INEQUALITY IN ACCESS TO CANCER TREATMENT IN VIETNAM:

IMPLICATIONS FOR POLICY

By

Do, Ngan Kim

THESIS

Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirements
for the degree of

MASTER OF PUBLIC POLICY

2007

INEQUALITY IN ACCESS TO CANCER TREATMENT IN VIETNAM:

IMPLICATIONS FOR POLICY

By

Do, Ngan Kim

THESIS

Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirements
for the degree of

MASTER OF PUBLIC POLICY

2007

Professor: Shin Ja-eun

INEQUALITY IN ACCESS TO CANCER TREATMENT IN VIETNAM:

IMPLICATIONS FOR POLICY

By

Do, Ngan Kim

THESIS

Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirements
for the degree of

MASTER OF PUBLIC POLICY

Approval as of May , 2007

Supervisor Ja-eun SHIN _____

2007

ABSTRACT

INEQUALITY IN ACCESS TO CANCER TREATMENT IN VIETNAM: IMPLICATIONS FOR POLICY

By

Do, Ngan Kim

Cancer has been becoming the second largest cause of death among non-communicable diseases in Vietnam currently and is estimated to be the first cause of death in 2010. However, the investment of the government to this disease is inefficiently since the treatment requires high technology medical facilities and high costs of services. Ninety percent of the cancer patients have no chance to access to cancer treatment services for several reasons. This thesis tries to examine the reasons derived from the demand side of the market to find out the key determinant influencing on inequality in access to cancer treatment for people of the same needs i.e. geography, treatment cost and income level of the patients. Statistical analysis from the data of my survey at National Cancer Hospital (K Hospital) in the northern part of Vietnam shows that insurance status is the main factor affecting the equality in access to cancer treatment in Vietnam. Solutions to increase the coverage of health insurance are also presented in order to advise the government to achieve universal coverage of health insurance.

Dedicated to:

My husband: Tran Ngoc Hai Son

My son: Tran Ngoc Hai Minh

My mother: Nguyen Thi Tung

ACKNOWLEDGEMENTS

I would like to regard my special thanks to professor Shin Ja-eun who has helped me a lot since the first day I entered KDI School. She has not only helped me in adapting with the school but also in the life in Korea. I am very happy and glad to have her being my supervisor for this thesis. With her special expertise on the field, professor Shin has given me valuable guidance on the thesis from the topic proposal to the final draft. Despite her extremely tight working schedule, she has been always available to help, discuss and encourage me on the completion of this thesis.

I am also thankful to my colleagues at the Ministry of Health and National Hospital for Cancer who helped me collect data and carry out the survey.

I would like to express my sincere gratitude to all the professors, staffs and fellows of KDI School for their help and kindness during the time I studied in Korea. I am very grateful to the KDI School of Public Policy and Management for giving me a chance to study at the first ranking business school of Korea and among the top ten schools in Asia. The master program on public policy has laid a solid fundamental on my academic career and improved my working capability and efficacy.

Last but not least, I would like to thank my family members, especially my husband, my son and my mother who are always beside me and give me strength to complete my study and my thesis at KDI School.

Thank you very much.

Table of Contents

List of tables and figures

Tables:

Figures

Chapter 1

Introduction

This chapter describes the background leading to the research objectives of the thesis including the cancer curative situation in the context of the current health system in Vietnam and the health status of the Vietnamese people. An overview of the research will draw a general picture of the motivation as well as research methods. Literature review is also presented in this chapter.

1. Overview of health situation in Vietnam

The Socialist Republic of Vietnam is a developing country in Southeast Asia with a surface area of 332,600sq.km, stretching along the 3260 km eastern coastline of the Indochinese Peninsula. In the shape of the letter “S”, its territory also covers a vast area that encompasses a large continental shelf and a string of thousands of scattered islands. Approximately 80 percent of the lands are mountainous, highland and jungles; only 20 percent is flat land. Vietnam has two big cities, Hanoi Capital in the North and Ho Chi Minh City in the South where almost all of the political, social, cultural and economical organizations are located.

There are distinct climatic variations between different regions in Vietnam. The North has four distinctive seasons while the Central and the South have only two seasons: the rainy season (from April to October) and the dry season (from November to March of the following year). Such climatic and weather conditions greatly influence on the characteristics of the epidemiological disease patterns of Vietnam.

According to the General Statistic Office, the population of Vietnam in 2006 is 84 millions people. Among those, male accounts for 49 percent and female accounts for 51 percent. The population growth rate is 1.4 percent per annum. The population of the working age is about 43.6 million, which is equivalent to 52 percent

of the whole population. The population density is 252 persons per sq. km and some 27.2 percent of the population lives in the urban areas. The literary rate in Vietnam over the past years has always stood at high level, more than 93 percent.

Vietnam has 64 provinces and centrally administered cities. There are 659 districts and 10,732 communes/wards. Each province has its own city council and there are several district councils under the city council. The public administrative system in Vietnam is becoming more and more decentralized.

At present, Vietnam ranks the second in the world in term of economic growth rate (more than 8 percent). The average GDP per capita was approximately 560 US dollars. Thanks to *Doi moi*, a wide rage economic reform policy initiated in 1986 to transform the socialist market oriented economy into a market-based economy, the living conditions of the Vietnamese people have markedly improved. The hunger eradication and poverty alleviation program of Vietnam won the high evaluation from the international community. According to reports on the Millennium Development Goals (MDG), the proportion of poor households in Vietnam by the international poverty line (including both food and non-food poverty) has decreased dramatically from 58.1% in 1993 to 24.1% in 2004. Vietnam is listed by UNDP (2005) among the top developing countries with good records in poverty reduction. However, the state budget allocation for healthcare represents a very modest number, about 5 US dollars per capita (2001), accounts for only 6.1 percent of government spending compared to that of 13 percent for education. The level of government expenditure on health in Vietnam is lower than other countries in the Western Pacific region such as Japan (16.4 percent), Cambodia (16 percent), China (9.5 percent), and Laos (7 percent).

Moreover, the rapid economic growth has brought some challenges for Vietnam such as the gap between the rich and the poor, the disparity in the rate of

food poverty, infant and maternal mortality, child malnutrition and quality of health services among geographical regions. In general, the health indicators in the Red River Delta and the Mekong Delta are better than the rest of the country. The infant mortality rate in the Red River Delta is 10.6/1000 while that ratio in the Northwestern region is 34.1/1000. Furthermore, the morbidity and mortality pattern in Vietnam is changing also. It is now in the transforming period of a developing country characterized morbidity and mortality pattern to a developed country characterized pattern. The number of infectious diseases has been decreasing while the number of non-infectious diseases has been increasing very fast. In 1986, communicable diseases such as malaria, tuberculosis etc. accounted for 53 percent of deaths but reduced to 17 percent in 2004. On the other hand, non-communicable diseases such as cancer, cardiovascular etc. caused 40 percent of deaths in 1986 and increased to 58 percent in 2004.

Rapid urbanization, changes in lifestyle, and the development of technology and commercial activities have led to new problems to human health. Equality in access to care is a major concern of policy makers in Vietnam. One of the main tasks, stated by the government of Vietnam in the strategy for protection and care of people's health in the 2001-2010 period, is to "strive for all the population to enjoy primary health care services, have access to and use quality health services" to attain a high level of equality in human development and contribute to the achievement of Vietnam's MDGs.

2. Organizational structure of the health sector in Vietnam

The health sector in Vietnam has four levels: central, provincial, district and commune. Each level has its own functions and characteristics; and the system works from the lower level to the higher one. Commune level is the lowest level while central level is the highest one. People may visit commune health units, district,

provincial or central hospitals according to their demand. If the commune health units or hospitals of lower levels than central level do not have enough capability to deliver sufficient services for the patients, he or she will be sent to the higher level.

2.1. Central level

"The Ministry of Health is a Government agency exercising state management in the field of people's healthcare, which includes preventive medicine, consultation and treatment, rehabilitation, traditional medicine, drugs for preventive and curative care in humans, hazardous effects of cosmetics to human health, food hygiene and safety, and medical equipment and health facilities; State management of public services under the Ministry's management; and representing State ownership of capital shares in enterprises using state capital and managed by the Ministry of Health in accordance with the stipulations of law." (Government Decree No. 49, 2003).

At the central level, there are big hospitals and medical centers directly under the state management as well as professional guidance of the Ministry of Health. Those hospitals are mostly specialized hospitals, equipped with the most advanced equipment and facilities in Vietnam and the most skilful and well-trained health staffs to treat and cure difficult cases of different diseases such as cancer, pediatrics, dermatology, dentistry, tuberculosis, ophthalmology etc. Leading doctors, health experts are working at those health institutions as well. There are only several general hospitals at the central level. However, they are very large hospitals in terms of size and personnel. Central level hospitals are mostly located in big cities such as Hanoi and Ho Chi Minh City. Therefore, people in those cities and nearby cities have a better chance to get benefit from the high quality services of those hospitals.

2.2. Provincial level

Provincial Health Services are technical agencies administered by the Provincial People's Committees or centrally-run cities. They assist the provincial People's Committees in exercising the state management in people's health care. Provincial Health Services are administered by the provincial People's Committees in respect of their organization, staff and activities while their professional operations are subjected to the Ministry of Health's guidance, instructions, supervision and inspection.

There are about 357 provincial health facilities, including hospitals, leprosariums, sanatoriums, rehabilitation and special clinics in 64 administrative provinces in Vietnam. Among those, 117 facilities are general provincial hospitals and 86 facilities are specialized hospitals. Those hospitals are not as well-equipped as hospitals at central level. In total there are 76,777 health workers working at provincial health services as well as provincial health facilities. Nowadays, some provincial People's Committee in the nearby provinces cooperate with each other to establish inter-provincial hospitals to have more capital to invest in upgrading facilities and training health workers in order to improve the quality of the services. Those types of hospitals have been becoming the regional main points of health care services which create more equality in access to health care for people. However, the number of inter-provincial hospitals is still limited.

2.3. District level

District Health Centers are technical agencies administered by the People's Committees of districts, precincts, provincial capitals or towns. They exercise state management in people's health care and health promotion in the district, including curative and preventive system. District Health Centers are administered by People's

Committees in terms of its organization, staff and operations. The provincial Health Services administered the district health centers in professional work by guiding and supervising.

On average, each district has two health facilities and there are 1,550 district health facilities all over the country. At this level, there are 573 general hospitals but no specialized hospitals yet. Inter-commune policlinics are playing an important role in delivering health care services with the number of 946 units. 62,183 health workers are working for district health facilities. District hospitals as well as inter-commune policlinics are very poor equipped with the limited number of health personnel. There are 43,000 beds at this level. It is frequently seen in those health facilities that the equipment for health check-up and treatment is out of date and insufficient. These facilities are usually used to treat common diseases and do simple surgeries.

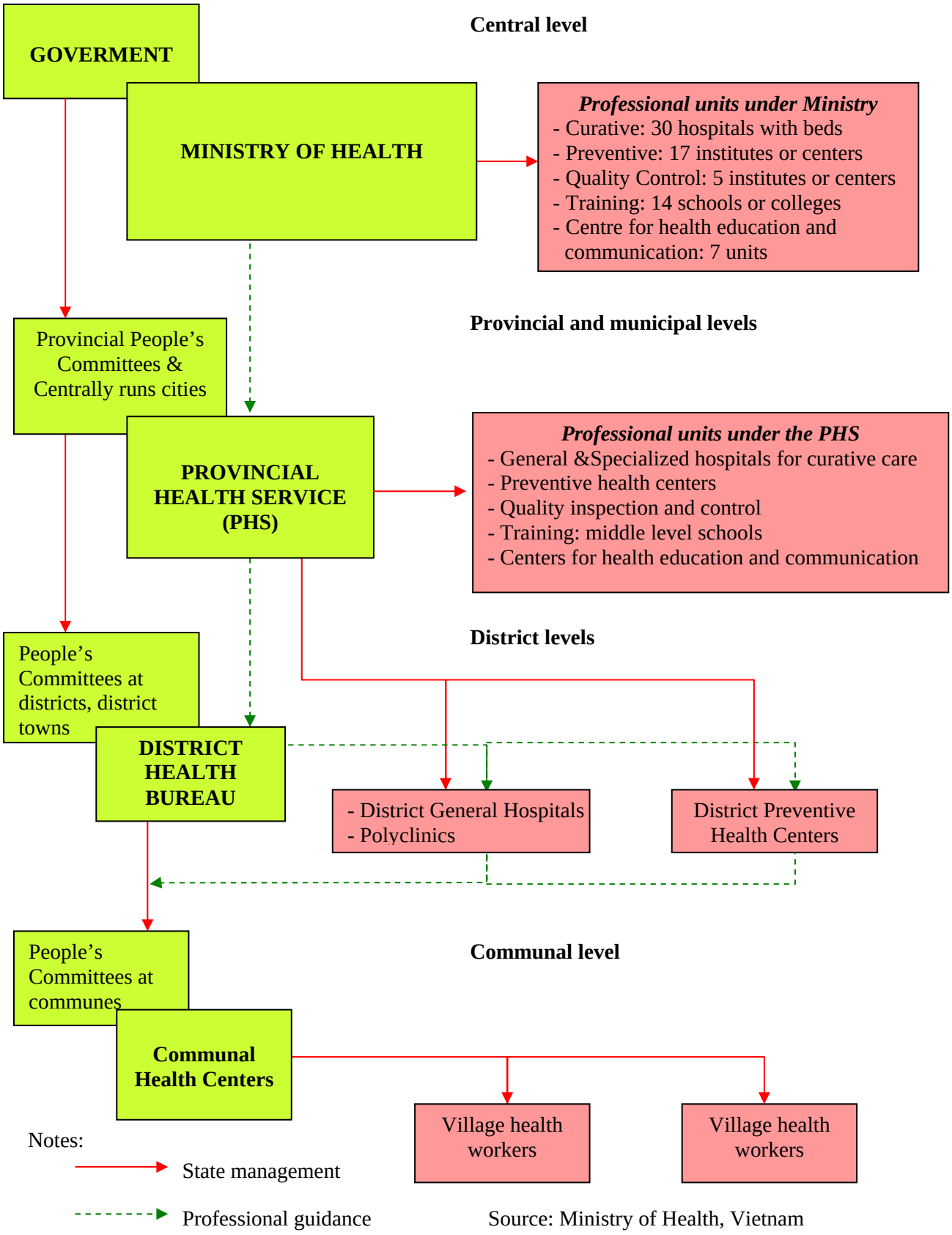
2.4. Commune level

Communal health stations are the primary health units accessible to people. These stations have the tasks of providing primary healthcare services, early detection of epidemic outbreak, treating common diseases and attending normal deliveries. More than 90 percent of the communes in Vietnam have communal health stations. This is the result of the endeavor of the government in expanding the primary health care network all over the country to ensure the equality of access to the health services for the people.

However, many communal health stations do not have sufficient stock of essential drugs for common diseases. Each communal health station has around 3 health workers taking care of more than 8,000 people. On average, among 3,000 inhabitants there is only one health worker. The ratio is insufficient in ensuring the quality of the services as well as matching the demand of health care of the people.

Usually people in rural areas are more vulnerable to diseases but the communal health station normally has just one room with two or three beds. Therefore, it is harder for the people in rural areas to access to appropriate health care services when they are sick. Although there are a large number of communal health stations, the patients sometimes can not receive well treatment because of the lack of essential drugs and facilities. They have to go to district or provincial hospitals for just a very common health service such as eyesight checking.

Figure 1: Organizational chart of the health sector



3. The issue of cancer in Vietnam

3.1. The situation of cancer in Vietnam

Together with the development of the economics and the rapid changing of lifestyles, the number of cancer incidence has been increasing very fast in the recent years. Cancer is the second largest cause of death among non-communicable diseases in Vietnam (cardiovascular ranks number one). Among the largest percentage of death by 21 disease chapters all over the country, cancer and related diseases rank number sixth (Health Statistic Yearbook, 2004). There are about 150,000 new cases of cancer annually and the disease takes away the life of 100,000 people per year (Public Health Conference, 2006). These numbers are three times higher than that of 1990. At the beginning of the 90^{th} decade of the previous century, it was estimated that there were about 53,000 new cancer cases and 38,000 deaths from cancer per year. Only 20 percent of cancer patients are diagnosed with cancer at the early stage while other 80 percent of the patients have late detection.

According to National Cancer Institute, in 1990, the incidence rate of cancer in male was 133 per 100,000 male inhabitants and 91.7 per 100,000 female inhabitants. The cancer pattern in Vietnam has the characteristic of the common cancer pattern in developing countries with relatively high rates of cancer of stomach, nasopharynx, cervix and placenta whereas in the developed countries breast, prostate and colon cancers are frequently seen. The diversified living conditions and habits result in various typical types of cancer within regions of the country. Cervix uteri and liver seem to be seen more frequently in the South while lung, stomach, nasopharynx and breast are often observed in the North.

Table 1: Cancer incidence and death rates of some Asian countries in 2002

Site	Vietnam		Thailand		Malaysia		Singapore	
	New cases	Deaths	New cases	Deaths	New cases	Deaths	New cases	Deaths
Males								
Oral cavity	1073	572	1151	619	277	150	90	31
Nasopharynx	2113	1343	961	615	1090	680	349	198
Other Pharynx	828	639	667	515	149	114	50	38
Stomach	6104	5190	1101	964	1007	860	478	380
Colon and rectum	3428	2220	2744	1715	1509	966	772	417
Liver	6933	6515	10195	9831	888	839	403	406
Lung	8089	7480	6429	6070	2262	2099	1001	952
Female								
Oral cavity	919	473	1209	631	236	126	54	29
Nasopharynx	921	569	394	245	411	255	124	67
Other Pharynx	236	181	127	99	65	49	10	7
Stomach	3159	2661	856	743	535	452	273	208
Colon and rectum	2601	1664	2108	1319	1329	852	733	402
Liver	1827	1720	4995	4821	263	248	116	146
Lung	2219	2043	3026	2858	914	844	448	441

Source: GLOBOCAN 2002

Compared to other countries in the region, Vietnam's cancer incidence is of the same level with Thailand, Singapore and Malaysia (Table 1). In 2000, lung cancer took the lives of more than 7000 people, seven times higher than that of Singapore. However, the level of priority of cancer in health sector in those countries is much higher than that of Vietnam. Cancer ranks number one in terms of priority in health care in Singapore, second in Thailand and third in Malaysia while it is not even listed in the priority list in case of Vietnam (Table 2). Policy makers claim that the investment for cancer is inefficient. The cost is too high and the rate of life saved is very low. They think that it is unnecessary to spend too much money on cancer since sooner or later the patients could not survive for a long period of time after the treatment. The same amount of money spent on cancer could save more patients of other diseases. The issue of having a national program on cancer was raised in the mid 90s but the proposal has not been approved up to now. At present, people are not

well-equipped with good knowledge on prevention, diagnosis, treatment and even the disease itself.

Table 2: List of priority in the health sector of Asian countries

	1	2	3	4	5
Bangladesh	HR	Hepatitis B	CV	Cancer	Osteomalacia
China	Cancer	CV	Health economics	Quality control	
India	Cancer	CV	TB		
Indonesia	Infectious diseases	Cancer	Endocrine		
Japan	Cancer	Medical Equip. for rural areas	Training	CV	
Korea	Cancer	Quality control	Health economics		
Malaysia	CV	Infectious diseases	Cancer	Diabetes, kidney	HR
Mongolia	CV	Cancer	Hepatitis B	Infectious diseases	
Pakistan	Cancer	Mental health	Malnutrition, Hepatitis B		
Philippine	TB	Cancer	CV	Endocrine	HR
Singapore	Cancer	CV	Gerontology	Arthritis	
Sri Lanka	Malaria, TB	CV	Cancer	Mental Health	Training
Thailand	CV	Cancer	Arthritis		
Vietnam*	Primary health care	Capacity building	National Health Programs	Upgrade Facilities	Preventive Medicine

(HR: Human Resource, CV: Cardiovascular, TB: Tuberculosis)
Source: WHO Conference on health care consultant, Indonesia 2000
* Health policies and Guidelines, Medical Publishing House 2002

3.2. Cancer treatment network

Cancer is listed as fatal disease by World Health Organization but it is not untreatable. Researches reveal that one third of cancer cases can be prevented; one third can be treated if detected early; and medical care can improve the quality of life of the rest one third. However, not only treatment but also the diagnosis of cancer are very expensive and require skillful physicians, which is not always available in a large quantity in Vietnam. All over the country, there are only two specialized cancer

centers where cancer can be treated comprehensively: the National Hospital for Cancer (K Hospital) in Hanoi and the Oncology Hospital in Ho Chi Minh City. At the provincial level, the local authorities have founded cancer units at the provincial general hospitals to extent the cancer treatment network in Vietnam. There are about 1120 cancer specialized beds all over the country. Cancer treatment units are not available at the district and communal level.

The medical equipment for cancer diagnosis and treatment is of dramatically shortage. There are only 4 MRI machines, 6 accelerators and 18 cobalts all over the country and mostly allocated in big cancer centers/units in big cities. Such a modest cancer management system is far from adequate to meet the needs of a population of more than 84 millions people.

4. Research overview

Vietnam is a developing country where economic development ranks number one in the priority list of the government. However, the government always tries to deliver as many health services in terms of quality and quantity for its citizens. With the limited amount of financing for health, the health sector has concentrated mostly on communicable diseases and primary health care consolidation. The Party Politburo's Resolution No. 46 (2005) on Health Care, Protection and Improvement for People in the new situation points out that "the quality of health services in Vietnam has not met the growingly diversified needs of the people". Cancer is increasing very fast in this country but the government seems not to pay enough attention to the disease. The government does not invest adequately to the disease as it is worth to be. This might be against the strategy of ensuring health care for all of the government. However, the government has its own reason as cancer is a fatal disease and it is very expensive to treat. Therefore, this thesis tries to create a background for further

studies on cancer treatment as well as health care services by identifying the determinants of inequality in access to cancer treatment and the relationship between those determinants to find out the key determinant. From those findings, recommendation for the government to increase the access to cancer treatment will be discussed in the most effective way so that the financial burden of the government will be lessened but health care for all still achievable.

This whole thesis focuses on answering the following research questions: (1) Is there any inequality in access to cancer treatment care in Vietnam? (2) What is the main determinant affecting the access to care in cancer treatment? (3) What should the government do to improve the access to health services of cancer patients? In accessing the issue, we should be clear that whether inequality exists in Vietnam, particularly in cancer treatment. If there is no inequality then we do not need to proceed to the two following questions. However, in case of having inequality it is necessary to find out the main reason among several determinants derived from the demand side of the market which prevent patients from choosing the services even though they are in need. Therefore, the government should do something to help those people in having more confidence and chances to access to the services according to their needs.

The study of this thesis bases on quantitative and qualitative methods by using statistical tools. Apart from sources of data from the Ministry of Health of Vietnam, National Cancer Hospital, General Statistic Office, WHO, GLOBOCAN etc. the data in this thesis is collected from a survey done by the author. Since there are two cancer specialized hospitals in Hanoi and Ho Chi Minh City, the thesis focuses on the northern part of the country only. A survey is carried out in National Cancer Hospital (K Hospital) with the sample size of 300 observations. Controlling factors which is

geography, treatment cost and income factors are induced from the reviewed literature. The author then uses statistical techniques by Stata 9.0 to identify the relationship between different variables. Implications for policy are withdrawn based on the findings of the statistical analyses.

5. Literature Review

The issue of equality in the health care system has been studied mostly in developed countries, where social welfare is one of the most important issues of the public policy. Although equality in access to care is a vital issue of the health sector in every nation, it does not receive as much attention from the government in developing countries as in developed countries dues to the fact that economic development is of more concern. The health care system itself creates disparities in the access to care of the nation's people. Each country with its own characteristics has different behavior of the doctors as well as the patients. Most of the literatures focus on how the government's policies affect the demand and supply of the health care services with different perspectives.

Penchansky and Thomas (1981) point out that the most important factors that influence the utilization of medical services are the availability of appropriate supply of human and medical resources, geographical accessibility to medical facilities, affordability of medical expenses, accommodation of medical facilities and the acceptability of patients to medical facilities. Among those health insurance, cost containment programs and other public finance policies have a big influence on the entitlement, need assessment, and enforceability as well (Maarse and Jan Van Der Made, 1998). It turns out that the rich receives more benefit from health insurance program than the poor because most of the patients need extra services not included in the common health insurance packages that the poor could only afford (Waters, 2000).

Moreover, there are several social factors affecting the access to care of the people such as gender, ethnics and educational background. Cyber equipment, particularly internet has changed the way doctors and patients communicate, as well as the access to care of the people in the modern world (Ziebland, 2004).

Recent literatures have not only focused on the general concept of access to care but also on the particular diseases with different characteristics accordingly:

- ***Inequality in cancer treatment caused by geography factor:***

Several literatures study the impact of geography on access to care (Cohen and Lee, 1985; Hadley and Cunningham, 2004…) revealing that the patients typically choose hospitals, particularly for acute diseases, base on "proximity and reduced travel time". Thomas, Mireille and Cheryl (2005) address the issue of geographical impact on access to care by assessing the impact of hospital closures in Los Angeles region on perceived access to care, health care utilization and health outcomes. The closures of hospitals directly affect on the distance from a resident's home to the nearest hospital. Increasing distance may translate into reducing access to care.

- ***Inequality in access to cancer treatment caused by treatment cost***

The issue of how cost containment programs affect the right to health care in the Netherlands is examined by Marrse and Jan Van Der Made (1998). They measure the right to health care in three dimensions: entitlement, need assessment, and enforceability. Cost containment has a close relation with health insurance of different packages. Procedures for entitlement decisions have been made more stringent: the acceptance of high-cost technology as an entitlement under social health insurance. Access to care is not only rationing by guidelines but also the efficient, fair and in accordance with the patients' need for care. On the other hand, cost containment has little effects on enforceability of entitlement. The organization of health insurance

does not work as a principle barrier to the accessibility to health care. In conclusion, the treatment cost absolutely has some impact on the access to care.

- ***Inequality in access to cancer treatment caused by income difference***

Kim, Lee and Hong (2005) believe that all the people must suffer from the impact of the social factors; however, people of different income groups receive different level of impacts of the same socioeconomic context. Taking the data from National Health Insurance Company (NHIC) of Korea, they draw the concentration curves through the index of medical service utilization by plotting the accumulated population share of income groups and the accumulated share of the medical service utilized by the corresponding income groups within cancer patients of Jeju Island (South Korea). The result is that there is a gap between the utilization of medical services among different income groups. The patients of lower income groups not only utilize less medical services in terms of quantity but of less quality also.

This thesis includes most of the important factors of equality in access to care mentioning in the above literatures such as geography, treatment costs, and income since there is no study examining all those determinants at the same time as well as testing the relationship between those determinants. Current literatures focus on the health systematic factors or specific determinants of the access to care. Therefore, there should be a comparison among those reasons to see the relationship and the effects of those determinants in the society. This issue will be covered in this thesis. Moreover, most of the studies are about the situation in developed countries, while this thesis focuses on the situation in Vietnam, a developing country facing a global problem of cancer disease and equality in access to care. Besides, there are not many studies concerning equality in access to care in cancer but the whole health care system.

In Vietnam, as the matter of facts that health care deliveries meet many shortcomings, several studies focus on the supply side of the health market and the affordability of the patients in general. Regarding cancer, most of the studies concentrate on the epidemiological sides to break down the causes and find out the treatment methods for the disease. The frequently seen types of cancer and the knowledge of the people about cancer are being studied increasingly. However, it is hardly seen any research concerning the issue of access to cancer treatment according to needs. Therefore, this thesis will deeply study the cancer equality problem in Vietnam to contribute a more comprehensive picture of the issue of cancer in the country.

Chapter 2

Definition of equality in access to health care

While equality in health care is a crucial concern of health policy and is one of the most frequently used words in discussion regarding health care system, it is far more than unambiguous to define. Yet the concept nevertheless remains somewhat elusive, and research evidence on the nature and magnitude of inequalities, although extensive, proves patchy and difficult to interpret. Many governments have made commitments to tackle inequalities in access but making this policy operational will be difficult without a clear picture of what is currently known about equity of access to health care services. This chapter focuses on giving the general views on equality in access to health care and the way this thesis views the issue.

1. What is access*?*

It seems to be challenging to define precisely "access". Access is also used synonymically with such terms as accessible and available, which are themselves ill defined. The Discursive Dictionary of Health Care, published by the U.S. House of Representatives, a source of precise definitions for terms employed in federal health care legislation, however, states the definition for access that: the term "… is thus very difficult to define and measure operationally…" and that "… access, availability and acceptability … are hard to differentiate". It is common in the United States literatures to find "access" to health care interpreted in terms of individuals entering the health care system (Salkever, 1975; Aday and Andersen, 1975). Mooney (1983) has suggested that defining access in this way confuses access with receipt of treatment. According to him access can be more usefully defined in terms of the opportunities open to individuals. Even access is considered to refer to whether or not the individual is insured, and nuances such as the level of insurance or the magnitude

of co-payments are secondary. In Europe, however, where most all citizens are in principle insured, access can be quite a subtle concept. It might, at its most general level, refer to the ability to secure a specified range of services, at a specified level of quality, subject to a specified maximum level of personal inconvenience and cost, whilst in possession of a specified level of information (Goddard and Smith, 2001). Penchansky and Thomas (1981) define access to care by the degree of "fit" between the clients and the system. They specify the dimensions of access as availability, accessibility, accommodation, affordability, and acceptability as follow:

Availability shows the relationship of the volume and type of existing services (and resources) to the clients' volume and types of needs. It refers to the adequacy of the supply of physicians, health service providers, facilities (clinics, hospitals), and of specialized programs and services such as emergency care.

Accessibility is measured by the relationship between the location of supply and the location of clients, taking account of client transportation resources and travel time, distance and cost.

Accommodation is the relationship between the manner in which the supply resources are organized to accept clients (including appointment systems, hours of operation, walk-in facilities, and telephone services) and the clients' ability to accommodate to these factors and the clients' perception of their appropriateness.

Affordability represents the relationship of prices of services and providers' insurance or deposit requirements to the clients' income, ability to pay, and existing health insurance. Client perception of worth relative to total cost is a concern here, as is clients' knowledge of prices, total cost and possible credit arrangements.

Acceptability, the relationship of clients' attitudes about personal and practice characteristics of providers to the actual characteristics of existing providers, as well

as to provider attitudes about acceptable personal characteristics of clients. In the literature, the term appears to be used most often to refer to specific consumer reaction to such provider attributes as age, sex, ethnicity, type of facility, neighborhood of facility, or religious affiliation of facility or provider. In turn, providers have attitudes about the preferred attributes of clients or their financing mechanisms. Providers either may be unwilling to serve certain types of clients (e.g. welfare patients) or through accommodation, make them more or less available.

2. Horizontal and Vertical Equity

In exploring the principles of equality in access to care, the distinction between horizontal and vertical equity should be looked at. Horizontal equity requires the equal treatment of individuals who are equal in relevant respects and vertical equity requires the proportionately unequal treatment of individuals who are unequal in relevant respects. Horizontal equity represents equal access to medical services to all individuals irrespective of factors such as location, ethnicity, religion and the age of patient, in other words, equal treatment of equal need. For example, when two people need surgery to take out the tumor in lungs, they should wait the same length of time for the surgery and receive the same volume of quality of care. Vertical equity means equal access irrespective of income or financial wealth. It might also refer to an aim of unequal treatment for unequal need, i.e. more resources allocated for treating people with serious conditions than for those with trivial complaints. Vertical equity has been a strong underpinning for the system of health care finance in the UK for many years. Rich people are better able to contribute toward the costs of health care than the poor. Because they are rich, they are treated unequally and required to pay more through their taxes toward the costs of the national health services. This

thesis applies the concept of horizontal equity to study the equality of access to care for cancer patients in Vietnam i.e. equal access for equal need.

3. Equality in access to care

Equality of access to care can be interpreted in many different ways. Culyer and Wagstaff (1992) discuss definitions of equity in health care: equality of utilization, distribution according to need, equality of access, and equality of health. Some others assume that it means the guarantee of availability, supply and resources; while to others it means ensuring equal use for equal need. The first view focuses on the system having attributes that allow entry or use if desired and suggests that access deals with only the limited set of such attributes. The second interpretation suggests that access encompasses all factors that influence the level of use, given a health care need. It is clear that access is most frequently viewed as a concept that somehow relates to consumers' ability or willingness to enter into the health care system. The need for such a concept derives from the repeated observation that the entries into (or use of) the health care system cannot be fully explained by analyzing the health state of clients or even their general concerns with health care.

4. Equality of access to cancer treatment in this thesis

The Vietnamese health care system is based on equal access to health care for equal need; that is, a horizontal equity. People of the same health care need should receive the same health care services. Access is the measured by the fitting of the system and the need for health care of the people.

This thesis will follow the common norms of equality of access to health care in Vietnam. It focuses on the demand side of the market. Access is the ability to receive the services needed. Equality of access to care will be approached by

answering the question whether people of the same needs receive the same health care services.

Maarse and Jan Van Der Made (1998) mention about the criterion of the necessity of medical care. What is necessary medical care and who should decide is not only the problem of society simply but depending on the political context as well. It should be the patient, the physician or the community to decide the necessity of access to care? In this thesis, the need for health care is decided by the physician. When the doctors conclude that the patients need to access to active treatment the patients should receive the services. Those patients are considered to have the same need for cancer treatment.

Chapter 3

Methodology

This chapter explains the methods used in carrying out the study. The thesis is an applied research with experimental characteristics. Following empirical analysis, data is collected by carrying out a survey by the author at National Cancer Hospital (K Hospital) in Hanoi, Vietnam. Detail research method will be described as follow:

1. Data Collection

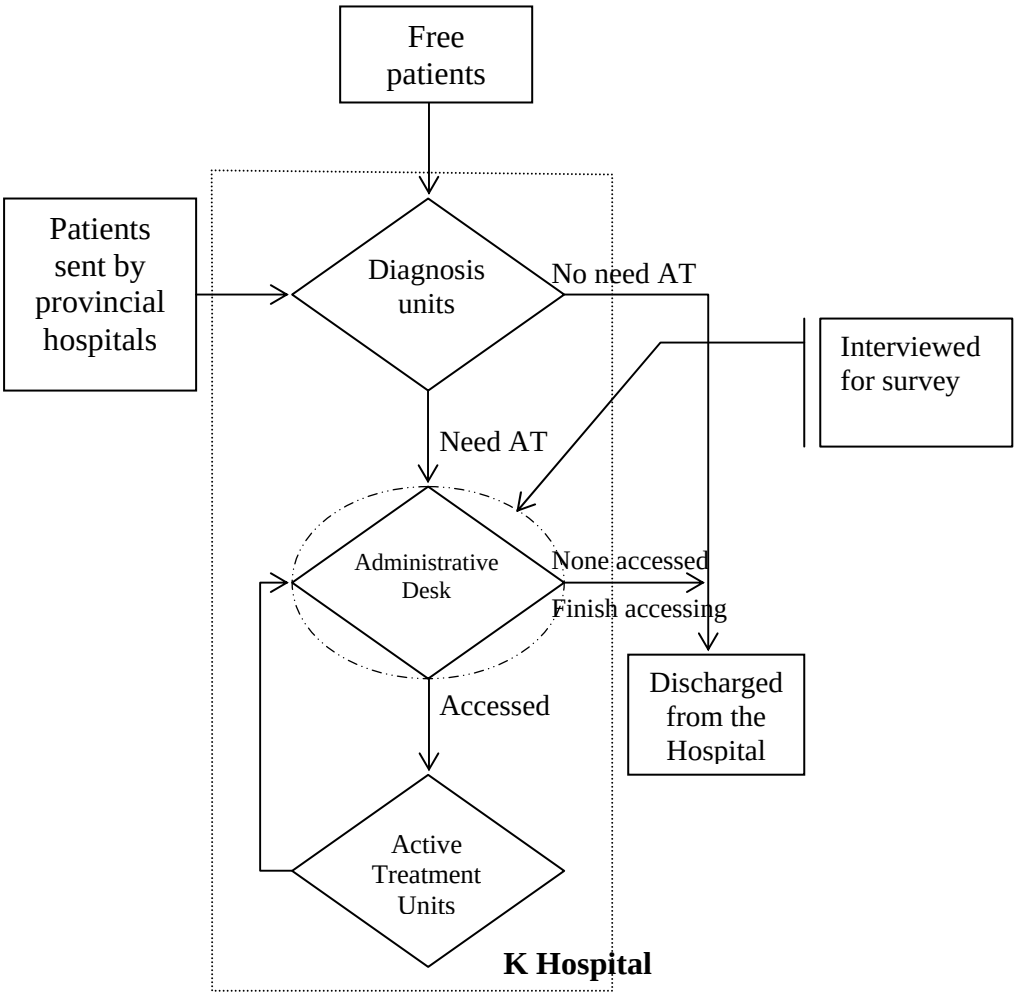
1.1.Sample identification

Vietnam health care system is classified into four levels: commune level, district level, provincial level, and central level. General hospitals of provincial level (each province has at least one general hospital) have the cancer units where diagnosis services and some treatment services for cancer patients are delivered. For difficult and complicated cases that they do not have enough facilities and skills to diagnose or treat, they send the patients to central level, which are K hospital in the North and Oncology Hospital in the South. On the other hand, patients can visit K hospital directly according to their own choice. About 60 percent of patients are sent to K hospital from the lower levels and 40 percent of patients go to the K hospital for their first visit. This system helps release the burden for the two central level hospitals.

After entering K hospital, all the patients are sent to the diagnosis units of the hospital to have several tests and diagnosis before having a chance to access to active treatment including surgery, radiotherapy, and chemotherapy. If the doctor confirms that the patient is not diagnosed with cancer or does not need to access to active treatment but other treatment or active treatment could not help the patient since he or she is in the end stage of cancer, they will be discharged from the hospital and their medical profiles will not be restored. On the other hand, if the doctor says the patient

needs the active treatment, then the patient will be sent to different units of active treatment. For those people, their medical records will be sent to the administrative desk and restored regardless the patients continue to pursue the treatment or not. Here if they continue to have active treatment, they will have to register for the admission to the active treatment units recommended by the doctor. After receiving the active treatment, they have to visit the administrative desk again to be discharged from the hospital. In case the patients decide not to take active treatment methods, the copy of their diagnosis records will be delivered here and they need to finish some administrative procedures to be discharged. Even if they do not decide to get to the active treatment, they also have to come here to do some administrative procedures to be discharged from the hospital. Therefore, the administrative desk is the place where we can find all the information related to all the services the patients had (figure 2). I interviewed 300 patients who passed this administrative desk with a list of questionnaires regarding their personal information, income, years of education, satisfaction with the services etc. (see Appendix). The process can be described by the chart below:

Figure 2: Survey sample identification



Note: "AT": Active Treatment

1.2 Variables Definition

1.2.1. Dependent variables

The objective of the study is to measure whether there is inequality in access to cancer treatment care in Vietnam by carrying out a survey of the sample size of 300 patients to estimate for the whole population. Equality is an abstract definition and has the qualitative value; therefore, it can not be measured directly. In this thesis, access to care is classified into two dependent variables: (1) whether the patients accessed to cancer treatment (surgery, radiotherapy, chemotherapy) and (2) how long did the patients have to wait to be able to access to those active treatment therapy. For the current state of art, active treatment is the cure for cancer diseases. Patients might

need to have surgery or chemotherapy or radiotherapy or two out of three or all of three to treat cancer diseases. Not only in Vietnam but in other countries in the world, these methods are used to treat cancer patients. As a result, I think that the access to those active treatment methods can be used as a proxy to measure access to cancer treatment. For cancer patients, the earlier being able to access to active treatment, the better it is. The longer the time having to wait for the active treatment, the probability that he or she will die earlier is higher. Consequently, waiting time to get access to active treatment should be used to measure equality in access to cancer treatment also. We wish to know whether rich people get access earlier than poor people or the people living near the cancer center have more chance to access early or treatment cost becomes the driving factor.

The first dependent variable concerns whether the patients access to the active treatment. This is a qualitative concept and it has the characteristic of the latent variable. In order to quantify this dependent variable, Y will equal to “1” if the patient accesses to active treatment and Y will equal to “0” if the patient receives no active treatment services. This dependent variable is a binary dependent variable which could have “1” or “0” value.

The second dependent variable is measured after the patients receive the active treatment. Therefore the sample size for this variable is smaller compared to the sample size for the first dependent variable because we take into account only observations with the first dependent variable has the value of “1”. The reason is that when the patients do not access to active treatment, they do not have to wait to receive the service. And waiting time has no effect on them at all. As a result, we omit those observations out of consideration to have a sub-sample for the second dependent variable. The value for the variable is measured in term of day, meaning that Y is

equal to 1 if the waiting time is one day, Y = 2 if the waiting time is two days and Y = 3 if the waiting time is 3 days and so on.

1.2.2. Independent variables

The controlling variables are focused on the effect of geography factor, treatment cost factor and income factor on the dependent variables: access to treatment care and waiting time to get accessed. Those independent variables are derived from reviewed literatures and stick to several suitable dimensions of access to care mentioned in chapter 2. By testing geography factor, accessibility of access to care is examined. Affordability is studied through treatment cost and income. Each of the factors will be classified into certain independent variables. Detail is shown as follow:

Geography factor

Information on how far is the distance from the patient's house to K hospital is collected and identified as one independent variable. It is reported in km basis. Apart from this, the patient is asked how much travel fee is paid to get to the hospital. This variable is measured in dollar term by changing from Vietnam Dong to US dollar at the exchange rate of 1 USD = 16,000 VND (the average rate in 2006-2007). These two independent variables try to measure accessibility in access to care. I want to test whether people living in urban areas might have more advantage in access to cancer treatment service as many people often think. Traveling a far distance and paying a certain amount of money for the travel could cause many troubles for people living in mountainous and rural areas. Old people as well as very sick people are affected by the travel distance also. This variable is already tested in several literatures and the result is that it does have some effect. Therefore, this thesis wants to see whether the same story happens within Vietnamese cancer patients.

Treatment cost

Money is discussed and studied in many previous literatures to measure the impact to equality. In order to know how the treatment cost effects on the access to care, the author use several variables related to affordability. The first one is the treatment cost itself which includes all the money the patient has to pay after visiting K hospital such as service fees, bed fees, logistic fees, meals, sanitary fees etc. Then this total amount of money is transferred into dollar term by using the above exchange rate since treatment cost is also measured in dollar term. Treatment cost therefore is a count number.

The second is the insurance status of the patients. This is a dummy variable which has only the value of "1" if the patient has health insurance card and "0" if the patient has no health insurance at all. As the matter of fact that the cost for cancer treatment is very high, the health insurance in Vietnam does not cover all the cost for the patients although co-payment system was already omitted in 2005. For cancer and some other high-tech health services, health insurance has certain levels of co-payments depending on what kinds of services the patient takes. Therefore out-of-pocket money should be taken into account as a controlling variable. It is also measured in dollar term and is a count number.

Income

People of all income grades could be diagnosed with cancer. However, the author would like to see whether people of different income grades might have different choice in access to care or receive different waiting time for the treatment. Is it true that rich people have more chance to access to active treatment? Is it true that the poor have to wait longer to access to the services? Since cancer treatment costs are not small in any countries, affordability of access to care is very important. Moreover,

income level in Vietnam is of high disparities, the impact of income on access to cancer treatment should be taken care of.

Monthly household income is collected and changed from Vietnam Dong into dollar by using the same exchange rate. Income variable consequently has the characteristic of the count number.

2. Estimation methods

This thesis uses the software Stata 9.0 to analyze the data from the survey. First, a mass of collected data is grouped into the categories related to the independent variable: geography, treatment cost, and income. Using Stata 9.0, the answer for the first two research questions will be presented.

To point out the main determinant of equality in access to care, probit and logit models are applied since access to active treatment is a binary dependent variable. Probit and logit models with unobserved effect have recently become popular. “These models are complicated by the non-linear nature of response probabilities” (Wooldridge, 2005) used to estimate binary dependent variables. In the probit model, the cumulative distribution function follows a normal distribution while in logit model it follows a logistic distribution. Therefore, both of the models should be tested to have a more comprehensive result as these two models can complement for the other.

In a smaller size sample for waiting time to be accessed to active treatment, OLS and Poisson model will be used. Waiting time is measured in day units which has the characteristics of both continuous and discrete data. OLS will give the regression result of any given dependent and independent variables. However, Poisson can fix some limitation of OLS when the variable is discrete numbers. With the characteristics of the data, this thesis used both models to have a more reliable

result. Achieving the results from the statistical tests, policy recommendation will be presented in Chapter 5 and statistical test results are presented in the following chapter.

Chapter 4

Determinants of Equality in Access to Cancer Treatment

In this chapter, the results of the statistical estimation and data analysis will be presented to answer two research questions of the thesis: (1) Is there inequality in access to cancer treatment? (2) What is the determinant of inequality in access to cancer treatment?

1. Data description

Data collected from the survey is categorized in different variables to fit the statistical analysis. There are totally 301 observations taking into accounts. Among those, more than half of the sample size is male (52%) and 48 percents are female. It should be noticed that nearly 40 percent of the sample are working people, which ranks number one in the number of cancer patients in the study. The next group is farmer and retired people (table 3).

There are two binary variables in the sample i.e. health insurance status and access to active treatment. Health insurance status is a dummy independent variable which had 72 percent insured people and 28 uninsured people. According to the Ministry of Health, the health insurance coverage percentage by December 2006 is 40 percent of the population. Access to active treatment is important dependent variable in the study which is one of the main factors deciding the equality in access to cancer treatment services. Within the study dimension, 16 percent of patients report no access to active treatment while 84 percents are reported of having accessed. Waiting time measures the days the people have to wait to access to active treatment, which counts only the people who accessed. As a result, there are 254 observations. Mostly half of interviewed people wait around three to four days to be accessed to active treatment.

Table 3: Survey Data Description			
Characteristic	**Distribution in study population**		
Sex	Male	52%	
	Female	48%	
Employment	Farmer	33%	
	Retire	20%	
	Working people	38%	
	Non-working people	9%	
Education (years)	Less than 12	32.65%	
	12 years or more	67.35%	
Distance (km)	Less than 100	56.93%	
	100-200	22.22%	
	201-399	16.54%	
	More than 400	4.31%	
Travel cost (USD)	Less than 10	46.27%	
	11 – 20	24.89%	
	20-30	12.27%	
	More than 31	16.57%	
Treatment cost (USD)	Less than 200	27.34%	
	200-500	47.68%	
	501-1000	14.03%	
	More than 1000	10.95%	
Insurance status*	Insured	72%	
	Uninsured	28%	
Out of pocket money (USD)	Less than 200	58.40%	
	200-500	30.68%	
	501-1000	5.66%	
	More than 1000	2.26%	
Access to active treatment*	Accessed	15.6%	
	Non-accessed	84.4%	
Waiting time (day)	Less than 3 days	18.97%	Min: 0.5
	3-4 days	48.42%	Max: 7
	More than 4 days	32.61%	
Number of observations		301	

(Note: * denotes binary variables)

There are 47 patients reported receiving no active treatment. Those people are then asked the reason why they do not continue further treatment and the answers are shown in the following table.

Table 4: Reasons for non-access to active treatment

Reason	Number of people	percentage
Treatment cost	28	60.0
Distance	11	23.4
No report	8	16.6
Total	47	100.0

2. Active treatment

Active treatment is a binary dependent variable (where Y equals to "1" if the patient accesses to active treatment and equals to "0" if having no access. Therefore, to test the effect of the independent variables to active treatment, probit and logit models are used.

Probit and logit are both non-linear models. Let have a look at the following function:

$$P(y = 1|x) = G(\beta_0 + \beta_1 x_1 + \ldots + \beta_k x_k) = G(\beta_0 + x\beta) = G(z)$$

Where $0 < G(z) < 1$ for all real number z

In probit model, $G(z)$ is the standard normal cumulative distribution function (cdf), which is expressed as an integral:

$$G(z) = \phi(z) \equiv \int_{-\infty}^{z} \phi(v)\mathrm{dv}$$

Where $\phi(v)$ is the standard normal density:

$$\phi(z) = (2\pi)^{-1/2} \exp(-z^2/2)$$

In the logit model $G(z)$ is the logistic function:

$$G(z) = \exp(z)/[1 + \exp(z)] = \Lambda(z)$$

which is between 0 and 1 for all real numbers of *z*. This is the cumulative distribution function for a standard logistic random variable.

The determinants: geography, treatment cost, income are divided specifically into the following independent variables: (1) distance; (2) travel cost; (3) treatment cost; (4) insurance status; (5) out-of-pocket money. Among those, insurance status is the dummy independent variable. The probit and logit models are run to see the effect of independent variable on the likelihood of having a chance to access to active treatment. The null hypothesis and the alternative hypothesis are given by:

(H_0): $\beta = 0$: No correlation between active treatment and the determinants

(H_1): $\beta \neq 0$: There is correlation between active treatment and the determinants

The decision rule is set as follow:

Accept H_0 if the significant level > 0.05

Reject H_0 if otherwise

Table 5: Results of regression analysis for access to active treatment

Independent variables	**Probit**		**Logit**	
	Beta Coefficients	p-value	OR	p-value
Distance from home to the hospital	0.00014	0.30	1.00	0.28
Travel cost	-0.00043	0.61	0.99	0.62
Household income	0.00003	0.66	1.00	0.59
Treatment cost	0.00032	0.01	1.00	0.01
Insurance status*	0.0942	0.02	3.37	0.02
Out-of-pocket money	0.0001	0.54	1.00	0.49
n = 289 $R^2 = 0.208$				

*dummy variable

From the table above, with 0.05 level of significant, there is no correlation between active treatment and the distance from the patient's house to K hospital, the

travel cost, out-of-pocket money as well as the income level of the patient (we do not reject the null hypothesis). We reject the null hypothesis in the case of insurance status and treatment cost, meaning that there are correlations between active treatment and these two independent variables. The relationship is positive i.e. one more dollar for treatment cost increases the probability to access to active treatment 0.03 percent holding other factors constant while insured people are 9.4 percent more likelihood than uninsured people to access to active treatment with no changes in other factors.

Referring to the results of logit estimation (table 4), with 0.05 significant levels, we do not reject the null hypothesis for testing distance, travel cost, income, and out-of-pocket money which means that there are no correlation between those independent variables and the dependent variable (active treatment). P-value for treatment cost equals to 0.01 (< 0.05) then we reject the null hypothesis. However, the odds ratio for treatment cost is almost 1, a neutral odds ratio showing no different between the patient who pays more money for treatment cost and the patient who pays less in order to access to active treatment. P-value for insurance status is 0.018 which is smaller than 0.05, therefore we reject the null hypothesis. Insurance status does have a certain effect on access to active treatment with the odds ratio of 3.37. As a result, the logit regression could be interpreted as: insured people are 3.37 times higher than uninsured people who do not access to active treatment.

There is a difference in the result of probit and logit models for treatment cost. In the probit model, treatment cost has a positive correlation even the magnitude is very small, statistically meaning that the higher the money the patient has to pay for the cost, the more likelihood that he or she will be accessed to active treatment. However, logit model gives a neutral status for treatment cost, presenting no difference between the amount paid and access to care. Moreover, 60 percent of the

patients say that they do not decide to continue active treatment because of high treatment cost (table 4). In chapter 3, independent variable of treatment cost is defined by the total money the patient has to pay when visiting K hospital. In order to get the service, the patient has to pay for it then it seems that the higher the money paid the more services they receive. This way of measurement causes "adverse causality". Therefore, it is hard to conclude that treatment cost statistically impacts on access to active treatment.

3. Waiting time

As the matter of fact that those people who receive no access to care do not have to suffer from the waiting time in the hospital to access to active treatment. Therefore, those observations are eliminated from the sample when studying the effect of independent variables on the waiting time of the patients. The sample size now has 254 observations with waiting time as the dependent variable and distance, travel cost, income, treatment cost, insurance status, and out-of-pocket as independent variables. Waiting time is counted by days then the data has the characteristic of both continuous and discrete number. Therefore, ordinal least square model (OLS model) and Poisson model are used to test the relationship between variables.

OLS model

A linear multiple regression model has the function:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 \ldots + \beta_k x_k + u$$

Where:

y: dependent variable (waiting time to access to active treatment)

x: independent variable (distance, travel cost, income, treatment cost, insurance status, and out-of-pocket money)

β_0**:** intercept

β_1*:* parameter associated with x_1

β_2: parameter associated with x_2 and so on

u: other factors affecting consumption

Poisson model

$$E(y \mid x_1, x_2, ..., x_k) = \exp(\beta_0 + \beta_1 x_1 + ... + \beta_k x_k)$$

Given a random sample $\{(x_i,y_i): i = 1,2,\ldots,n\}$, we can construct the log-likelihood function:

$$L(\beta) = \sum_{i=1}^{n} l_i(\beta) = \sum_{i=1}^{n} \{y_i x_i \beta - \exp(x_i \beta)\}$$

The regression models are run given the following null hypothesis and alternative hypothesis:

(H_0): $\beta = 0$: No correlation between waiting time and the determinants

(H_1): $\beta \neq 0$: There is correlation between waiting time and the determinants

The decision rule is set as follow:

Accept H_0 if the significant level > 0.05; Reject H_0 if otherwise

Table 6: Results of regression analysis of waiting time

Independent variables	OLS		Poisson	
	Beta Coefficients	p-value	Beta Coefficients	p-value
Distance from home to the hospital	-0.00092	0.49	-0.00023	0.53
Travel cost	0.01	0.36	0.0025	0.62
Household income	-0.00012	0.86	-0.00003	0.87
Treatment cost	0.00033	0.49	0.00008	0.52
Insurance status*	0.357	0.31	0.956	0.33
Out-of-pocket money	-0.0195	0.79	-0.00004	0.67
n=242				
R^2	0.0139		0.0030	

*dummy variable

With p-value for all the independent variables are larger than 0.05 (table 6), we do not reject the null hypothesis for all independent variables meaning that the tested controlling variables have no influence on the dependent variable. Geography,

treatment cost and income have no impact on the time the patients have to wait to access to active treatment. However, R-squares for both OLS and Poisson models are pretty small, implicating that the results might not be reliable. There might be other factors affecting the waiting time of the patients to access to active treatment which are not studied in this research. Those factors could be the conditions of supply of health care services such as the availability of medical facilities, different length of time spending for administrative procedure and health staff preferences to different individuals.

4. Conclusions

Statistical analysis brings about the result that there is inequality in access to cancer treatment. Inequality occurs with the opportunity to access to active treatment, the most advanced method to treat cancer, among cancer patients while waiting time seems to have no effect. Among all the tested determinants i.e. the distance from the patient's house to the hospital, the cost that the patient has to pay to get to the hospital, the treatment cost, the health insurance status of the patient, the out-of-pocket money and the household income level, the main determinant of such an inequality is insurance status of the patient. It shows that the larger the coverage of health insurance, the lower the inequality in access to cancer treatment services occurs.

"Adverse causality" in measuring the effect of treatment cost to access to active treatment makes it hard for policy implications. Within the scope and data of this thesis, the controlling variables: geography, treatment cost and income have no impact on the waiting time of the patients. Since none of the variables are significant and R-squares are quite small, it is too soon to conclude that there is no inequality in waiting time to access to cancer treatment. The factors affecting access to care are derived from the demand side of the market therefore waiting time might be affected

by the factors from the supply side of the market. Treating cancer requires advanced medical equipment which is of limited quantity in Vietnam. Medical availability sometimes causes different level of waiting time. Health staff preferences to different patients and administrative procedures also had some impact on the waiting time of the patients.

This thesis has several other limitations that should be pointed out. First of all, the sample size is quite small which might cause biasness in statistical analysis. Besides, the collected data is just from the K hospital which represents the comprehensive cancer treatment in the northern part of Vietnam while the southern part is ignored. With different weather conditions, living conditions and style together with different socio-economic characteristics, equality of access to care might be decided by other factors. Therefore, with such a cozy size, the sample might not reflect the whole population. As a result, there should be a study carried out in a larger sample size in which patients from both the north and south are interviewed.

Secondly, the thesis focuses on the demand part of the market which is just unilateral point of view. Determinants of access to care may cause by the supply side of the market such as doctor's attitude, facility availability etc. One of the interesting characteristic of the health market is that supply can influence demand directly which makes moral hazard issue an important factor. To answer the policy question of how to minimize the inequality of access to cancer treatment care, it would be more comprehensible to carry out a study concerning the supply side of the market.

Even though, the thesis has certain contribution to the study of equality in the health sector in particular and social welfare in general. A more comprehensive picture of cancer in Vietnam has been drawn emphasizing on health equality in a developing country like Vietnam. In terms of cancer, this thesis has opened a new

way of approaching to cancer research in Vietnam, which is not necessary stick to epidemiological issues. Social welfare issue also has a very important role in prevention and treatment of the diseases. It could be concluded that there is inequality in access to cancer treatment in Vietnam affected mostly by health insurance status. From that finding, the author would address the recommendation for the policy-makers to reduce such an inequality in the following chapter.

Chapter 5:

Discussions

This chapter revises the thesis all over with the result of the study as well as its contribution. One of the main parts of the chapter will focus on answering the last research question which is the policy implications to reduce the inequality in access to cancer treatment care.

1. Research results and contributions

Based on an empirical research, this thesis studies the factors affecting inequality in access to cancer treatment care in Vietnam and outlines some recommendations to lessen the inequality and increase the number of people getting access to the medical services they need. Through the reviewed literatures, the most frequently seen factors (geography, treatment cost, income) affecting access to care are gathered and derived into questionnaires for cancer patients of the same need in the northern part of Vietnam to figure out the key determinants influencing on the equality in access to care. Results from statistical analysis reveal that health insurance status is the key determinant where insured people are more likely to get access to cancer treatment care than uninsured people. As a result, the government should increase the coverage rate of health insurance as high as it could all over the country. Compulsory health insurance is recommended but it should be carried out appropriately step by step. Family health insurance is a suitable approach also. At the same time, the government should consolidate the supply side of the market and the capacity building of governmental officers to ensure the benefits for the citizens.

The thesis is considered one amongst the first study in the country attempting to investigate the factors affecting the access to cancer treatment. There are many studies focusing on in the epidemiological characteristics as well as cancer pattern in

Vietnam but there are not so many researches concerning the social aspects. Currently, most of policy studies have focused on cancer controlling programs which care about the preventive and protection of cancer patients. Patients diagnosed with cancers are suffering everyday and should not be ignored and we should find a way to help them receive the medical treatment needed. As a result, this thesis completes the whole picture of cancer diseases in Vietnam from a different aspect.

Equality in access to care is a traditional topic in public policy but it is not widely studied in Vietnam. Besides, the thesis tests almost all the main factors affecting the access to care while others studies often choose one of those factors only. There are several studies concerning equality in access to primary health care, the most basic health services and the first level for people to access. This thesis has completed the whole picture of equality issue in health care by studying the equality in a very fatal and high treatment cost disease.

2. Implications for policy to enhance equality in access to care

It is concluded from the result of this research that health insurance status is the main factor affecting the access to cancer treatment of Vietnamese people. Insured people have more chance to access to health care services than uninsured people. Literatures reveal health insurance to be a very powerful method for granting the population access to health services in an equitable way (Carrin, 2001). Therefore, it is suggested that enlarging the coverage of health insurance all over the country is needed to enhance the equality in access to cancer treatment.

In an effort to enlarge the coverage of health insurance, the social health insurance program was initiated in 1992. It was basically compulsory for workers and civil servants and voluntary for the population in the agricultural and non-formal sectors and the financing principle was co-payment. However, after more than ten

years of implementation, the program had not gained many achievements in increasing the percentage of coverage among the population. Therefore, in 2005, the government promulgated the Decree No. 63 on health insurance which expanded the number of people eligible for compulsory health insurance as well as the joining of private sector in delivering health care services. Accordingly, currently there are three forms of the health insurance scheme operating in Vietnam: (1) compulsory scheme where all active and retired workers in the public sector and all salaried workers with the labor contract of three months and longer in any private sector enterprises established under the law of Socialist Republic of Vietnam, veterans, soldiers, elders above 90 years old, foreign students who receive scholarship from the government of Vietnam, social pension receiving people are eligible, (2) voluntary scheme, which includes health insurance for school children, self-employed people such as farmer, (3) fully subsidized by the government scheme, special health insurance for the poor and beneficiaries of social welfare policies such as merit, free health cards for the poor etc. As a result, by the end of 2006, there were more than 30 million people are insured, accounted for about 40 percent of the whole population.

Importantly, regarding Decree No. 63, there is no longer co-payment system in health insurance. For casual health services which are not classified into high-tech services the patients do not have to pay the service fees. Moreover, the increasing number of insured people with more health services utilized has caused a deficit of about 125 millions US dollar in 2005 for health insurance fund which was surplus for many years before the elimination of co-payments. Besides, “adverse selection” has also inhibited with most people holding voluntary health insurance cards are people of high health risk, patients of chronic related diseases or fatal diseases which require high treatment cost and long treatment time. Therefore, co-sharing principle by nature

of health insurance has been violated. If this problem can not be fixed as soon as possible, the deficit of the health insurance fund will grow bigger and bigger. It is now of great necessity for the government to adjust the current policies in order to reach the target of universal coverage of health insurance by 2010 and balance the health insurance fund to ensure its sustainability in a long period of time to protect the rights to health care of all the Vietnamese people.

It is suggested that the Vietnamese government issue Health Insurance Law where purchasing health insurance is a must to everybody. Each person must have the responsibility to take care of their own health and be responsible to the community. Health insurance by nature is the risk and contributions co-sharing within the whole community including households, enterprises, government and others. In order to avoid the "adverse selection" problem, health insurance should be compulsory. Voluntary basis is only suitable for commercial health insurance where people choose different types of health insurance packages according to their needs and health status.

Making health insurance compulsory to all the citizens is the most suitable way to achieve universal coverage in Vietnam, however, considering the current situation several issues should be taken into account before launching the policy. Lessons from other countries in achieving universal coverage show that the process takes a certain period of time (Austria: 79 years; Belgium: 118 years; Germany: 127 year; Israel: 84 years; Japan 36 years: Republic of Korea: 26 years), meaning that it could not be gained within one or two years. It is estimated that it takes Vietnam at least 30 years more to achieve universal coverage. Difficulties such as objections from the community, the lack of managerial capability of the governmental officers, no capability to buy health insurance… may invoke easily. Therefore, compulsory health insurance should be carried out step by step by enlarging the target groups.

However, one of the big problems of current health insurance in Vietnam is the deficit of health insurance fund. If the deficit prolongs years after years, there would not be enough financing sources for health insurance. Co-payments should be reconsidered in order to lessen the burden for the fund. Eliminating co-payment is a good idea but it is not suitable for the current situation of the country where health insurance has not universally covered yet. Previously, insured people had to pay only 20 percent of their fees however, at that time the number of insured people was not high. In fact, when insured people do not have to pay for casual health care services and a certain part of high-tech services, ill people have rushed to buy health insurance which causes a big lost for the fund and unfair for other people. Therefore, it is suggested that co-payments should be in effect for a period of 5 years from now and after that we can consider eliminating it.

Lessons from countries successfully achieved universal coverage of health insurance show that the role of the government in co-financing is very important. Vietnam is a developing country where GDP per capita is 560 USD, relatively low compared to other countries. There is a big disparity in the income levels in Vietnam which makes it difficult for certain groups of people to buy health insurance. At present, for compulsory cases, people have to pay three percents of their income for health insurance. Salaried workers have to pay one percent of their salaries and employers have to pay the other two percents for their employee's health insurance. Considering the existing situation in Vietnam it is necessary that the government support partially for the citizens in purchasing health insurance.

As a result, "Family Health Insurance" is applicable with the current situation in Vietnam. Instead of concerning health insurance in individual basis, family or household basis would help increase the coverage rate significantly. Although it is

free for children under 6 years old when utilizing medical services, school children (above 6 years old) belong to the voluntary group. Non-earning income people in the family such as housewives, old people with no pensions are in the voluntary group as well and they usually do not purchase health insurance. Nowadays, elders above 90 years old are compulsory to have health insurance. Under family health insurance, those elders and non-earning income people in the family can use the family health insurance cards for health services then family insurance would be more attractive. Countries like South Korea and Columbia have gained a big success in applying family insurance.

Universal coverage of health insurance requires a lot of administrative time and resources for central administration to run social health insurance at regional or district levels. The level of difficulties is higher in such a developing country like Vietnam where 70 percent of the population is working in unofficial sectors such as farmers. With the characteristic of the administrative system of Vietnam, which has about 11 thousands of communes and wards, communities may have more confident in promoting health insurance as well as greater control over such schemes.

Besides, decentralizing health insurance to community based makes it easier to explain to the citizens all the benefits and duties if they are insured. Studies in Vietnam show that about 80 percent of people do not know the benefit they should get from health insurance very time they visit a medical center. A lack of information and knowledge is also a factor affecting the coverage of health insurance. When the people clearly see the benefit from the system, they surely will buy it. Therefore, it is necessary to equip the citizens with full knowledge of their right and duty when being insured.

More importantly, the quality of the curative and treatment system is the main factor affecting the utilization of health insurance. People should get what they are promised to get. The government should spend more money in upgrading the health care system in order to ensure the efficient quantity and quality of the services. Doctor's attitude is of the same level of importance since it directly affects the quality of the services and directly affects the point of view of the patients. Therefore, it is vital to have the main financial sources of the hospitals and medical centers health insurance.

Managing health insurance is no longer the responsibility of the Ministry of Health solely but of inter-sectors and inter-ministries (Ministry of Finance, Ministry of Labor, Invalids and Social Affairs, Ministry of Health). Managerial ability is one of the key factors in having a successful national insurance program. The capability of governmental officers not only in the central level but also of provincial, district and commune levels need improving through intensive training programs domestically and internationally.

Appendix

Survey items

Patients' profile

1. Your name
2. Your occupation
3. Types of cancer you are diagnosed with
4. What is your highest educational level?

Geography

1. How far is it from your house to K hospital?
2. How much do you have to pay to get to K hospital?

Income level

1. What is your household monthly income?

Treatment cost

1. How much do you have pay for treatment cost each time you visit the hospital?
2. How much do you have to pay for the treatment cost from the first time you visited the hospital up to now
3. Do you have health insurance card?
4. How much out of pocket money did you pay?

Active treatment

1. What services did you take?

    Active treatment: surgery, chemotherapy, radiotherapy (reported all kinds of active treatment accessed: one therapy or two therapies or three therapies)
    Non-active treatment: oriental medicine, normal test, diagnosis, or others

2. Why did you not take active treatment? (for those who chose non-active treatment)
    The hospital is too far from my house
    The treatment cost is too high
    Others

Waiting time

1. How long did you have to wait to get accessed to active treatment?

BIBLIOGRAPHY

GLOBOCAN is a database built up by International Agency on Cancer Research which provides access to information on the incidence and prevalence and mortality of 26 major kinds of cancer in all the countries in the world. GLOBOCAN has different versions where GLOBOCAN 2002 is the latest one. (http://www-dep.iarc.fr)

A. Hjern, B. Haglund, G. Persson, M. Rosen. *Is there equity in access to health services for ethnic minorities in Sweden?* European Journal of Public Health Vo.11 2001 No.2

A. Leigh, C. Jencks. *Inequality and mortality: long-run evidence from a panel of countries*, Journal of Health Economics 26 (2007) 1-24

A. Thorson, E. Johansson. *Equality or equity in health care access: a qualitative study of doctors' explanation to a longer doctor's delay among female TB patients in Vietnam*, Health Policy 68 (2004) 37-46

A. Silva, S. Whitman, H. Margello, D. Ansell. *Evaluating Chicago's success in reaching the healthy people 2000 goal of reducing health disparities*, Public Health Reports, 2001 Vol 116

A. Wagstaff. *Equity and equality in health and health care*, Journal of Health Economics 12 (1993) 431-457

B. Burstrom, *Increasing inequalities in health care utilization across income groups in Sweden during the 1990s?* Health policy 62 (2002) 117-129

C.W. Kim, S.Y. Lee, S.C. Hong. *Equity in utilization of cancer inpatient services by income classes*, Health Policy 71 (2005) 187-200

G. Carrin, *Social health insurance in developing countries: a continuing challenge*, International Social Security Review, Vol. 55, 2002

G. Carrin, C. James. *Reaching universal coverage via social health insurance: key design features in the transition period*, Health Financing policy issue paper, 2004

H. Maarse, J.V. Der Made. *Cost containment and the right to health care*, European Journal of Public Health Vol. 8 (1998) No. 2

H.R.Waters. *Measuring equity in access to health care*, Social Science and Medicine 51 (2000) 599-612

J. Harrison, S.R. Kisely, J.A. Jones, I. Blake, F.H. Creed. *Access to psychiatric care; the result of the pathways to care study in Preston*, Journal of Public Health Medicine Vol. 19, No. 1, pp. 69-75

J.M. Wooldridge. *Introductory Econometrics: A modern approach*, 3e, Thomson South-Western, 2004

J.P. Mackenback, P.H. Chapman. *New perspectives on socioeconomic inequalities in health*, Perspective in Biology and Medicine, vol. 46, No. 3 (2003):428-444

J.W. Henderson. *Health Economics and Policy*, Third edition, Thomson South-Estern, 2004

J.W. Peabody, S.W. Lee, S.R. Bickel. *Health for all in the Republic of Korea: one country's experience with implementing universal health care*, Health Policy 31 (1995) 29-42

K. Hanson, M.K. Ranson, V. Oliveira-Cruz, A. Mills. *Expanding access to priority health interventions: a framework for understanding the constraints to scaling-up*, Journal of International Development (2003) 1-14

Lind, Marchal, Mason. *Statistical Techniques in Business and Economics*, 11th edition, McGraw-Hill 2002

M. Goddard, P. Smith. *Equity of access to health care services: Theory and evidence from the UK*, Social Science and Medicine 53 (2001) 1149-1162

M. Grossman. *On the concept of health capital and the demand for health*, Journal of Political Economy, Vol.80, No.2 (1972), 223-255

Ministry of Health, *Health Policies and Guidelines*, Medical Publishing House, 2002

Ministry of Health, *Health Statistic Yearbook*, Medical Publishing House, 2005

Nguyen Ba Duc, Nguyen Chan Hung, *Building up national program on cancer control in Vietnam 2001-2005*, Journal on Medical and Pharmaceutical Information, 2000

Nguyen Ba Duc, *Overview of cancer situation and cancer control in Vietnam*, Public Health Conference, Hanoi, 2006

Nguyen T.H.Anh., Nguyen B. Duc. *The situation with cancer control in Vietnam*, Japan Journal Clinical Oncology 2002; 32 (Supplement 1) S92-S97

Nguyen T. Hien, Le T.T. Ha, S.B.Rifkin, E.P. Wright. *The pursuit of equity: a health sector case study from Vietnam*, Health Policy 33 (1995) 191-204

Pham H. Anh, Chu H. Hanh, Nguyen B. Duc, Trinh H. Vach. *Remarks on the diagnosis and treatment of cancer in some provincial hospitals in BacBo plain region*, Journal of Medicine and Pharmaceutical Information, 2000

P.M. Jonsson, I. Schmidt, V. Sparring, G. Tomson. *Gender equality in health care in Sweden-Minor improvements since the 1990s*, Health Policy 77 (2006) 24-36

R.A. Harrison, F. McNair, L. Dugdill. *Access to exercise referral schemes - a population based analysis*, Journal of Public Health Vol.27, No.4, pp. 326-330

R.H. Jack, M.C. Gulliford, J. Ferguson, H. Moller. *Geographical inequalities in lung cancer management and survival in South East England: evidence of variation in access to oncology services*, British Journal of Cancer (2003) 88, 1025-1031

R. Penchansky, J.W. Thomas. *The concept of access, Definition and relationship to consumer satisfaction*, Medical Care 1981, Vol XIX, No. 2

S. Glied, A. Llers-Muney. *Health inequality, education and medical innovation*, working paper 9738; http://www.nber.org/papers/w9738

S.J.A dams, *Vietnam's health care system: a macroeconomic perspective*, International Symposium on Health care System in Asia, Hitotsubashi University, Tokyo, 2005

T.C. Buchmueller, M. Jacobson, C. Wold. *How far to the hospital? The effect of hospital closures on access to care*,

Vietnamese Government, Decree No. 63, *Health insurance regulations*, 2005

Vietnamese Government, Decree No. 49, *Stipulations on the Ministry of Health's functions, tasks, rights and organizational structure*, 2003

Vietnamese Central Party, Resolution No. 46, *Health care protection and improvement for people in the new situation*, 2005

Vietnamese Prime Minister, Decision No. 139, *Consultation and treatment for the poor*, 2002