program.

Premium contributions are collected from the compulsory members under the Employed sector program. The premium contribution, computed based on salary (2.5%) and shared 50-50 by the employer and employee, is paid on a monthly basis and



automatically deducted from the salary (Table 2.9). This salary cap is a very regressive feature of the Program as higher salaried employees pay less for Medicare as a proportion of their salary.

**Table 2. 9. Premium contribution for the employed sector**

<b>Premium Contribution Schedule</b>					
<b>Monthly Salary Bracket</b>	<b>Monthly Salary Range</b>	<b>Salary Base (SB)</b>	<b>Total Monthly Contribution</b>	<b>Personal Share (PS) (PS=SBx1.25%)</b>	<b>Employer Share (ES) (ES=PS)</b>
1	3,499.99 and below	3,000.00	75.00	37.50	37.50
2	3,500.00-3,999.99	3,500.00	87.50	43.75	43.75
3	4000.00-4,499.99	4,000.00	100.00	50.00	50.00
4	4,500.00-4,999.99	4,500.00	112.50	56.25	56.25
5	5,000.00-5,499.99	5,000.00	125.00	62.50	62.50
6	5,500.00-5,999.99	5,500.00	137.50	68.75	68.75
7	6,000.00-6,499.99	6,000.00	150.00	75.00	75.00
8	6,500.00-6,999.99	6,500.00	162.50	81.25	81.25
9	7,000.00-7,499.99	7,000.00	175.00	87.50	87.50
10	7,500.00-7,999.99	7,500.00	187.50	93.75	93.75
11	8,000.00-8,499.99	8,000.00	200.00	100.00	100.00
12	8,500.00-8,999.99	8,500.00	212.50	106.25	106.25
13	9,000.00-9,499.99	9,000.00	225.00	112.50	112.50
14	9,500.00-9,999.99	9,500.00	237.50	118.75	118.75
15	10,000.00 and up	10,000.00	250.00	125.00	125.00

Adapted from The Revised Implementing Rules and Regulations of the National Health Insurance act of 1995

The premium contribution for the IPP including all existing self-employed, voluntary and overseas worker members of SSS is fixed at P100.00 per month. This can be paid in quarter, semi-annual or annual basis.

The Sponsored program, on the other hand, is financed through the partnership of the LGUs and PhilHealth. The LGU and the National government through PhilHealth share the premium payments for the indigents to be enrolled. First to third class LGUs equally share the premium with the national government. Fourth to sixth class LGUs initially shoulder only 10% of the premium, progressively increasing until such time that their share equals to that of the national government (Table 2.10). Other government agencies and officials as well as private entities may also participate in the program by paying the LGU premium counterpart. A concrete example is the partnership program between PhilHealth and Glaxo and Smith Kline (GSK) Philippines, a leading pharmaceutical company. Donations to the Program are fully deductible from taxable income. A premium contribution of P1188.00 is all that is needed to provide Medicare coverage for one year to an indigent household.

**Table 2. 10. Schedule of the Local Government Units premium contributions**

<b>Schedule of LGU Premium Contributions</b>						
<b>LGU Income Classification</b>	<b>YEAR</b>	<b>% Discount*</b>	<b>% Premium Payment</b>	<b>Annual Premium (P)</b>	<b>Monthly Premium (P)</b>	<b>Per Capita** (P)</b>
1 <sup>st</sup> - 3 <sup>rd</sup>	1 <sup>st</sup> onward	50	50	594.00	49.50	9.90
4 <sup>th</sup> - 6 <sup>th</sup>	1 <sup>st</sup> and 2 <sup>nd</sup>	90	10	118.00	9.90	1.98
	3 <sup>rd</sup>	80	20	237.60	19.80	3.96
	4 <sup>th</sup>	70	30	356.40	29.70	5.94
	5 <sup>th</sup>	60	40	475.20	39.60	7.92
	6 <sup>th</sup> onward	50	50	594.00	49.50	9.90
*Paid by the National Government						
**Monthly premium per person for an average family size of five members						

Adapted from PhilHealth, 2003

As stated in the law, additional appropriations will also come from 25% of the increment in revenues from RA 7660 (Documentary Stamp Tax) and RA 7654 (Sin Tax

Law) but this is yet to be implemented. The Corporation is now pushing for automatic appropriation through indexation of taxes in order for this to take effect.

#### ***2.2.5. Quality assurance monitoring***

One of Phil Health's primary objectives is to ensure that the health services rendered to members by accredited health providers are of the quality necessary to achieve the desired health outcomes and member satisfaction. In order to achieve this, the Corporation has instituted quality assurance activities that include accreditation, performance monitoring and outcomes assessment.

Accreditation is a process whereby the qualifications and capabilities of health care providers are verified in accordance with the guidelines, standards and procedures set by the corporation which then serves as the primary basis to guarantee members of a quality service. Institutional health providers that may be accredited include the hospitals, out-patient clinics i.e. RHUs/ health centers, ambulatory surgical clinics, maternity care centers, TB DOTS centers and free-standing dialysis clinics. Health care professionals that are accredited at present include the physicians, dentists and midwives. Accreditation is renewed every year for the institutional health providers and every 3 years for the health care professionals. Random, unannounced spot inspections are also conducted on these providers.

Utilization reviews are also performed using the claims databases. Utilization patterns among the accredited hospitals are particularly monitored where extreme and disproportionate utilization of health reimbursements are identified and used to feedback the hospital concerned. Since data on claims is limited, hospital data are sometimes used whenever appropriate like drug use monitoring. Peer review is another quality assurance activity. This involves a committee composed of experts external to Phil Health who decides on quality issues where a health care professional is concerned. Clinical practice guidelines (CPGs) for a number of diseases are also in place but though promoted are not yet mandatory nor linked to the claims.

### **3. Review on Geographic Variations in Health Care Delivery**

Geographic methods in investigating health-related topics are increasingly becoming popular. They are especially useful in variations research where population-based rates are compared across cities, hospital market areas, counties, standard metropolitan and statistical areas, states and census regions (Detsky, 1995; Tedeshi *et al.*, 1990). They have been applied in a variety of variation studies such as utilization of medical and surgical procedures, diagnostic examinations, hospital resources and insurance; morbidity and mortality rates; physicians' services expenditures; health-related behaviors, health status and efficiency of national health systems (Fried, 2000.; Twigger and Jessop, 2000; Carter, 2003; Diehr *et al.*, 1992; Evans *et al.*, 2001; Fuchs *et al.*, 2001; Meer and Rosen, *in press*; Kane *et al.*, 2001; Almog *et al.*, 2001; Ecob and Macintyre,

2000; Pickle and Su, 2002; Kind *et al.*, 1998; Garg *et al.*, 2002; Rao *et al.*, 2001; Cooper *et al.*, 2002; Welch *et al.*, 1993).

A typical variation study may calculate the utilization rate for a service in several geographic areas, compute some descriptive statistics such as the ratio of the largest rate to the smallest, note large differences among areas and attempts to explain the variability as a function of service availability, physician uncertainty and other variables of interest (Diehr *et al.*, 1992).

Small area analysis, pioneered by John Wennberg and Alan Gittelsohn in the 1970's, is the commonly used method in geographic variation research. It is an analytic approach for determining the number of events occurring in a small geographic area that can be compared to similar geographic areas or a larger area benchmark (Morgan, 1998; Health Care Information, 2003). It attempts to measure the amount of variation in health care utilization across areas, decide if a pattern exists to the differences in use and identify the variables that are present with and possibly explain some of the variation (Fried, 2000).

Small area analysis is distinguished by four important features. First, it provides population-based rates. Second, it focuses on local provider communities, usually hospital market areas with the intent of measuring variability among providers. Third, it can provide a comprehensive description of the health care delivery system, i.e. the types and quantities of resources deployed such as the numbers of hospital beds and physicians

per capita; the per capita expenditures for care; the sources produced in the aggregate and specifics; and the health care outcomes that occur at the population level. And finally, it seeks to answer policy relevant questions such as, when variations occur, why do they occur? What is the role of consumers (patients), suppliers and public policy? How does variability relate to productivity? When greater amounts of resources are deployed (hospital beds or neurosurgeons per capita), what additional services are provided? When more is provided, what are the consequences for health outcomes? (Wennberg, 1997)

### ***3.1. Common Data Sources and Methodological Issues***

Majority of the variation studies in health care services are retrospective, cross-sectional in nature and employ secondary data particularly those that monitor utilization rates of various medical services, morbidity or mortality rates and expenditures. Despite its disadvantages, it has been a rich source of valuable information for this type of research. Among the commonly used data are population census data, claims or reimbursement data, hospital discharge data, health facilities and health care professionals data. The most common sources of these information include government agencies, other research projects, insurers, trade groups or associations and licensing or regulatory agencies (Savitz and Fondren, 1994). There are also studies that employ primary data such as that which results from interviews or surveys. These studies usually explore behavioral aspects of health or insurance utilization or other issues that may not otherwise be assessed using purely secondary data alone (Byles *et al.*, 2000; Rich *et al.*, 1998).

An aspect of significant importance in any geographic variation or small area analysis research is the choice of “small area”, or the medical service area, to be examined. The choice or definition of the medical service area is based on a different set of assumptions regarding the utilization of care and each is appropriate to answer only certain types of research questions. There are over two dozen methods of medical service area definitions in the literature but the three most commonly applied in health services research are geographical methods, geopolitical methods and patient origin methods (Ricketts *et al.*, 1994).

The geographic distance method uses measurements of fixed distance from patient residence or to physician office to a facility. An example would be the area described by a fifty-mile radius around a study hospital. This method is based on the concept that, for a relatively homogenous population, the utilization of a hospital’s services declines as the real or perceived “cost” of accessing the services increases; from a geography perspective this follows central place theory and the concept of distance decay. It has been used successfully in descriptive and planning-oriented research. It is relatively simple, inexpensive to use, and has the advantage of defining a unique market area for each facility studied. Drawbacks of this method include not taking into account for physical barriers to access such as rivers, lakes, mountains or lack of highways or public transportation. Though it can be a good proxy for travel time to a facility, this may differ from perceived travel time, which can be affected by lack of familiarity with the route to a hospital or other phenomena related to human effort, and can affect a person’s decision to use services. It should also be considered that different geographic distances

are appropriate for medical service areas. Finally, definition of medical service areas using this method will differ for rural and urban areas as it is affected by the availability of medical resources (i.e. rural areas have less facilities while urban areas have multiple facilities reflecting considerable competition). Hence, this method is usually more appropriate for defining medical service areas in rural areas (Ricketts *et al.*, 1994).

The geopolitical method uses pre-existing geopolitical boundaries defined by official governmental or regulatory units such as counties, planning regions, states or nations or aggregates of these. This is perhaps the oldest and most common way to identify unique populations of interest in order to examine differences in utilization or outcomes that may be related to provider characteristics. The concept underlying this is that of public authority and accountability for monitoring and/or assuring population health. This method has been successfully used in research that most often examines access, health outcomes, program effects, competition and a variety of issues that relate a public program or institution to a population. The method is simple and relatively easy to use. Its strengths lie in the fact that many social, health and economic measures are reported for geopolitical areas. However, in many cases, private providers contribute significantly to the overall system of the health care provision. These providers respond to policy and fiscal initiatives at variable rates and often have referral areas that do not correspond to geopolitical units, hence such method may be inappropriate. Political geographies also have fixed and unequal sizes leading to uneven variance in their rates any may thus cause problems in comparison and complex analyses (Ricketts *et al.*, 1994).



The patient origin method is based on the distribution of patients using a facility and therefore represents actual utilization patterns. It looks at the care-seeking behavior of residents of small geographic areas (e.g. ZIP code areas; each small area is assigned to a market area based on the behavior of its residents). It accounts for barriers to care and the structure of existing referral patterns. It is also advantageous because it has the capability to calculate markers for subgroups of the population. However, it requires substantially larger amounts of data and more complex manipulation. Other disadvantages with this method are its difficulty to be applied in urban areas where many hospitals are likely to draw patients from a single ZIP code or other small area; when patients travel long distances for specialized care, the result is a geographic distribution of patients that is too sparse to draw a meaningful patient origin medical service area; and the assumption that the distribution of patients among providers is stable over time within a fairly large geographic area, which may not exist. This method has been successfully used in descriptive, evaluative and to some extent planning research. It is an ideal method to use when a service area must be defined for a subpopulation or for a sub-group of diagnoses and when funding follows the individual (Ricketts *et al.*, 1994).

### ***3.2. Variables used in Variation Studies***

Dependent variables in variation analysis consist of different measures of health service utilization. For studies that investigate hospital use, the most commonly employed dependent variables are admission rates, discharge rates or length of stay. Admission rates or discharge rates refer to the number of people admitted or released from a hospital for treatment on an inpatient basis. They are usually expressed in the

number of admissions or discharges per 1000 or as a ratio or proportion of the specified population and are commonly adjusted either for age and/or sex prior to comparison. The length of stay, on the other hand, refers to the number of days a patient stays in the hospital. The per capita expenditure is also used although one study suggested that this presents the difficulty of deflating medical expenditures across regions as in the case with Medicare reimbursements where differential payments are made for the same service in different areas (Fuchs *et al.*, 2001). To overcome such complication, a weighted index of quantities of services may be used. This is accomplished by counting the number of specific services received by the resident of an area, regardless of the area where the services were provided. Each detailed service is then weighted by the national reimbursement rate for that service; the sum of the weighted quantities divided by the number of enrollees is the total utilization for that area.

For the utilization of surgical or diagnostic procedures, surgical or diagnostic rates serve as dependent variables which are computed and expressed in the same manner as admission or discharge rates. Likewise, when insurance utilization is monitored this is usually translated as hospital utilization and thus uses the same dependent variables already discussed.

Mortality, morbidity rates and life expectancies are also used as dependent variables when health outcomes are monitored after utilization of specific health care services.

Several factors have already been examined to explain for the observed variation in the various dependent variables discussed as summarized in Figure 2.6.

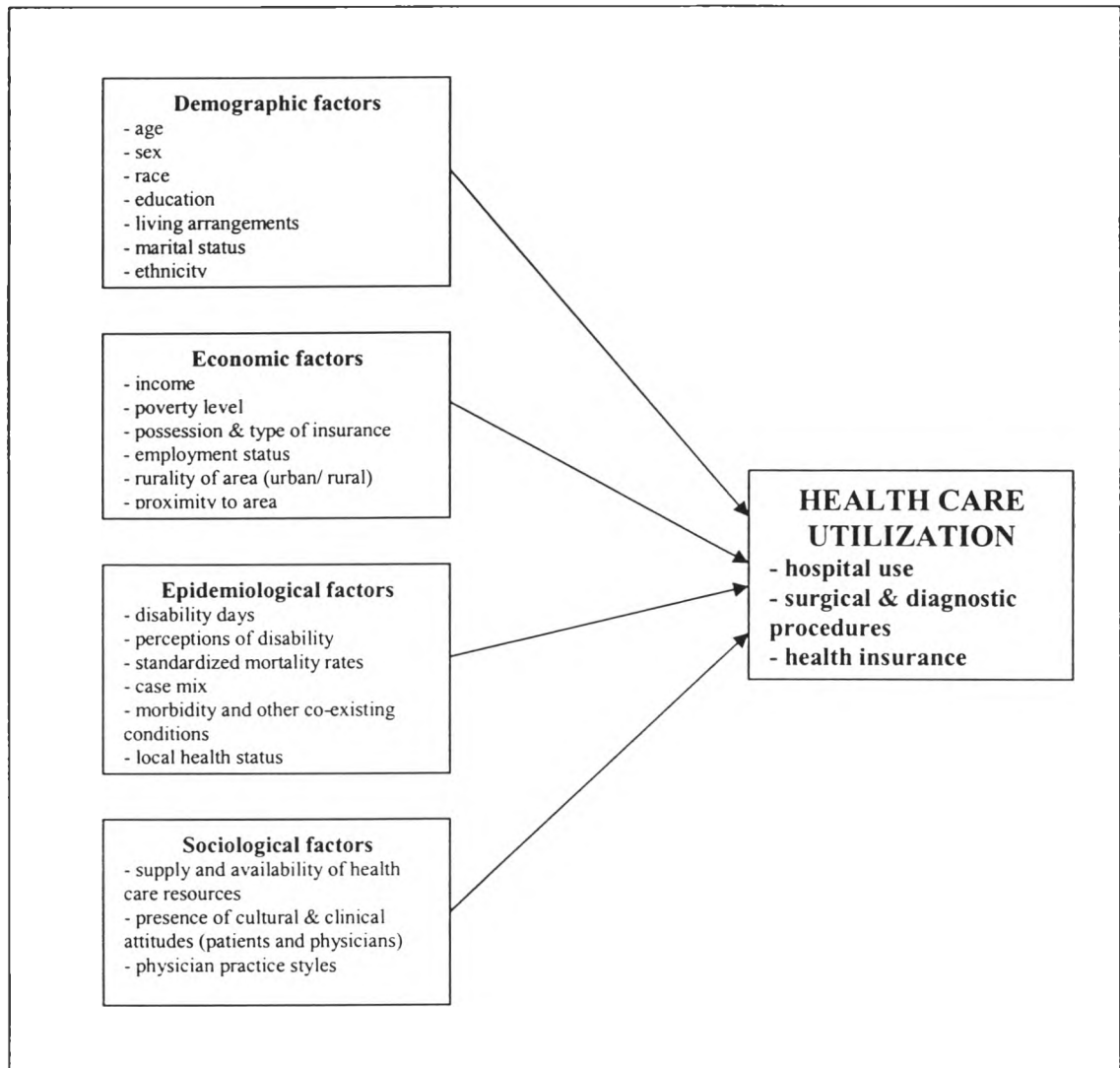


Figure 2. 6. Summary of independent variables employed in various geographic variation studies

### 3.3. Implications and benefits

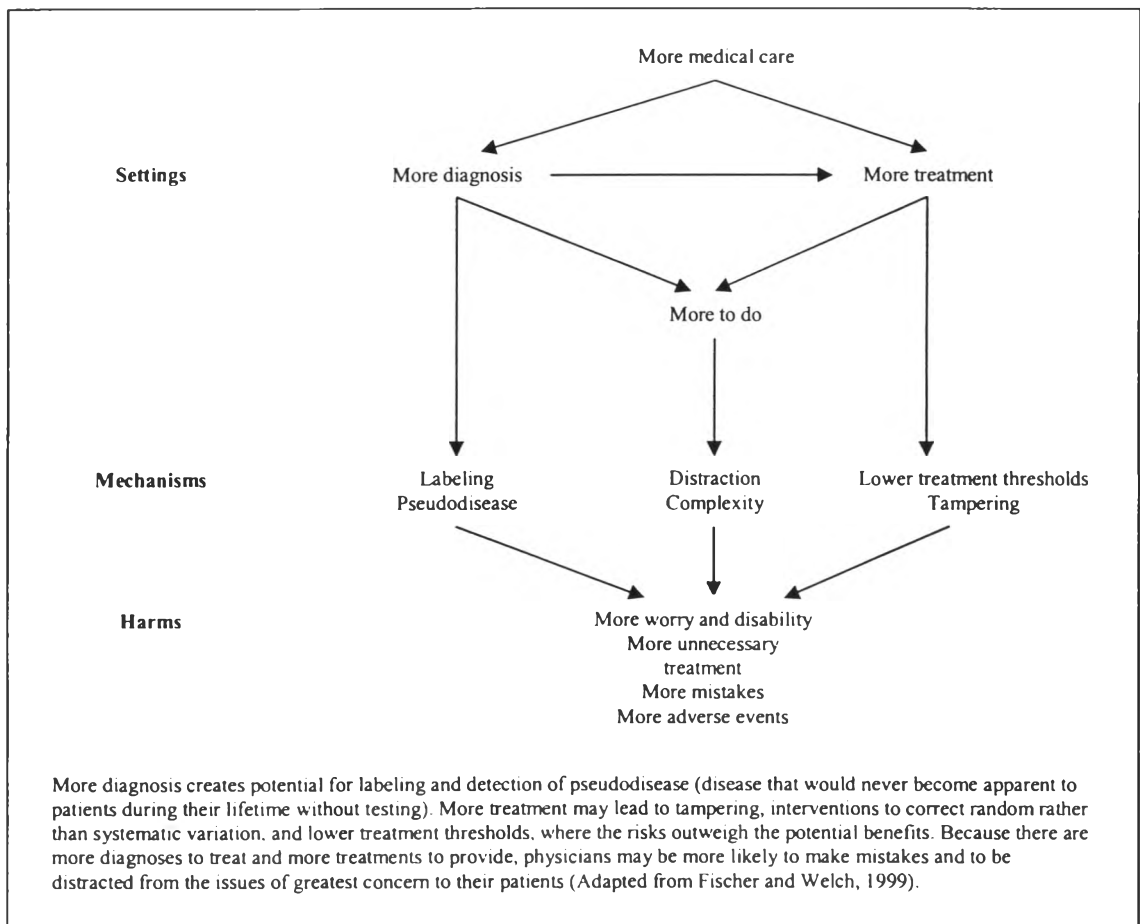
Literature has illustrated that there are several factors for which variation in health care utilization may be accounted to. There are however remaining area-level differences that cannot be explained away by confounding factors or technical errors or by chance.

The importance of variations studies can only be emphasized because of its possible implications (Blumenthal, 1994; Lieberman *et al.*, 2003; Birkmeyer, 2001).

One factor that has been demonstrated to account for variation is physician practice patterns. In the United States, this was particularly significant as evidenced on its effect over health care reform. In the past, the potency of the medical profession's influence derived in part from its claim to scientific legitimacy. Physicians argued implicitly that their unique knowledge of how to diagnose and treat illness entitled them to special status in debates about health care and to a virtual veto over plans to change the organization and financing of their health care system. But the variation phenomenon undermined this claim. The fact that physicians treat apparently similar patients in such widely different ways casts doubts on their knowledge base, on their competence to interpret it or both. Without scientific legitimacy, physicians are much more easily portrayed as just another interest group struggling selfishly to protect their economic and social standing. Hence, it has emboldened the public and private policy makers and managers to challenge professional autonomy and control in ways that have been inconceivable decades ago (Blumenthal, 1994).

Another implication of this research is on the efficiency of the health care system or the national health insurance system. Again in the United States, there are evidences suggesting that observed variation, especially on Medicare spending, is attributable to the differences in quantity of medical services consumed as exemplified by the more inpatient-based and specialist oriented patterns of practice observed in high-spending

regions. There are also studies that show despite higher spending in these regions, there is as much under use in effective care services (services whose use are supported by well-articulated medical theory and strong evidence for efficacy) as well as in low spending regions. This suggests that greater spending does not purchase the infrastructure needed to ensure compliance with the standards of practice dictated by evidence-based medicine. Moreover this higher spending does not necessarily translate to better health outcomes or better quality of life. In fact more medical care may actually lead to harm as modeled in Figure 2.7. Such situation then will cause serious repercussions on the government's resources and people's health. It may also be unfair in low cost areas, more efficient regions subsidize the care of those in high cost regions (Lieberman *et al.*, 2003; Skinner and Wennberg, 1998; Wennberg, 2002; Fischer and Welch, 1999; Wennberg *et al.*, 2002).



**Figure 2. 7. Pathways by which more medical care may lead to harm**

Geographic variation research also addresses issues on equity. Every health care system in any country would want to promote equitable access to health care for all its constituents. Studies however revealed that medical services particularly in the more rural and remote areas, are sorely problematic. Concerns include access to adequate GP, specialist and allied health services; access to conveniently located public and private hospitals and the availability of advanced diagnostic and treatment equipment. Such problems have considerable implications on health care financing and resource allocation that need attention (Rice and Smith, 2001; Deniss, 2003).

Indeed the various studies documenting geographic variation in health care delivery provided very interesting and intriguing aspects of health care that spurred the interest of academicians, health care professionals, policy makers and the general public because of the various implications that they offer. In the United States, results of variation studies provided very strong basis for arguments in the debate over Medicare reform. It has also challenged medical professionals on their practice patterns. It has provided new areas for research, i.e. comparative study of different patterns of practice to identify which is the most efficient and cost-effective. It has disclosed areas that need to be addressed by the government in the equitable allocation of resources to its people. Overall these studies, despite its methodologic problems, may well provide information that will continue to have an increasing role in improving the health care system.

#### **4. Equity in Health Care**

Equity or fairness involves a focus on the distributional impact of health policies and programs on different individuals and families. Governments intervene in health care systems to promote equity as well as efficiency (Mc Clelland, 1991). In fact, the pursuit of equity has become a key objective of many health care systems.

There is a vast amount of literature that documents equity or inequity issues on access, utilization and financing of health services across the different countries (Gupta *et al.*, 2003). Several methods have been employed in the literature to measure inequality that includes the range, the Gini coefficient (and the associated Lorenz curve), a pseudo-

Gini coefficient (and an associated pseudo-Lorenz curve), the index of dissimilarity, the slope index of inequality (and the associated relative index of inequality) and the concentration index (and the associated concentration curve) (Wagstaff *et al.*, 1991).

Among the aforementioned measures of inequality the concentration index and the concentration curve will be explained in this chapter which will be used to quantify the variation which in turn may be used to assess or estimate possible inequity in the program. Although this is not a primary objective of the study, it would be interesting to note since equity is one of the guiding principles of NHIP. Furthermore as previously discussed, a geographic variation study itself can identify equity issues. This can then serve as additional information or evidence to support any findings in the variation study.

The concentration index and the associated concentration curve were first introduced by Wagstaff, Van Doorslaer and Paci. The index is derived from the Gini but differs, as the ranking variable and the variable of interest (for which the inequality is evaluated) are different. Hence, it is a bivariate measure of inequality in one variable related to the ranking of another (Koolman and van Doorslaer, 2003). The concentration curve plots the cumulative proportion of population ranked by their socioeconomic status instead of health, beginning with the most disadvantaged and ending with the least disadvantaged (Figure 2.8). The concentration index therefore provides a measure of the extent of inequalities in health that are systematically associated with socioeconomic status. If health is equally distributed across socioeconomic groups, the concentration



curve will coincide with the diagonal and the farther it is from the diagonal, the greater the degree of inequality. The concentration index is defined as twice the area between the concentration curve and the diagonal. So, in the case where there is no income-related inequality, the concentration index is 0. The convention is that the concentration index is defined as positive when the concentration curve lies below the diagonal line and negative when it lies above the diagonal. Thus the lowest value that C can take is -1 which occurs when all the population's health is concentrated in the hands of the most disadvantaged person (so that the shape of the curve is  $\Gamma$ ). The maximum value that the index can take is +1 which occurs when all the population's health is concentrated in the hands of the least disadvantaged person (so that the shape of the curve is  $\Delta$ ) [Wagstaff *et al.*, 1991].

Concentration curve approach may also be used when it is inequality in ill-health that is being assessed. In this case the concentration curve lies above the diagonal if illness is concentrated among those with lower socio-economic status. The "illness concentration index", defined as twice the area between the concentration curve and the diagonal is positive when it lies below the diagonal (illness concentrated among the higher socioeconomic groups) and negative when it lies above the diagonal (illness concentrated among the lower socioeconomic groups)[Wagstaff *et al.*, 1991].

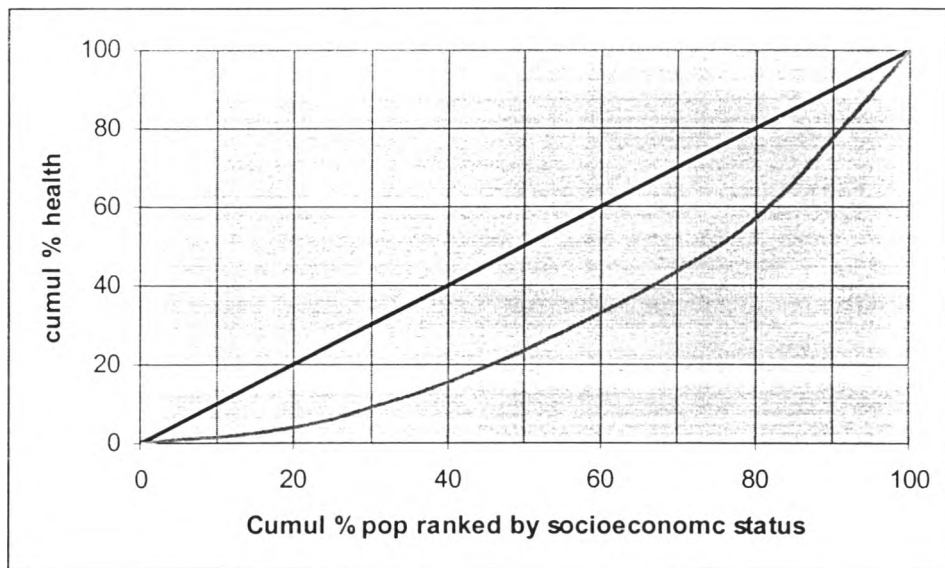


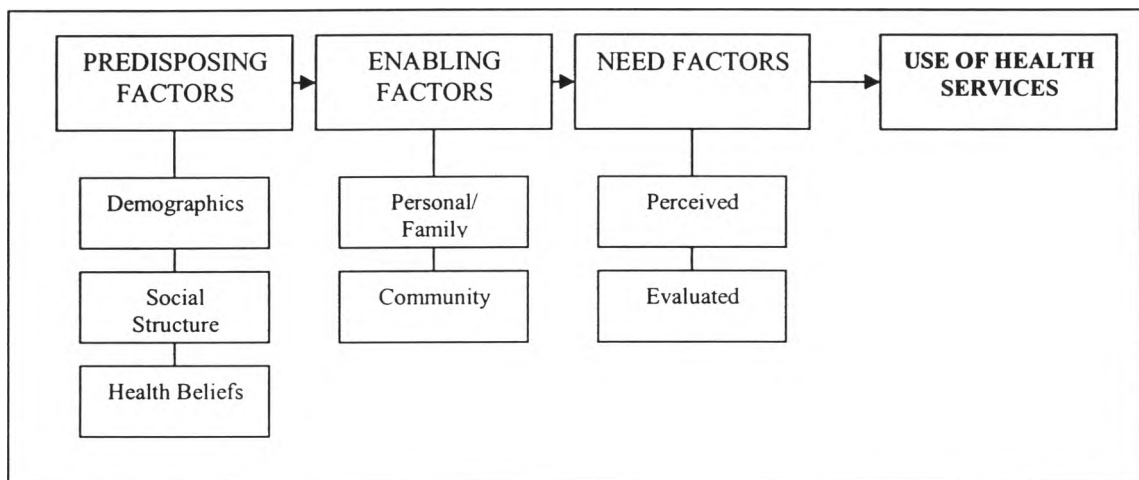
Figure 2. 8. Concentration curve

## 5. The Andersen Behavioral Model

Andersen's Behavioral Model, otherwise known as the Health Services Utilization Model, was employed as conceptual framework for the study. The following is a brief discussion of the model, its evolution and how it has been employed in various studies. Towards the end of this chapter the framework of the study is presented.

Andersen's behavioral model was initially developed in the late 1960s to assist the understanding of why families use health services, to define and measure equitable access to health care and to assist in developing policies to promote equitable access (Andersen, 1995). It presupposes that health care utilization is a function of the predisposition of an individual to use services (predisposing factors), factors that enable or impede use (enabling) and an individual's need for services (Coughlin, 2002).

Predisposing factors include the different demographic variables, socio-economic status and health beliefs. Enabling characteristics reflect both family and personal services such as income and social support, availability and accessibility of health care services. The need variables refer to health status or illness, perceived to be the most immediate and important cause of health service use (Andersen, 1995). Figure 2.9 shows the original model as developed by Andersen.



**Figure 2. 9. The initial behavioral model (1960s) {Adapted from Andersen, 1995}**

Each component might be conceived of as making an independent contribution to predicting use or the model may suggest an explanatory process or causal ordering where the predisposing factors might be exogenous, some enabling resources are necessary but not sufficient conditions for use, and some need must be defined for use to actually take place (Andersen, 1995).

Among the predisposing factors, demographic characteristics such as age and gender represent biological imperatives suggesting the likelihood that people will need

health services. Social structure is measured by a broad array of factors that determine the status of a person in the community, his or her ability to cope with presenting problems and commanding resources to deal with these problems and how healthy and unhealthy the physical environment is likely to be. Traditional measures to assess social structure include education, occupation and ethnicity. Health beliefs are attitudes, values and knowledge that people have about health and health services that might influence their subsequent perceptions of need and use of health services (Andersen, 1995).

Both community and personal enabling resources must be present for use to take place. Health personnel and facilities must be available where people live and work. Then, the people must have the means and know-how to get those services and make use of them. Income, health insurance, a regular source of care, travel and waiting times are some of the measures that are used.

Finally the need factors consider both how people view their own general health and functional state (perceived need) as well as the professional judgment about people's health status and their need for medical care (evaluated need).

The initial behavioral model was since then revised subsequently to include more variables that are recognized as important and could increase the variance in explaining health care utilization.

Andersen and Newman expanded the behavioral model by explicitly including the health care system, giving recognition to the importance of national health policy and the resources and their organization in the health care system as important determinants of the population's use of services, as well as changes in those use patterns over time. Other developments included the elaboration of the measures of health services' use including those representing type, site, purpose and coordinated services received in an episode of illness. Consumer satisfaction was also included as an explicit outcome of health services (Figure 2.10).

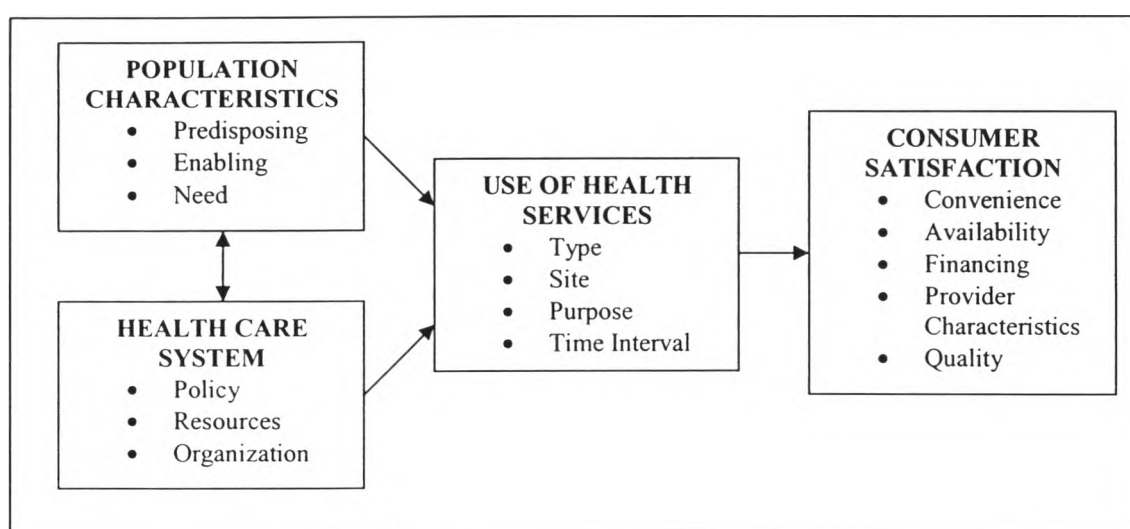


Figure 2. 10. The Model—Phase 2 (1970's) {Adapted from Andersen, 1995}

A third phase of the model evolved in the 1980s-1990s. It acknowledges the external environment (including physical, political and economic components) as an important input for understanding the use of health services. It also recognizes personal health practices such as diet, exercise and self-care as interacting with the use of formal health services to influence health outcomes (Figure 2.11). The inclusion of health status

outcomes in this model allows the extension of the measures of access to include dimensions which are particularly important for health policy and health reform.

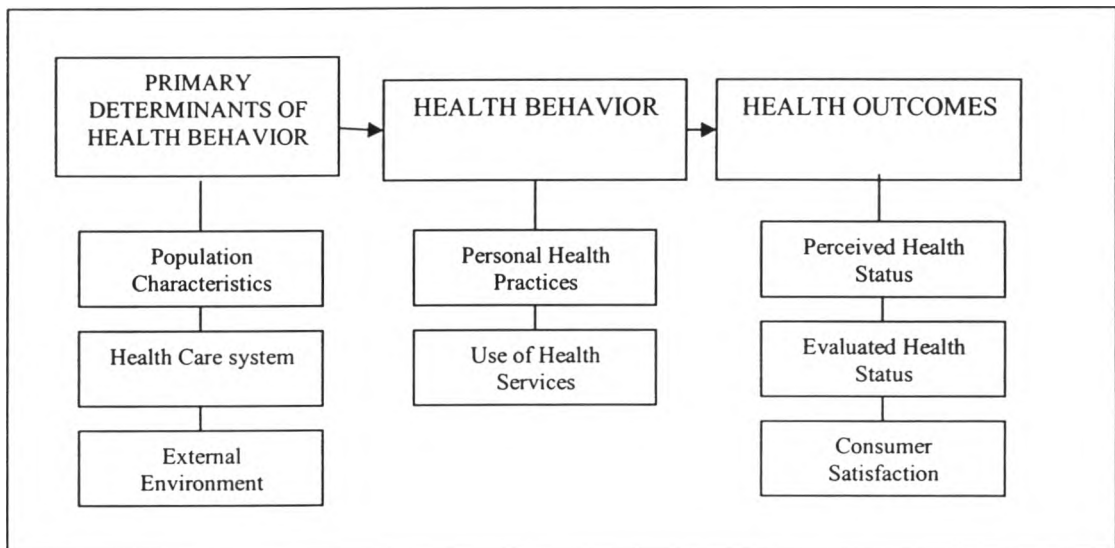


Figure 2. 11. The Model—Phase 3 (1980s- 1990s) {Adapted from Andersen, 1995}

Another emerging model as shown in Figure 2.12 emphasizes the dynamic and recursive nature of health services' use model which includes health status outcomes. This model portrays the multiple influences on health services' use and subsequently on health status. It also includes feedback loops showing that outcome, in turn, affects subsequent predisposing factors and perceived need for services as well as health behavior.

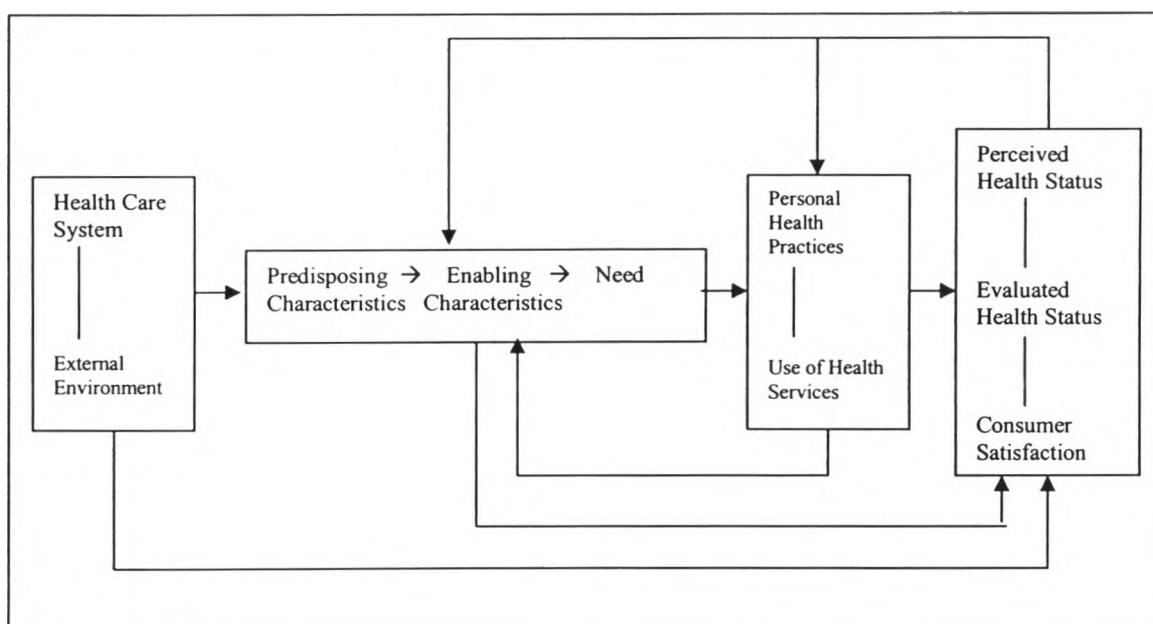
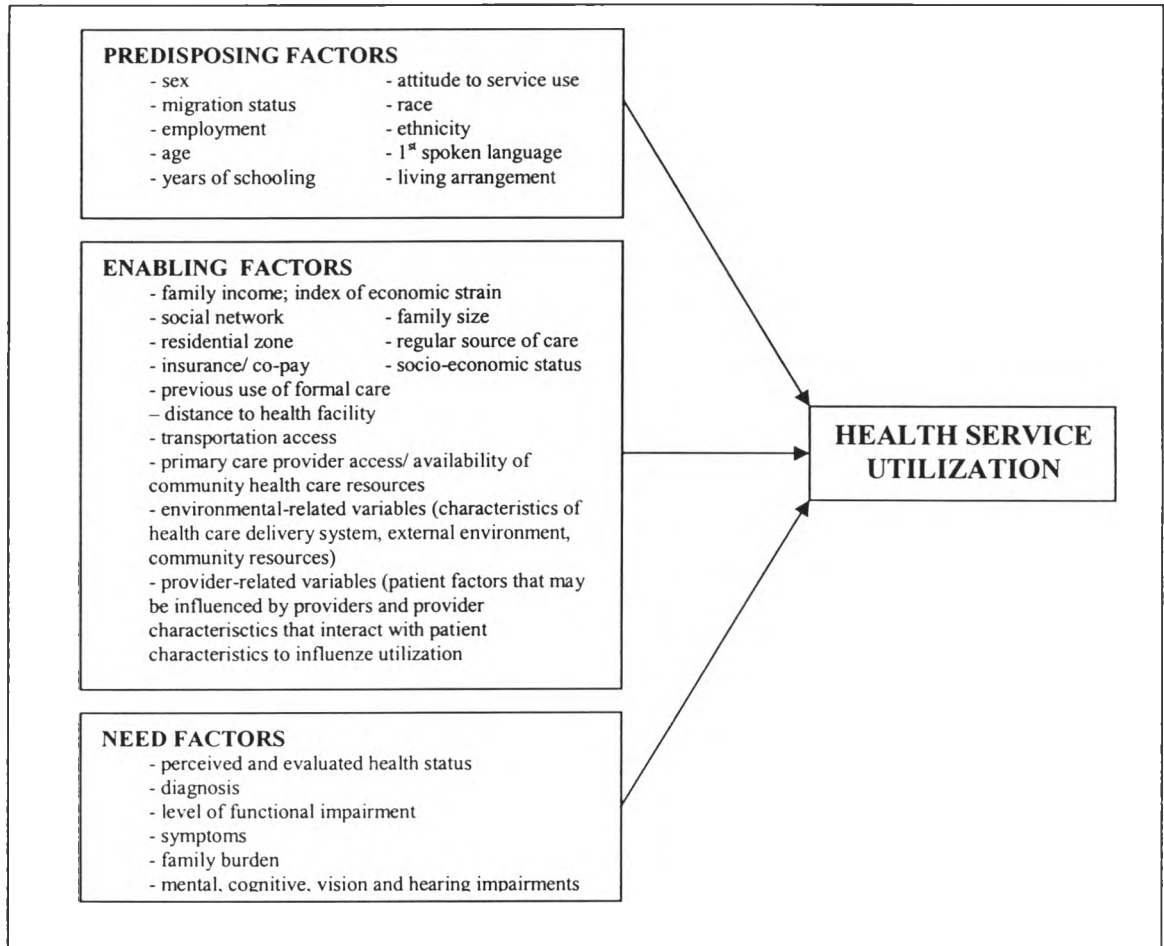


Figure 2. 12. An emerging model – Phase 4 {Adapted from Andersen, 1995}

Andersen's behavioral model is one of the most frequently used frameworks for analyzing the factors that are associated with patient utilization of health care services like pharmaceutical care, home health care, health services for mental health problems, community service, preventive and other ambulatory services. It has also been used to understand disparities in utilization of medical services in different insurance systems as well as explain some concepts such as vulnerability (Phillips *et al.*, 1998; Shi, 2001; Henton *et al.*, 2002; Cranol and Cristensen, 2003; Cheng and Chiang, 1998; Shippee-Rice *et al.*, 2003; Albizu-Garcia *et al.*, 2001; Bosompra *et al.*, 2001; Coughlin *et al.*, 20020). Although this model is popularly employed in studies using primary data, it is also widely used as framework in studies involving secondary data such as medical record data, national demographic health surveys and health expenditure surveys (Hibbarb and Pope, 1986; Henton *et al.*, 2002; Fosu, 1994; Chen, 2002; Phillips *et al.*, 1998). An examination of a number of literature that employed the Andersen behavioral model as

conceptual framework, generated a number of variables for each of the 3 factors as classified by Andersen (Figure 2.13).



**Figure 2. 13. Summary of variables employed for each of the three factors in Andersen model from various literature**

## 6. Conceptual framework

The conceptual framework of the study is shown in the next figure (2.14). It is patterned after Andersen and Newman’s model that separates the health care system from the predisposing, enabling and need factors.



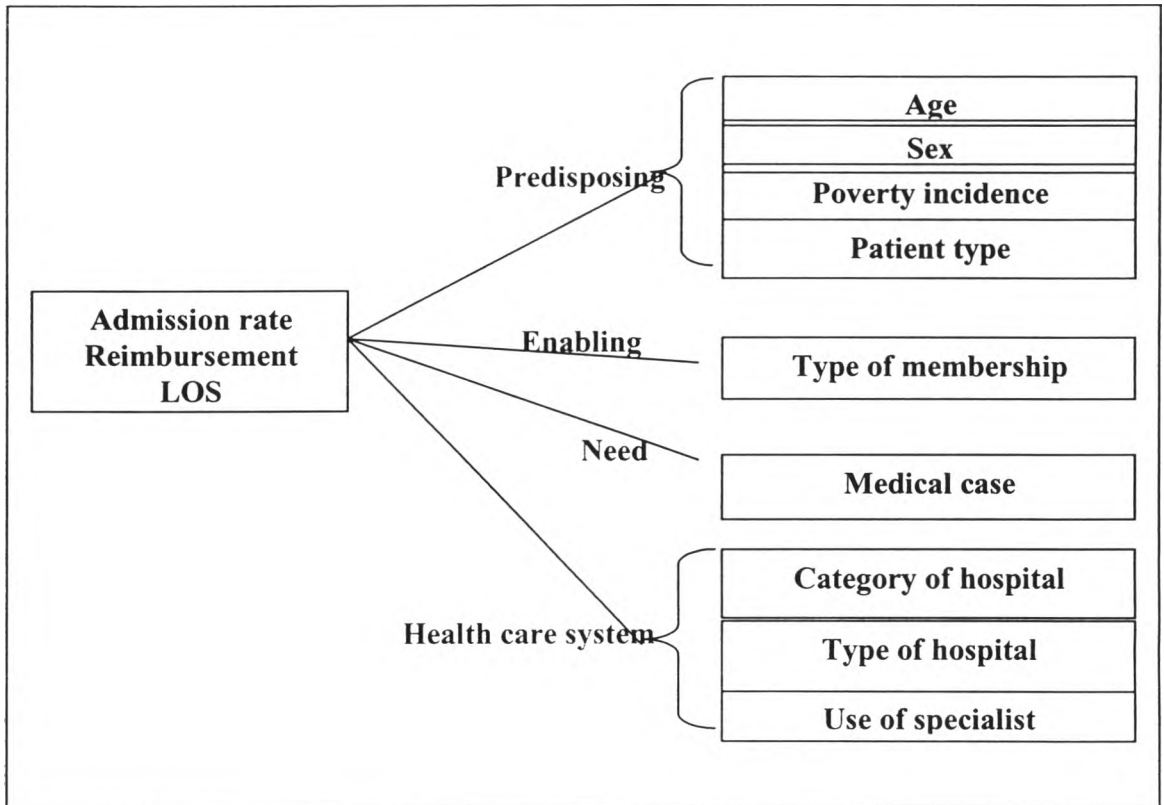


Figure 2. 14. The conceptual framework

It is hypothesized that each of these factors will help understand the pattern of utilization for the different provinces and regions and may well explain for observed variation in use and health care spending.