A STUDY ON HOSPITAL EXPENDITURE FOR AGED POPULATION IN VIETNAM

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF ARTS (POPULATION AND REPRODUCTIVE HEALTH RESEARCH)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY
2004

ISBN 974–04–5129-2

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was submitted to Faculty of Graduate Studies, Mahidol University
For the Degree of Master of Art
(Population and Reproductive Health Research)

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ACKNOWLEDGEMENTS

I would like to express my sincere thanks to my major advisor, Prof, Dr Pramote Prasartkul for his excellent supervision and suggestion on my thesis. Special recognition goes to my co-advisor, Dr. Kusol Soonthorndhada for her valuable advice and encouragement. My appreciation also goes to my external examiner for her very valuable comments.

I wish heartily thank to Assoc. Prof. Bencha Yoddumern Attig, Ph.D. and Assoc. Prof Amara Soonthorndhada, Ph.D. for their excellent management of the course and encouragement to students to complete theses. I am thankful to all teachers in Institute of Population and Social Research (IPSR), Mahidol University who lead me in to the pathway of academic work and support me in many aspect during my study time in Thailand. Thanks to all staff of IPSR for the support and kindness during the course.

On this occasion, I would like to express my deepest gratitude and appreciation to Dr. Nguyen Huy Ban-General Director, Vietnam Social Security Office for his support and his special permission given to me in using data from Vietnam Social Security System for my thesis.

I also would like to express my thank to Dr. Tran Van Tien-the former General Director of Vietnam Health Insurance, Vietnam Social Security Office especially International Cooperation Division, Bach Mai Hospital, Institute of Gerontology , Hanoi Social Security Office.

Last but not the least, I am indebted to my wife and my son as well as all family members who always encourage and support me in completing the course.

I am thankful to all my classmate who always make me feel as in my own family.

I am also thankful to The William Flora Hewlett Foundation for their scholarschip that enable me to undertake this study

NGUYEN KHANG

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ABSTRACT

This study is a descriptive, cross-sectional study of health care expenditure of the elderly in Vietnam. The unit cost for health care expenditure for the elderly in Vietnam and a health care projection for the elderly for the period 2004-2024 were investigated and a possible solution to ensure the accessibility to health care services for the elderly when they get sick or ill was described. The sample included 1222 patient records at all hospital levels from 2002 and 394 patient records from 2003, but only at one central level hospital. Descriptive analysis were used to explore the data and obtain the following results.

The average health care expenditure for the group aged 60-74 was 312.000 VND (about 20 USD) and the figure for the group aged 75 and over was 355.000 VND (about 23 USD). This amount of money is about 1 ½ monthly income of most elderly people in Vietnam and 2,45 times higher than the average health care expenditure of non elderly groups. By 2024 the elderly group will account for 13.4 percent of the population but will be responsible for 46 percent of the total national health care expenditure. A possible solution for ensuring the elderly have access to health care services is to implement family based health insurance with different benefit packages, for example, full coverage or inpatient coverage, so that the elderly and their family could select the most suitable benefit package suitable to their income and local conditions . In this study only data collected from Hanoi's hospital were used. The expenditure and the utilization rate of services are not represented for the entire country. Therefore, further studies should have a sample which can represent the whole country. In addition, the expenditure in this study was not the full expenditure; the cost for labour and capital cost were not included in the calculation. The full cost of health care expenditure of the elderly people could be explored in other studies.

KEY WORDS: HOSPITAL/EXPENDITURE/AGED/ POPULATION/ VIETNAM

51 P. ISBN 974-04-5129-2

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CHAPTER 1

INTRODUCTION

1.1 Background and justification

The world's population is aging rapidly, although at different rates in different nations (Freund and Smeeding, 2002). Worldwide, the proportion of people age 60 and over is growing faster than any other aged group. Between 1970 and 2025, a growth in the elderly population of some 870 millions or 380% is expected. It is projected that there will be more than 1 billion people aged 60 and over by the year 2025 and nearly 2 billions by 2050 (WHO, 2001) of which 80 percent of them are living in developing and less developed countries (United Nation, 2002 a). The impact of population aging on the social development is now a global major issue for two major schemes under the Social Security System, pension and health care in both developed and developing countries and this burden will continue to intensify (Shaw, 2002). For example, a study in Austria revealed that while health care expenditures are less economically significant than pensions, one of the two areas of the social security, they still account for over 10% of gross domestic product in developed countries-they are major consumer of public expenditures (Mayhew, 2000).

Why health policy makers in many countries have expressed concern over the pressure of health care cost? Why a popular theme running through debate on U.S. health policy is aging as a major driver of demand for health care and thus of the annual grow in national health spend (Reinhardt, 2002). Logically, the older one gets, due to physical, psychological and biological changes, the more likely one is to need medical services. As life expectancy continues to raise, the number of older people increases as well, this mean greater pressure on health care system. As demand for health care increased, so too is the cost. The cost trend is especially explosive because the elderly consume three to five times more health care services per capita than younger people (Reinhardt, 2002) for example under Hanoi Social Security scheme-

one of the biggest Social Security Scheme in Vietnam - the retired groups accounted for 31,7 percent of the compulsory scheme but responsible for 64,4 percent of the total inpatient care expenditure (Nghi, 2002). An other example, in 2000-2001, in Canada, the elderly accounted for 43 percent of the total health care spending but represented only for 12.5% of the population; and for this country by 2026-2027 the elderly will represent 22 percent of the total population but will be responsible for close to 60 percent of the total country's health care spending (Ruggeri, 2002).

The WHO's data about rapidly increasing number of the elderly cited above has shown that the aging phenomenon is not only the "privilege" of developed countries but also in developing countries now. Vietnam like other countries in the Region (Singapore, Korea, China, Thailand) has started to face up with the fact of aging problems (rapid rising of aging population and health care cost) even its population structures is still relatively youthful (Anh D.N 1999). Therefore, concern over aging would not be exclusive to discussions of the future health care reform if Vietnam wants really to meet the health care need of the country comprehensively.

Currently, Vietnam has a population of over 76 millions of which the aging population (people aged 60 and over) was 6.19 millions and accounts for 8.2%, in 1999; by 2020 the aging population will reach to 12-13% and by 2050 that figure would be 20,3% (General statistical office – Vietnam, 2001). The life expectancy in Vietnam has also increased radically from 32 in 1945 to 69 in 2003 (Thuy T.T, 1999). Being a developing country, the rate of urbanization in Vietnam is not different from other developing countries in the region, it is only 20% of the population that means 80% of the population are still living in rural areas, so too is the number of aging population of the country (United Nation, 2002 b).

Even much improvement has been made clearly during the last three decades in terms of health indicators in Vietnam - what not many low income countries have been able to achieve- but Vietnam's health care system is still a strange by East Asia standard because it heavily depends on out-pocket payment of the people (Wagstaff and Pradhan, 2003). In 1998, the out-packet payment of the people financed as much as 80% of the total health spending (World Bank, 2001).

Inevitably, the high share of out-pocket payment (average cost per admission at central was about 1.100.000 VND nearly 6 times income of a poor family in rural areas) has effected health care demand of the elderly in Vietnam where most people's income in rural areas is still lower than the poverty line, less than 1USD/day (Ministry of Health Vietnam, 2002b). A study conducted by the Ministry of Health in Vietnam in 2002, showed that 31 percent of the elderly in this study had their income less than 200.000 VND, equivalent to 15 USD/month; 22% had income of 200.000 VND-399.000 VND-equivalent to 15-28 USD/month. In addition to low income, the elderly often have high incidence of diseases for example, in 2002, 18,0% of the aging population had at least one disease; 24,6% had 2diseases, 36,6% had 3 diseases; 14,8% had 4 diseases % and on average a older people get 2,69 diseases (Ministry of Health, 2002a).

The best way to avoid diseaster of health care expenditure for people is to join health insurance scheme. In Vietnam, health insurance system was established in 1992. The current schemes are: compulsory and voluntary and free health card; the compulsory scheme applied to civil servants, workers working in private and public sector, retired people who used to working in formal sector, meritorious people; the voluntary applied to school children and students of university or college level, community based members; the free health cards applied to the poor who are qualified with the poverty line set by the Ministry of Labour, Invalid and Social Affiars. Currently the number of insured people in all schemes are 21 millions of which 7 millions are under compulsory scheme, 10 millions under the free health card (contribution for those people funded by government) and 4 millions school children and students. The insured patients are entitle to in and out patient benefits inclucing medicines. The insured patients have to be responsible for copayment of 20%. The elderly who are poor are under free health care card.

So, with information mentioned above (rapid change in number of aging population; high cost; health care mostly funded from out-pocket money, disease pattern change from acute to chronic) the question come up is whether changes in the aging population and health status might or might not result in increasing health care expenditures and at what level? Could it be a burden for society especially for

Vietnam Social Security (VSS) when Vietnam achieves Universal Health Insurance by the year 2010 as to Vietnam Prime Minister's decision no 35, 2002? Can the elderly bear the cost of health care by themselves, in case not, who will bear the cost? "In developing countries, commonly the aging population could not afford to pay for services, and most of them are aging before they become wealthy, neither public nor private sectors are equipped financially to deal with the problems caused by an aging population" (WHO, 2001).

In short, Vietnam is rapidly aging as a country, therefore, the purpose of this study is to look at health care expenditure for the elderly people in Vietnam especially the relationship between aging and rising health care expenditures and discuss about possible solution for enrolling all elderly people into Social Security System through analyze the data collected from Hanoi Social Security Office for the year 2002 at three levels and Bach Mai Central hospital for the year 2003 (only for central level). Up to date, there is not any study on health care cost of the elderly in Vietnam, hence, doing this research I hope the findings of the research could be good inputs for policy makers in Vietnam to take a greater account of health care for the elderly population if they wish to meet the real needs of the elderly population in the future.

1.2 Research questions

1.2.1 What is the unit cost of health care expenditures for aging population in 2003?

1.2.2 Does the health care cost for the elderly could be a burden of the health care budget in 2024?

1.2.3 Can the older people afford the health care expenditures? What can be a solution to protect the elderly if they need health care services?

1.3 Research objectives

1.3.1 Calculate health care cost for in-out patient care individually through 1616 patient records.

1.3.2 Discuss about factors affecting health care cost of the elderly and their affordability if they need to seek health care services

1.3.3 Project health care cost for the elderly people in Vietnam by 2020

1.3.4 Discusss about possible solution to endure the elderly' accessibility to health care services when they get ill or sick.

1.4 Expected Outcomes

The expected outcomes of this study are:

- Unit cost of health care expenditure per elderly people age 60 and over including in and out patient care
- Health care expenditure projection for the elderly people in Vietnam 2004-2024
- Possible solution to ensure accessibility to health care services of the elderly population in Vietnam

This information will form basis for Ministry of Health, Ministry of Labour, Invalid and Social Affiars, Vietnam Social Security and other government organizations to have better planning to meet the need of the elderly people in the country.

CHAPTER 2

LITERATURE REVIEW

Why are we concerned about the aging phenomenon? Obviously, it will likely raise the burden to society especially the health care cost. In some countries, if we take out the effect of inflation approximately 2/3 of the cost rising in health care expenditures for aging population was due to demographic factors of aging and an increasing population (Schrier, 2002). In New Zealand for example, it is estimated that the aging alone will have driven an increase of more than 30% in the real per capita health expenditures by the year 2003 (Hogan and Hogan 2002).

What are factors generally contributing to the health care cost of the elderly?

2.1 Demographic Factors

Population aging is one of the greatest triumphs of humanities but also one of our greatest challenges. World-wide, the proportion of people age 60 and over is growing faster than any other group. By 2025, the population size of people aged 60 and more will be 1 billion and that figure will reach to 2 billions by 2050 (United Nations, 2002). In term of age specific, by 2050, the number of people aged 65 to 84 globally will increase from 400 millions to 1.3 billion, while those aged 85 and over will reach to 175 millions - and the number of aged 100 and over will grow from 135.000 to 2.2 millions (Shaw, 2002). The change is not only in the absolute number of older people but also in age distribution in both developed and developing countries for example by 2030, Japan can expect 28 percent of its population will be aged 65 and more whereas Singapore will reach to 19 percent of people aged 65 and more (United Nations, 2002, b). The increase will be greatest and most rapid in developing countries where the elderly population is expected to grow as big as four times during the next 50 years (United Nations, 2002,a)

In Vietnam the current aging population (people aged 60 and over) is 8.2 percent of the total population. It is believed that by 2020 the aging population will reach to 12-13% of the total country's population and by 2050 this figure will reach to 20.3% of the total population of the country (General statistical Office - Vietnam 2001).

In short, the world is aging. The success of health care system and other economic -environment factors leads to an increase life expectancy, low fertility rate then in turn it is increased of the absolute number of older people and the proportion of specific age rate of elderly.

2.2 Personal demand for health care of the aged population

As people are getting older, " Wear and Tear", their use of health care services increases. The older is one of the most groups which have highest incidence of sickness and hospitalization and the diseases pattern leading to death is also change from infectious and acute to chronic and degenerative. This general pattern is similar from one to another country in both developed and developing countries (WHO, 2001). The over 75 aged group is likely accelerated substantially to use health care services, given that the prevalence and incidence of most chronic diseases and disability increase with age.

When population is aging, in accordance with living and working condition changes, a shift in disease pattern is inevitably taken place. Diseases pattern has changed fast from communicable to non-communicable in most developing countries where the chronic illness such as heart diseases, cancer and depression are quickly becoming the leading causes of death and disability. In 1995, 51% of the global burden of disease in developing and newly industrialized countries was caused by non-communicable disease, mental health disorder and injuries and it is estimated that by 2020 the burden of these disease will rise to about 70% (WHO, 2001). For individuals, when people age, acute disease often replace by chronic diseases such as arthritis, hypertension, cardiac diseases and diabetes (Thomas, 1999). A similar evident was also found in Vietnam where most of the health insurance fund was used to reimburse for non-communicable diseases such as cardiac diseases, cancer and diabetes (Dunlop, 1999). The consequence of disease pattern change and chronic

diseases will always effect the health care utilization – number of physician visits and hospital utilization.

For elderly people factors mostly affecting physician services are need for care due to poor health, limited physical activities and chronic conditions. The number of visits for the elderly people increases both in term of absolute number of visits and proportion. In general, people age 65 and older have about twice as many physician visits per year than the average for the population as the whole (Minnesota Department of Health, 2003).

Hospitals play an important role in provision of health car for the older people. Who are using most of hospital care? It is also the aged-hospital use is greater among older people than general population, for example in Denmark one third of all hospital admissions are people aged 60 and more (Jarden & Jarden, n.d). In a fact sheets in Australia, 1995/1996 also show that the average length of stay for those aged 65 or more was 7.3 days compared to 4.5 days for all age groups. Average length of stay increases with age (http://www.agedcare.org.au/factsheets/hospitalfs9.htm). It is not just only the length of stay, but the elderly population uses health services more often than younger people and they are more responsible for demanding inpatient services and the demand of hospital use is also increased with age for example the use of hospital care by age 65-74 and more than 75 year old in the USA is 4.7 and even 8 time higher compared to the group aged 18-44 (Reinhardt ,2002; Bernhard 2003).

In short, the aging population is likely to have a substantial impact on need for medical services , long term care and social services because as mortality rate decline, chronic disease may to some extent replace acute disease as driver of health care utilization and cost (Thomas, 1999).

2.3 Economic factor (technical change)

In the paper " Health expenditure and the elderly", Mahal and Berman wrote: " It is also true for seven other OECD countries for which data are available and recent study indicates that in the mid-1990s the ratio of per capita spending on aging population aged 65 and above to percapita spending in population aged less than 65, ranged from 2.7 to 4.8. The increase in expenditure for elderly people is due to the

more intensive use of high cost technology (Jacobzone and Oxley, 2002). Actually, technology and medical advance can be defined in a number of ways, from very narrow to the very broad. Much consideration of technology tends to be from physical perspective, such as the development of new pharmaceuticals and medical procedure, devices and equipment (Wanless, 2002).

Pharmaceuticals are now the fastest growing component of personal health care expenditures. There is evidence that the elderly generally use a greater number of drugs per persons than younger people, the cost of pharmaceuticals is an increasing burden component in the total cost of health care for the elderly(Thomas, 1999). For example in USA, one third of the legally sold drugs are consumed by older people and many of these are medications prescribed for chronic conditions such as cardiovascular disorder and degenerative joint diseases (Aiken, 1996). And similar information was found , about 80 percent of our health care resources are devoted to chronic disease (Markson, 1996). For pharmaceutical products, in the Report of Health Care in Australia, 1997/1998, it reported that expenditure on pharmaceuticals was 4.7 times higher for over 65 year olds than for those aged under 65. A similar result also show that the cost of new drug for elderly are three times as large as are the cost for the non elderly (Freund and Smeeding, 2002).

Technological change has clearly been one of a major important factors for health care cost rising in term of per capita (Mahal and Berman, 2001), because it will lead to changes in availability and use of new drugs, medical intervention and equipment. Considering the impact of technology in isolation, most of analysis believes that it will continue to be cost increasing, at least for several decades. For example, in Organization of Economic Cooperation and Development (OECD) health care cost have grown at 5.7 percent year from 1960 to 1995, with about 1.3 percent due to changing demography (mostly aging population) and the rest 4.4 percent due to the technological change and economic growth. Historically, technology has accounted for about half of the real increase in per capita health costs in the recent years (Thomas, 1999). A comparison study of the impact of technology and demography by the Ministry of Health and Social Service of Quebec (Canada) also indicated a similar trend that for 1982-1992 the increase in use of high-tech services, adjusted to constant

demographic composition, contributed to five time more to the increased in cost than the aging population (Canadian Institute of Actuaries, 2001).

Technological change contributes greatly to the increase of health care cost in the future.

2.4 Health care projection formula

According to the Department of health and ageing care, Australia in 1999, in general terms the method used to project future health care costs, is:

$$\mathbf{HC = N \times P \times E \times C}$$

where:

HC = health care cost

N = number of people in a given cohort

P = proportion of the cohort who use health care service

E = the average number of episodes per year; and

C = the average cost per episode (base year prices).

2.5 Other arguments

Although most of studies concluded that older people's health care needs are often characterized as requiring high cost and long term care which result in the levels of health care spending significantly higher for the older people than for other groups (Sherlock, n.d). Besides, personal aging issues, rapid aging in developing countries is accompanied by dramatic change in family structures, roles, migration as well as in labor pattern. Urbanization and migration of young people to cities, smaller families and more women entering the workforce means that fewer people will be available for the taking care for older people when they need support, so the burden of older people will be shifted to society -more nursing care, more home care. However, there is other opinion which said that difference in expenditure are largely the result of how their health care system is organized and financed rather than demographic change and

health care cost rising mostly due to the changes in technology and drug not by aging population as thought (Getzen.T. 2001).

A further argument showed that despite evidence it is not necessarily true that future costs will be nominated by aging and it is possible, as a matter of logic-that aging per se may have no effect, that there is a fix medical need for each cohort of the population and there is a well defined set of services required to meet these need, aging did not drive expenditures but occurred coincidentally at the same time as expenditures were independently driven by other features (Richardson, and Robertson, 1999). Technical change, new diagnostic and therapeutic approaches and increased usage, explains over half of real per capita growth in health care cost over the past decade and consumption of health care has increased due to greater accessibility (Freund, 2000; Schrier, 2004). Furthermore, the number of doctors available to day is greater that mean, there are an increased number of billing to Medical Services Plan in USA, which in turn, means greater expenditure on health care (Ruggeri, 2002).

2.6 Conclusion of Literature Review

The literature review tell us that older people's health care needs are often characterized as requiring high cost, long term treatment (chronic diseases) and logically it will inevitably lead to burdens to the society both financially and organizationally.

2.7 Conceptual framework

The conceptual frame work describe below is developed from the understanding and literature review and the calcualtion of possible future health care expenditure is based mostly on demand rather than the supply of services consistent with a limited budget

For Economic factors

Individual average cost of in and out patient

$$T_t = I_t + O_t$$

T_t =Total Individual health care expenditures in year t

I_t = Inpatient expenditures in year t

(It = Number of elderly in year t x utilization rate x average expenditure per admission)

O_t = Outpatient expenditures in year t

(Ot = Number of elderly in year t x utilization rate x average expenditure per visit)

Total health care projection for the elderly population

$$Pj = ? [(Ej \times N)]*Yt$$

Pj= Total health care expenditure in the year t

Ej = Individual average specific health care expenditure

N = Number of elderly in specific age group

Yt = Number of year projected

Thus, an increase in the proportion of the elderly, everything else the same, will increase the total amount of health spending attribute to them. However, whether the increased share of the elderly in the population also increases aggregate per capita health spending depends on whether per person health care expenditure are higher among the elderly than among the non-elderly.

Over time, the share of the aggregate health spending accounted for by the elderly can be varied depending on their share of the population and whether health spending per person is changing differentially across various groups. Hence, if per-person health expenses of the elderly rise faster than those of non-elderly, the share of the elderly in total health spending will also increase.

2. 7 Hypotheses

- Aging population use more health care services than the younger group (under 60….) by implication, its cost increase

- Health care expenditure for the elderly account for 15% of the total health care expenditure of the country in 2024

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Source of Data

The data is primary data collected at Hanoi Social Security and a central level. In addition to that, for the purpose of comparison, the secondary data is also taken from statistical year book of Vietnam Health Insurance (1992-2002), Population Projection of Vietnam 1999-2025 and National Health Account 2004 issued by Ministry of Health Vietnam.

3.2 Research design

3.2.1 Sampling method

Due to limits of time and resources of the researcher, Hanoi was selected. Patient records at three levels in Hanoi in 2002 were collected. In order to be able compare health care expenditure rising to serve the projection of health care expenditure, patient records at a central level hospital- Bach Mai, the biggest hospital and the most expensive hospital in Hanoi-were also collected.

3.2.2 Sample size determination at each hospital level

$$N = p(1-p)\left(\frac{z}{d}\right)^2$$

P= 0.2 probability of the insured patient records which have total cost different from non-insured patient records

Z= 95% = 1,96

d= 0,04

N = 384 patient records

So, the total number of patient records randomly collected is 1222 for the year 2002. All patients aged 60 and up (412 from district, 407 provincial and 402 central levels). For the year 2003, 394 patient records from Bach Mai central hospital were also randomly collected.

3.3 Operational definitions

- Demographic factor: Number of elderly people by aged groups:

  60 – 64

  65 – 69

  70 – 74

  75 – 79

  80+

- Unit expenditure is the expenses at hospital for an older person in one year including out patient expenditure and inpatient expenditure
- Personal demand demand of individual elderly people in term of utilization rate for in and out patient care.

  + Utilization rate for out patient care is the number of visit of the elderly to phisician in one year at publis health care facilities

  + Utilization rate for in patient care: probability of elderly people addmitted to hospital for treatment more than more than 24 hours in one year
- Average expenditure for inpatient: the average amount spent by each hospital admitted case per treatment period
- Average expenditure for out patient: the everage amount of money spent on individual patient who get outpatient care per visit
- **Lab**oratory **cost**: payment made for all laboratory tests
- **Drug or medicines cost**: payment made for drugs, medications cost

- **Consumable materials**: syringe, transfusion set, gauge …
- **High - tech cost**: payment made for MRI, CITI Scanner
- **Average length of stay**: the average number of treated days of patients for a given hospital admission

3.4 Data processing and analysis

3.4.1 Data processing

The collected data was coded and recoded in an electronic file. The SPSS (version 11.5) for window was used for analysis. The statistics used included descriptive and multivariate analysis.

The measurement of variables was described in detail as follows:

- Dependent variable is the total cost of inpatient care which was measured in Vietnam Dong (Vietnam currency). The data measurement was ratio scale
- Independent variable are demographic and insured status which consisted of:

Gender was measured as nominal scale and coded to dummy variable (male=1 and female = 0)

Age was measured as interval scale and recoded as age group:

60-64 year old =1

65-69 = 2

70-74 = 3

75-79 = 4

80-84 = 5

85+ = 6

then the age variable was recoded again as age 85 with

60-74 = 1

75+ = 2

- Place of residence was measured as nominal scale and coded to dummy variable (Hanoi = 1 and other provinces = 2)
- Insured status was measured as nominal scale and coded to dummy variable (with health insurance card = 1; without health insurance card =0)
- Drug cost was measured as ratio scale in Vietnam Dong (Vietnam currency)
- X-ray and other minor medical procedures cost were measured as ratio scale in Vietnam Dong (Vietnam currency)
- Lab cost was measured as ratio scale in Vietnam Dong (Vietnam currency)
- Consumable cost was measured as ratio scale in Vietnam Dong (Vietnam currency)
- Length of Stay was measured as ratio scale
- Cost per day of treatment was computed by total cost divided by length of stay and was measured as ratio scale in Vietnam Dong (Vietnam currency)

3.2.2 Data Analysis

The collected data was secondary data of which 1222 patient records were already in electronic file and other 394 patient records at central hospital in 2003 were entered into electronic file and coded as mentioned above.

The descriptive statistics was used to give readers general information about demographic and insured status of the sample. The descriptive statistics was used

included: frequency, percentage, means, and standard deviation, maximum and minimum

Bivariate analysis was used to investigate the relationship and correlation between variables.

Mutivariate analysis (regression analysis) was used to explore the relationship and influence of the set of independent variables toward total cost of treatment at central level.

3.5 Limitation of study

- Patient records were collected from a Hanoi hospital where the cost of hospitalization and out-patient care is higher compared to other provinces, or it may come to the situation that the estimation would be overestimated
- Frequency of visits to physician in Hanoi also higher compare to other provinces
- The cost is not the full cost. It is just the cost currently paid by VSS to Hospital (not includes capital cost and recurrent cost because these costs are already covered by state budget)
- Patient records collected at Hanoi Social Security Office were not detailed enough to make analysis and compare with patient records collected at Bach mai hospital in 2003
- For 2003, data for district and provincial levels of Hanoi was not available to make comparison and explore the cost rising trend
- The data collected is from public health care providers but not from private health care providers

CHAPTER 4

RESULT AND DISCUSSION

As mentioned above, the outcputs of this study is a projection of health care expenditure for the elderly people in Vietnam in the period 2004- 2024 and discuss about possible solution to ensure the elderly accessibility to health care services when they get sick or ill by analyzing 1,222 patient records collected from Hanoi Social Security Office in 2002, and 394 patient records at a central Hospital named Bach Mai- one of the biggest medical school hospitals in the North of Vietnam in 2003. The research findings and discussion presented in this chapter based on the conceptual frame work in chapter II and the result of data analysis from the above mentioned patients' records. Therefore in this chapter the following aspects will be discussed:

4.1 General characteristics of the sample

4.2 Calculation of Unit cost for the elderly

4.3 Projection of the total health care expenditure for the entire elderly population in Vietnam

4.4 Discussion of the points 4.1, 4.2, 4.3

4.1 General characteristics of the sample

A total 1,616 patient records were collected of which 1,222 at three referred levels (district, provincial and central) represented for the year 2002 and the other 394 represented only for central level hospital in 2003. In these samples, there were 742 females and 874 males. For each year (2002, 2003) the proportion between male and female would be seen in table 4.1.1

Table 4.1.1 Percentage distribution of 1616 patient records classified by sex in 2002, 2003

Year	Sex	Frequency	Percent
2002	Male	654	53.5
	Female	568	46.5
	Total	1222	100.0
2003	Male	220	55.8
	Female	174	44.2
	Total	394	100.0

The percentage and number of the male in the sample in both 2002 and 2003 was more than that of the female. In 2002 this figure was 53.5% of male comparted to 46.5% of female. In 2003 the that figure at central level hospital shows a similar result, 55,8% male patients compared to 44.2% female patients. It is whether the older women are more likely experienced financial constrain when they are aging or this is due to gender issue? This question needs to be answered in another investigation.

Due to the fact that the data collected from Hanoi Social Security Office in 2002 did not include information about age and occupation, therefore for other detailed information will be analyzed only with the data from 394 patient claims collected in 2003 at central level hospital-Bach Mai.

From 394 patient records in 2003 at Bach mai hospital there were 186 patients holding health insurance cards and 208 did not holding health insurance cards. The number of people holding health insurance card at the age 60 and over in the entire country was 2.7 millions accounted for about 3.5% of the total population but out of 394 patients from the sample, there were 186 patients holding health insurance card or 47% of the sample in 2003. So, the result would allow us to infer that the insured patients currently were likely easy to be referred to central hospitals compared to non-insured patients. This is a big advantage of the insured patients to the noninsured patients

There were 147 patients living in Hanoi and 247 were referred to central Bach mai hospital from other provinces in the North of Vietnam. The number of big Hanoi's patients was in a big proportion compared to other provinces. The possible explanation was that the hospital is located in Hanoi, hence it is easier for Hanoi's patient to access to.

Table 4.1.2 Percentage distribution of 394 patient records classified by place of residence and health insurance status

		Frequency	Percent
Place of Residence	Hanoi	147	37.3
	Other Provinces	247	62.7
	Total	**394**	**100.0**
Health insurance status	Holding	186	47.2
	Not holding	208	52.8
	Total	**394**	**100.0**

In term of occupation, the number of civil servants was 186 and other occupation was 208 cases.

The average age of patients admitted to the Mach mai hospital from 394 patients in 2003 were 71.81. The oldest person was 97 year old. The group 85 and over were 16 cases, accounted for 4,1%. The age groups from 75 and over accounted for 36,3% of the 394 patients.

Table 4.1.3 Average age of 394 patients treated at Bach Mai hospitals in 2003

N	**Valid**	**394**
Mean		71.81
Median		71.00
Std. Deviation		7.484
Minimum		60
Maximum		97

The biggest groups of patients having treatment at central Bach mai hospital in 2003 were the two groups aged 70-74 and 75-79, they were 24,6% and 20,8%.

Table 4.1.4 Age Frequency by age groups of 394 patients treated at Bach mai Hospitals in 2003

Age group	Frequency	Percent
60-64	73	18.5
65-69	74	18.8
70-74	104	26.4
75-79	82	20.8
80-84	45	11.4
85+	16	4.1
Total	394	100.0

4.2 Calculation of unit cost for the elderly

According to the conceptual frame work mentioned in chapter 2, if we want to calculate unit cost for individual elderly then we need to take into account both in-patient and out-patient expenditure. The collected data were only the records which reflexes the in-patient cost. The out-patient expenditures are adapted from the data shown in the statistical year book of Hanoi Social Security 2002.

In 2002, the average expenditure per admission at district, provincial and central levels of health care providers were 451.733 VND, 1.771.132 VND and 2.185.171 VND ($ 30 US , $ 115 US and $ 140 US). The Average length of stay was also increased by level where the patients got treatment radically 10, 13 and 23 days. The maximum amount paid by Hanoi insurance office to health care provider at provincial level in 2002 was 19.774.423 VND (1.300 USD). It was a special case. The maximum amount paid by health insurance office of Hanoi to central hospital Bach mai was 12.794.819 VND (850 USD). Table below shows in detail health care expenditure by levels

Table 4.2.1 Average expenditure per admission of insured patients hospital levels in Vietnam 2002

Item	District N= 407	Provincial N = 413	Central N = 402
Drug cost	212.660	1.175.213	1.600.485
Lab cost	90.341	164.973	161.752
X-ray cost	32.004	64.600	174.161
Minor procedure	0	0	0
Transfusion cost	23.475	135.670	0
Blood cost	18.142	87.783	15.273
Other	0	387	199
Daily charge	75.108	142.503	233.298
Total	**451.733**	**1.771.132**	**2.185.171**
Maximum	2.224.718	19.774.423	10.147.819
Minimum	28.032	702.900	62.830
Average Length of Stay	10.95	14.89	23.42

However, to see the difference between 2002-2003, we have to compare these above figures with data from 185 patient records at the same level-central level who were holding health insurance card among total 394 collected patient records.

Table 4.2.2 Comparison of average expenditure at the central hospital-Bach Mai in 2002 and 2003

	Total cost		Drug cost		X-ray cost		Lab cost		LOS	
	2002 N=402	2003 N=185	2002 N=402	2003 N=185	2002 N=402	2003 N=185	2002 N=402	2003 N=185	2002 N=402	2003 N=185
Mean	2.185.171	3.267.846	1.600.485	2.534.505	174.161	204.640	161.752	218.852	23.42	22.20
SD	1.869.871	2.707.019	1.671.481	2.341.723	312.425	455.678	104.839	146.071	12.85	10.75
Min	62.830	127.338	830	16.839	0	0	0	0	1	2
Max	10.794.819	18.926.729	10.147.819	14.888.729	2.122.000	2.575.000	705.000	218.852	77	70

P<0,05 for all variables

For insured patients, the table 4.2.2 shows that, the total expenditure per hospital admission in 2003 increased from 2.185.171 VND to 3.267.846 VND equivalent to 50% compared to the total expenditure in 2002. The most important component effecting the total expenditure rising was drug cost. The drug spending was also increased more than half compared to the year 2002 (from 1.600.485 VND to 2.534.505 VND). The absolute rising amount of spending on drug in 2003 compared to the year 2002 was 1.082.675 of which drug cost accounted for 933.660 VND or 86.2%. The drug spending proportion in 2002 was 73,2% and increased to 77,5% of the total spending per hospital admission at central levels. The rest was because of the spending rising in X-ray cost and Lab cost. The share of the drug spending in total expenditure was extremely high. In general drug cost accounted only for about 30% in the total treatment cost in health insurance scheme with many retirees in developed countries (Barents Group LLC, 1999)

The rising of total expenditure may come from disease pattern change or the hospital had more severe cases in 2003, but there is no detailed treatment patient record data to confirm. For the year 2002, at central hospital, drug cost, X-ray

(imaginary diagnosis) and lab cost accounted for 88,62% and that figures in 2003 was 90.05% of the total cost. Hospital daily charge (money pay for bed, room) accounted for 10.67% in 2003 decreased to 6.77% in 2003 while the average Length of Stay was not increased.

In 2003, the maximum total expenditure spent at central level for insured patient was 18.926.729 VND while that figure of the uninsured patient was only 7.557.799 VND. This would be a big burden for patients if they did not have health insurance card. This amount is equivalent to income of a farmer for at least 7-8 working years. However, it could also probably be a moral hazard that means the health care providers have made use of insurance institution's payment. From 186 insured patients, there were 10 patients used CT scanner but only 1 case was uninsured patient. Among 186 insured patients there were 140 patients got X-ray or medical procedure like ultrasound …. But only 1 case of uninsured patient was found.

Table 4.2.3 Comparison of average **expenditure** per treatment day **in** 2002-2003

	Cost per day	**Cost per day**
	2002 (N= 402)	**2003 (N=185)**
Mean	96.421	150.947
Std. Deviation	63.749	90.079
Minimum	14.612	24.343
Maximum	366.918	619.618

On average, the spending per treatment day was increased from 96.421 VND to 150.947 VND, equivalent to 56%. The maximum cost per treatment day increased to 168% (from 366.918 VND to 619.618 VND)

Taking into account the gender issue, a comparison between male and female at central level hospital in 2002 and 2003 found that there was statistically no different in total expenditure per admission between male and female patients in both 2002 and 2003.

Table 4.2.4 a comparison of total in-patient expenditure by sex at central hospital Bach Mai in 2002-2003

	2002		2003	
	Male N= 237	**Female N=163**	**Male N=220**	**Female N=174**
Mean	2,197,447	2,173,730	2,600,913	2,298,253

Significant for 2003 was 0.186; and for 2002 was 0.901>0,05

The total expenditure of inpatient for the elderly patients seems to be no different among patients living in Hanoi and patients living in other provinces in 2003. As the elderly referred to central level, were probably in serious condition, therefore the treatment given to them were according to their needs not according to their ability to pay. In other words there was no discrimination among patients regardless of their socio- economic status.

Table 4.2.5 Comparison of total cost per admission by place of residence at central level hospital Bach Mai in 2003

Total expenditure	**Place of residence**	
	Hanoi N=147	**Other provinces N=247**
Mean	2.548.764	2.418.739
Std. Deviation	2.390.297	2.173.051
Std. Error Mean	197.148	138.267

Significant 0.58>0,05

The data from 394 patient records collected in central hospital-Bach Mai also tells us that the average cost per admission of insured patients was higher compared to noninsured patients as shown in table 4.2.6.

Table 4.2.6 Comparison of expenditure between insured and non-insured patients at Bach mai hospitals in 2003

	Patient status	N	Mean	Std. Deviation
TOTAL	Having HIC	186	3.258.172	2.702.915
	No HIC	208	1.759.984	1.433.580
DRUGS	Having HIC	186	2.527.422	2.337.382
	No HIC	208	1.361.151	1.212.076
XRA	Having HIC	186	203.540	454.692
	No HIC	208	13.875	198.512
LAB	Having HIC	186	218.072	146.063
	No HIC	208	130.141	101.610
LOS	Having HIC	186	22.16	10.733
	No HIC	208	15.67	10.470
Cost day	Having HIC	186	150.947	90.079
	No HIC	208	124.605	79.262

Significant for all variables <0.05

The mean of total expenditure of insured patients was nearly double compared to uninsured patients (3,258,172 VND compared to 1,759,984 or 85% different); drug cost was in a similar situation (2,527,422 VND to 1,361,151 VND or 85% different); imaginary diagnosis was more then 14 times higher; lab cost was 67% different, length of stay 41% different and cost per day 21% different.

In general, the insured patients were more costly patients then the uninsured patients, even when we take the length of stay out, the cost per day in hospital for insured patient was still 21% higher compared with uninsured patients.

For projection purpose of health care expenditure for the elderly, it is critical to look at the expenditure in specific age groups. The data in 2002 for 1,222 patient's record would not allow me to deal with this issue (patient record did not have information about the age of the patient) but the data in 2003 of 394 patient records at Bach mai hospital did. The mean comparison among different age groups indicates that the total cost was not different among the age groups 60-64; 65-69 and 70-74 and 85+. There was no difference in total cost between younger group under 75 and the group 85 and over, it seems to be inappropriate (significant was 0.282), maybe due to the number of case of the age group 85+ was only 16 cases (see appendix 1)

There was no different between age groups in terms of lab cost and x-ray cost but the cost per treatment day excepts group 60-64 and 65-69.

However, there was a different in terms of total expenditure and expenditure per treatment day between groups 60-74 and 75+ (please see appendix 1). This situation was also true for OEDC countries (Mahal. A and Berman. P, 2001).

Table 4.2.7 comparison of total inpatient expenditure between age groups 60-74 and 75+

at Bach mai Hospital in 2003

Calculation unit (1000 VND)

	AGE	N	Mean
TOTAL	60-74	251	2164117.3797
	75+	143	2999324.9832
CODA	60-74	251	125451.3609
	75+	143	157383.5008

Significant p <0,05

To ease projection from now on I will divide age groups into only two groups; group 1 for all people 60-74 and other is for all people 75 year old and over for both sexes.

The data analysis so far help me to conclude as follows:

1. The total cost for per elderly people paid from Vietnam social security to health care providers was clearly different among three referred levels: District 451.733 VND; provincial 1.771.132 VND and central: 2.185.171 VND relevant to 30, 115 and 140 USD (see table 4.2.1).

2. The health care expenditure per person for the elder people having health insurance card also higher compared to the elderly people who had not health insurance cards. It was nearly double compared to uninsured patients (3.258.172 VND - 1.759.984)- (see table 4.2.6)

3. There was no different in total expenditure between patients living in Hanoi and other provinces or in other the words, the place of residence did not have impact on treatment expenditure at central level (see table 4.2.5)

4. The total cost per person was not different between male and female patients

5. Total expenditure of hospitalization was different only between groups under 60-74 and 75+

These 5 points are taken into account and formed to be basis to calculate the average expenditure per person.

However, to calculate the average expenditure per person for the elderly (inpatient) we should also know the utilization rate by levels. There has been any survey data on utilization rate of health care in general yet but a study of Vietnam Health Insurance in 2002 revealed that the utilization rate by level for insured patient in Vietnam were (Ministry of Health, 2002b):

70% of the patients did get the treatment at district level
25% of the patient did get treatment at provincial level
5% of the ppatient did get treatment at central hospital

The following table shows the average inpatient expenditure with the accessibility as mentioned above and average expenditure by level shown in table 4.2.1 as well as utilization rate of the elderly in Hanoi in 2002 was 0.25 (Nghi, 2002)

Table 4.2.8 Inpatient average expenditure of the elderly in 2002

Calculation unit 1000 VND

	Expenditure by level		
Access probability by level	**District (451.7 VND)**	**Provincial (1,771.1 VND)**	**Central (2,185.1 VND)**
0.7	316.2	0	0
0.25	0	442.8	0
0.05	0	0	109.3
Sub total	316.2	442.8	109.3
Total	868.3		
Inpatient utilization rate	0.25		
Amount needed to Cover inpatient care cost	217		

For out patient: the data from Hanoi Social Security in 2002 shows that on average the out patient cost was 105.000 VND/per year for the elderly.

As mentioned above, the total cost per person of the elderly population are both in and out patient costs

Total cost = Out patient cost + inpatient cost

= 105.000 VND + 217.000 VND = 312.000 VND

For the purpose of making projection, the figure 312.000 will be rounded as 300.000

From the two tables below, we can find that the average health care of the elderly aged 75 and over was 138% higher to that of the age 60-74 and was 118% higher compared to the average expenditure of the 394 patients of the sample. This finding was not an exception and consistent with other conclusions internationally. Generally, people's health begins to deteriorate dramatically around age 75 and over and so the health care cost will increase radically. Hence for the purpose of projection I will take the cost for the age group 75 as to 355.000 VND (300.000 x118%). In other words, the actual expenditure needed to cover health care expenditure per capita for the elderly in 2003 was from 300.000 VND to 355.000 VND. This is a big amount of money for the elderly if they ill or seek to buy health insurance cards because the premium must be at least that amount 355.000 per year if not more (the administrative cost was excluded from the calculation).

This amount was more than double compared to the unit cost per enrollee in compulsory scheme in Hanoi in 2002, 355.000 VND compared to 151.000 VND. (This figure was calculated from statistical year book of Vietnam Health Insurance and Hanoi health insurance office 2002-the figure comes out from total expenditure spent on the insured patient divided by the number of enrollees in the compulsory scheme).

This amount is really a big amount for the elderly people in Vietnam especially the people living in rural areas. A study conducted by Gerontological Institute, Ministry of Health of Vietnam in 2002, shown that the income of the elderly in 3 provinces in the survey was as follows: 31% of the elderly had income less than 200.000 VND (14.5 USD) per month; 22% had income from 200.000 – 399.000 VND

(14.5 – 28 USD). Only the elderly people in big city like Hanoi and Ho Chi Minh city had a better income (MoH, Vietnam 2002). Therefore, the amount of 300.000-3550.000 VND for paying insurance premium could not be affordable premium for all elderly people. Currently, the retired groups (civil servant retired) have been paying only 1/3 of the premium, the rest 2/3 is covered by the government. However, for the elderly who are not belong to the official retired groups, they have to pay fully for the premium 300.000-355.000 VND. Having this amount to pay for the health insurance cost seem to be a dream for those people who are farmers or who are working in informal sectors. With the assistance from WHO, Ministry of Health - Vietnam issued the first National Health Account (NHA) in 2004. The data from in NHC showed that in general a family spends about 3% of their income for health. Therefore, the possible contribution of the people nation-wide could only be about 108.000 VND per year which is just about 1/3 of the total amount needed expenditure to cover health care needs of the elderly people. In Vietnam 75% of the population is still living in rural area and so is the elderly. The elderly people are put in the dilemma situation-not having enough money to pay for the health care insurance and becoming poorer if they get ill or they have to reduce their health care demand. The cost paying for a treatment period even at district level is also about 1 and ½ month of their monthly income (451.000 VND). This amount is radically increased at provincial and central levels 1,778,000 VND and 2,185,000 VND. These amounts are really equivalent to 9-10 times of the farmers' monthly income. The health care cost would really be a disaster for the elderly themselves as well as their family members.

4.3 Health care expenditure projection

Assumptions

1. Population size: It is adopted by Population Projection for whole country Vietnam 1999-2024 made by Statistical Publishing House Hanoi 2001

2. The personal health care expenditure for calculation based on the mentioned above figure for the the two groups: 300.000 VND for group 60-74; 355 for group 75+. The out patient care is kept constant, even there is not any study about this in Vietnam but a study in USA concluded that " acute inpatient care may reflect an increased need among those age groups for hospital treatment, while acute outpatient

services may not demonstrate as consistent a relationship between need for care and patient age" (Seshamani & Gray, 2003).

3. Health care expenditure increased 10 percentages per year for the elderly group under 75 and 12 percentages for those 75 year old and over. The actual health care expenditure at central hospital increased from 2002 to 2003 was 138%. For the whole country (three levels: district, provincial and central), the assumption of 10% is taken from coefficient payment currently applied to health care providers by Vietnam Social Security according to the regulation made by Ministry of Health-Vietnam (Ministry of Health –Vietnam 1998) and a report in USA on drug expenditure growth in which it shows that the price of drug increase 40,5% in 5 years or equivalent to 8% per year (Barents group LLC, 1999). Another evidence, in 2001, health care spending in the United States was $1.4 trillion, up 8.7 percent from 2000 (CDC, USA, 2003). However, Vietnam is a for developing country where the drug cost influenced very much by international pharmaceutical market, hence I take the assumption as 10% per year. In addition, there was a study of South Korea Health Care System said that an increase of GDP of 10 percent will lead to an increase of health care expenditure by 13.2 percent (Bernhard 2002)

4. Utilization rate for inpatient and outpatient kept constant (unchanged)

5. National health care expenditure increased as much as GDP 7,5%. This is the average GDP increase during the last decade in Vietnam.

6. Total national health care expenditure in 2000 in Vietnam was 23,289 billions VND, so by 2004 this figure turn to about 30.000.000.000 VND. However, according to the National Health Account Vietnam 2004, the direct health care (in and out patient care) was 50 percent or 15.000 billions VND (MoH, 2004).

Table 4.3.1 Population size of the elderly people in Vietnam 2004-2024

Age group	YEAR				
	2004	**2009**	**2014**	**2019**	**2024**
60-64	1,667	1,898	2,762	3,951	4,815
65-69	1,579	1,524	1,732	2,532	3,639
70-74	1,397	1,349	1,311	1,501	2,209
Sub total (millions)	4,644	4,772	5,806	7,985	10,665
75-79	920,352	1,071,306	1,045,834	1,099,384	1,187,272
80+	810,694	926,768	1,087,644	1,177,574	1,192,110
Subtotal (millions)	1,731	1,998	2,133	2,276	2,379
Total Population (millions)	80, 89	85,,54	90,46	95,15	99,27
% of the elderly to total population	7.88	7.91	8.78	10.79	13.14

Source: Vietnam Population Projection 1999-2024

With the assumptions mentioned above, the health care cost projection for the elderly population period 2004-2024 is made and the result of the projection could be presented in table 4.3.2.

Table 4.3.2 Health care cost projection for the period 2004-2024

Age group	Year				
	2004	**2009**	**2014**	**2019**	**2024**
60-64 (in millions)	1,667	1,898	2,762	3,951	4,815
65-69 (in millions)	1,579	1,524	1,732	2,532	3,639
70-74 (in millions)	1,397	1,349	1,311	1,501	2,209
Total of group (60-74) in millions	4,644	4,772	5,806	7,985	10,665
Unit cost of the group 60-74 (thousend VND)	300	483	778	1253	2018
Sub total Health care expenditure (thousand billions VND) (1)	13,93	23,05	45,18	100,07	215,24
75-79	920,352	1,071,306	1,045,834	1,099,384	1,187,272
80+	810,694	926,768	1,087,644	1,177,574	1,192,110
Total of group 75+	1,731	1,998	2,133	2,276	2,379
Unit cost of the group 75+ (thousend VND)	355	626	1103	1943	3224
Sub total Health care expenditure of the group 75+ (thousand billions VND) (2)	6,14	12,50	23,52	44,24	81,48
Grand Total health care expenditure of the elderly by year (thousand billions VND) (1+2)	20,07	35,55	68,70	144,31	296,72
National health care spending on direct curative care (thousand billions VND) (3)	150	215,34	309, 15	443,83	637,17
Percentage to total NCE by elderly population when the cost kept constant for two groups(1+2)/3	13	16	22	32	46

Table 4.3.2 shows that by 2024 the elderly people in Vietnam will have a size of 13,04 millions or 13.14 percent (see table 4.3.1) of the total population and health care expenditure for them (the elderly) would reach to 46 % of the total national health care expenditures (direct cost for curative care including in and out patient care).

In order to see the population drive factor (aging and increase number of elderly people), I keep the unit cost per elderly person the same for both groups 300.000 VND with the increase price as high as 10 percent, the outcome shows in the table below:

Table 4.3.3 Health care cost projection when expenditure kept constant between the two groups 60-74 and 75+ and percentage of elderly people is kept constant by 7,88% of the total population

Age group	Year				
	2004	**2009**	**2014**	**2019**	**2024**
Total of group (60-74) in millions	4,644	4,772	5,806	7,985	10,665
Unit cost of the group 60-74 (thousand VND)	300	483	778	1253	2018
Sub total Health care expenditure	13,93	23,05	45,18	100,07	215,24
Total of group 75+(million)	1,731	1,998	2,133	2,276	2,3792
Unit cost of the group 75+ (thousand VND)	300	483	778	1253	2018
Sub total Health care expenditure of the group 75+(thousand billions VND)	6,14	12,50	23,52	44,24	81,48
Grand Total health care expenditure of the elderly by year (VND)	1, 912	3,223	5,490	9,301	15,628
National health care spending on direct curative care (thousend billions VND)	15.000	21,534	30,915	44,383	63,717
Percentage to total NCE by elderly population by normal projection	13	16	22	32	46
Percentage to total NCE by elderly population when the population grow kept constant for two groups at rate 7.8%	13	15	18	21	25
Increased Percentage driven from population increase	0	1	3	9	21

This table actually presents that if we keep the elderly population grow rate constant at 7,8% per year and health care cost constant for the two groups then the the total health care expenditure spending on the elderly people in Vietnam will be reduced by 21%. By 2024, the total national health care spending on the elderly will be 21% less It will be 25% of the total national health care expenditure instead of 46%. So, the cost rising driven by aging population factor will be accounted for 45% of the total cost rising in 2024(21/46). The major driven factor is cost of medical and pharmaceutical services. These costs is high because the ability of pharmaceutical production in Vietnam is not developed (80% of the pharmaceutical products uses in health market are imported) ; imaginary diagnosis (CT scanner, MRI…) cost as well

as laboratory cost are also high-Vietnam could not produce them even the chemicals for the test is also imported products. The labour cost in Vietnam was just about 11% ofhe total national curative care expenditures (1.926 billion/17.484 billions VND).

4.4 Discussion

In this part following points will be discussed: Unit health care expenditure of the elderly; the projection of total health care expenditure needed for the elderly in vietnam in 20 years

1. The amount needed per person (both male and female) was about 300.000-355.000 VND or equivalent to 20-24 USD. This amount is a big amount for the elderly people particularly those are living in rural area where 75,6 of the elderly have their monthly income per capita less than 200.000 or 15 USD (ministry of Health Vietnam, 2002). On average a person in Vietnam spends 3% of their income for health care (Jowett et all, 2003) that mean the maximum amount that an elderly people in rural area could afford to pay for health care per year is not more than 10.000 VND per month or 120.000 VND per year (10 USD) The actual amount of the elderly people spent on direct health care (in and outpatient care) calculated above in Hanoi in 2002 and 2003 was about 3 times higher to the possible payment of the common elderly people in rural area. The high cost of health care and low income of the people will result in either reduce the demand for health care services or reduce other basic welffare improving expenditure in order to pay for medical bill (M. Jowett et all, 2003) is a vicious cycle poor - ill – poor. So the additional resources should be found to cover the monetary gap between affordability and actual cost of health care of the poor.
2. By 2004, the health care cost for the elderly population will account for 46% of total health care expenditure in Vietnam, although the elderly population dominates only 13,4% the total population A health care projection for the elderly in Japan by Japanese experts showed a similar result for the groups 65 year old and over not 60 +, by 2025, they accounted for 24,5% of the total

population, but the health care expenditure for this group will be 54,6% of the total health care spending in Japan (United nation 1988). By 2024, the average expenditure of the elderly groups (both sexes) would be about 2,3 millions VND (296.720 thousand of billions VND/13,04 millions elderly people) While the possible contribution would only be 580.000 VND-this figure was calculated in accordance with information in the national health account Vietnam 2004 in which the maximum expense for health was identified as 3% with the monthly income 300.000 VND nationwide (20 USD/per month) and the GDP proposed to increase by 7.5% yearly. Hence, the need would be about 4.0 times higher compared to the possible contribution (2,3 millions/580,000 VND)This is a big problem for the elderly especially that are living in rural areas.

3. Population growing factor is one of the main driven factor in health care cost rising. In 20 years, by 2024, the proportion of cost adds by population factor is 45% the total health care spending on the elderly people in Vietnam. These finding is inconsistence with many international studies. The major driven factor is cost of medical and pharmaceutical services. These costs is high because the ability of pharmaceutical production in Vietnam is not developed (80% of the pharmaceutical products uses in health market are imported); imaginary diagnosis (CT scanner, MRI…) cost as well as laboratory cost are also high-Vietnam could not produce them even the chemicals for the test is also imported products. The labour cost in Vietnam was just about 11% ofhe total national curative care expenditures (1.926 billion/17.484 billions VND).The total cost in this study excluded capital cost as well as labour cost and administrative cost.
4. In 394 patients at central hospital in 2003, there were 186 insured patients and 208 uninsured patients (pay by their own pocket money). This figure indicates that the insured patients were more costly patients but could probably easier to access to central hospital for treatment. The elderly are really benefited from health insurance policy, it will protect them effectively again economic disaster especially for the people in rural areas because the average hospital cost per treatment period at provincial and central levels is about 6 month income of a family in rural areas.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Aging population has become one of the major issues in our modern world and its implication has been realizing as burdens for the government. In Vietnam, due to the success of health care system and socio-economic development during the last three decades the population is aging quickly, hence the concern of the health care expenditure for the elderly people is also rising. As mentioned above, this study is concerned only about the health care expenditure of the elderly group from 60 year old and up in Vietnam through analyzing 1,616 patient records from three Hanoi's hospitals. The outputs of this study would benefit to policy makers who want to meet the health care needs of the elderly in the future in Vietnam. For this study the collected patient records represented for all three health care levels in Vietnam in 2002 but for the year 2003 only for central level hospital. The main objective of this study is to project health care expenditure for the elderly population in Vietnam for the period 2004-2024. The formula used for projection:

$$Pj = ? \ [(Ej \times Ns)]$$

Pj= Total health care expenditure in the year t

Ej = Individual average specific health care expenditure by year j

Ns = Number of elderly in specific age group

Based on the result of the study and discussion in chapter IV, the conclusions of this study are as follows:

1. The amount needed per person (both male and female) was about 300.000 VND-355.000 VND or equivalent to 20-24 USD. This amount is a big amount for the elderly people particularly those are living in rural area where 75,6% of the elderly have their monthly income per capita less than 200.000 VND –15 USD (Ministry of Health-Vietnam, 2002). On average a person in Vietnam spends 3% of their income

for health care (Jowett et all, 2003) that mean the maximum amount that an elderly people in rural area could afford to pay for health care per year is not more than 10.000 VND per month or 120.000 VND per year (8 USD) The actual amount of the elderly people spent on direct health care (in and outpatient care) calculated above in Hanoi in 2002 and 2003 was about 3 times higher to the possible payment of the common elderly people in rural area. The high cost of health care and low income of the people will result in either reduce the demand for health care services or reduce other basic welffare improving expenditure in order to pay for medical bill (M. Jowett et all, 2003). This is a vicious cycle poor - ill – poor. So the additional resources should be found to cover the monetary gap between affordability and actual cost of health care of the poor.

2. By 2024, the health care cost for the elderly population will account for 46% of total health care expenditure in Vietnam, although the elderly population dominates only 13,4% of the total population.

3. Population growing factor is one of the main driven factor in health care cost rising. In 20 years, by 2024, the proportion of cost adds by population factor is 45% in the total health care spending on the elderly people in Vietnam. These finding is inconsistence with many international studies.

4. There is a universal agreement that the increase in health care expenditure can be attributed mostly to development and application of new diagnosis procedures, drugs and medical intervention (Mayhew 2000) although the impact of these technical changes has primarily benefited older people. Vietnam is not an exception case, the main driven health care cost is technology including drug cost, imaginary diagnosis and Lab cost. These costs accounted for 55% of the total health care cost spending on the elderly in Vietnam. The total cost in this study excluded capital cost as well as labour cost and administrative cost. This situation is really dangerous for the health care market in general. At the time being, drug market in Vietnam relies very much on external pharmaceutical companies. The domestic pharmaceutical factories account for less than 20% of the local pharmaceutical market. Another factor is that Vietnam like other developing countries where most of the modern medical equipments and machine are imported. The cost of these equipment and machines is too high

compared to income of the common people. The situation of high proportion of drug in the total care was not improved.

5. The result of the study said that, there was no different in term of health care expenditures between Hanoi's patients and other provinces' patients in 394 patient records collected at Bach Mai hospital. Patients were treated fairly at central level. It was not possible to compare to get any idea about treatment at other levels (district and provincial level) but the number of male patients in the two samples was higher compared to female: in 2002 was 53,5 and in 2003 was 58,5 percent.

6. In 394 patients at central hospital in 2003, there were 186 insured patients and 208 uninsured patients (pay by their own pocket money). This figure indicates that the insured patients were more costly patients but could probably easier to access to central hospital for treatment. The elderly are really benefited from health insurance policy, it will protect them effectively again economic disaster especially for the people in rural areas because the average hospital cost per treatment period at provincial and central levels is about 6 month income of a family in rural areas.

5.2 Recommendations

Since 1986, Vietnam's economy has started to change from central planned economy into socialist oriented market economy which yield in many changes in our society positively and negatively. In the past, health care was free for every one who needed health care services. However today, this privilege is no longer exist. Although the government has established a social safety net to protect the poor (poverty line was set up by Ministry of Labour, Invalid and Social Affairs -MoLISA) however many people are still in dangerous situation when they get sick especially the elderly population (one of the vulnerable groups in the market economy). The result of the study has shown that most of the elderly themselves could not afford to pay fully of the health care cost (300.000 VND-355.000 VN) and with increasingly health cost by 2024 the health care cost for the elderly could reach to 46,5% of the total direct national health care cost, so the following recommendations are made to policy makers for better meeting the needs of the elderly of the countries in the future.

1. With advantaged points mentioned above (better access to health care services, better services and protect the elderly themselves and their family against economic

disaster), as the universal health insurance has not taken place in the country yet, the possible contemporary solution is to implement voluntary family based health insurance scheme. The contribution should not exceed 3% of the average income of the family. However, the minimum contribution should be at least 120.000 VND per person annually. The gap between family contribution and the actual cost will be covered by the Government like the people working in formal sector.

2. For more practical solution, the government should implement a compulsory elderly scheme in which the insured elderly will entitle only to hospital benefits. The reason for this proposal is to reduce the premium to the payment capacity of the alderfly's family and avoid catastrophe burden (hospitalization cost for the elderly for example at central level hospital would be 6 month income of a family in rural areas) for the family when the elderly need hospital services. As mentioned in the calculation premium for the elderly, 2/3 of the cost was because of hospitalization (194.000/295.000). So instead of paying fully for the cost 300.000 VND, the cost for hospital benefits will be 200.000 and will be divided by 3 parties: The elderly themselves 60.000 VND, their children 70.000 VND and the Government 70.000 VND. This program must be compulsory for all elderly people aged 60 and older in order to avoid adverse selection. With this solution, the government is not only the party that bears the addition cost of the elderly.

3. According to the projection, by 2024, 46,% of the direct health care cost will be occupied by the elderly. The main reason for health care cost rising was because of the technical changes (drug, new medical procedures and new expensive equipment) of which the drug component accounted for about 77,5% in 2003 at central level hospital. Being a third payer party Vietnam Social Security is happy to pay and cover all benefits as regulation however Vietnam Social Security should also think of how to assure that the right drugs get to the right people safely and at the right time that mean working more closely with the doctors to eliminate unnecessary cost.

4. The drug market in Vietnam is not strictly controlled by the government, there was no drug reference price committee to manage drug price, therefore it is necessary to establish such an organization to be responsible for controlling drug price especially the imported branded name drug. This is one of the critical points to help the elderly to access better needed drugs.

5. Treatment cost at primary level was only about 1/ 4 compared to the cost at central level (450.000/2.1.85.000 VND). Hence, the government should have a program to strengthen the performance capacity of the district level to assure that the elderly will be taken care well and early at this level.

6. Aging population raise the demand for health care services. The implication is that the demand for health care personnel also increase especially when new care styles appeared such as home care or long term care centers to replace institutional care. Therefore medical school should start to think how to integrate the elderly health and health care for the elderly components into curriculum so that the future health care personnel could be able to deal with this issue.

5.3 Further studies

Many factors needed for the projection were taken from other studies in developed countries (utilization rate, drug growing rate,) or in Hanoi where the utilization rate as well as the service cost is not a typical sample represented the country's need. Therefore for more accurate projection a further study should be implemented to add some more valuable variables for the projection especially the utilization rate at different levels, inflation rate, drug growing rate as well as other costs like capital cost, labour cost.

In addition to that, for further discussion on affordability of insurance premium, it is necessary to carry out survey to define actual income of the elderly and the income of a household especially in rural areas where income is relative low compared to urban areas.

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APPENDIX

Appendix 1

Multiple Comparisons of mean of total expenditure at central hospital Bach mai in 2003

Dependent Variable: TOTAL
LSD

(I) Age group	(J) Age group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
60-64	65-69	-135600.3394	367237.46702	.712	-857624.7768	586424.0980
	70-74	-252971.5699	339917.98157	.457	-921283.2523	415340.1125
	75-79	-854524.3956(*)	358230.94491	.018	-1558841.1380	-150207.6531
	80-84	-1321513.5484(*)	421928.55909	.002	-2151065.9712	-491961.1256
	85+	-662576.1588	614524.47962	.282	-1870790.8197	545638.5021
65-69	60-64	135600.3394	367237.46702	.712	-586424.0980	857624.7768
	70-74	-117371.2305	338565.79330	.729	-783024.3797	548281.9188
	75-79	-718924.0562(*)	356948.13641	.045	-1420718.6728	-17129.4395
	80-84	-1185913.2090(*)	420839.95910	.005	-2013325.3388	-358501.0792
	85+	-526975.8194	613777.56414	.391	-1733721.9722	679770.3333
70-74	60-64	252971.5699	339917.98157	.457	-415340.1125	921283.2523
	65-69	117371.2305	338565.79330	.729	-548281.9188	783024.3797
	75-79	-601552.8257	328774.76957	.068	-1247955.8737	44850.2224
	80-84	-1068541.9785(*)	397224.30463	.007	-1849523.4438	-287560.5133
	85+	-409604.5889	597832.56457	.494	-1585001.3278	765792.1499

(I) Age group	(J) Age group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
75-79	60-64	854524.3956(*)	358230.94491	.018	150207.6531	1558841.1380
	65-69	718924.0562(*)	356948.13641	.045	17129.4395	1420718.6728
	70-74	601552.8257	328774.76957	.068	-44850.2224	1247955.8737
	80-84	-466989.1528	413004.02406	.259	-1278995.0752	345016.7695
	85+	191948.2367	608431.54994	.753	-1004287.1342	1388183.6076
80-84	60-64	1321513.5484(*)	421928.55909	.002	491961.1256	2151065.9712
	65-69	1185913.2090(*)	420839.95910	.005	358501.0792	2013325.3388
	70-74	1068541.9785(*)	397224.30463	.007	287560.5133	1849523.4438
	75-79	466989.1528	413004.02406	.259	-345016.7695	1278995.0752
	85+	658937.3896	647983.98904	.310	-615061.9083	1932936.6875
85+	60-64	662576.1588	614524.47962	.282	-545638.5021	1870790.8197
	65-69	526975.8194	613777.56414	.391	-679770.3333	1733721.9722
	70-74	409604.5889	597832.56457	.494	-765792.1499	1585001.3278
	75-79	-191948.2367	608431.54994	.753	-1388183.6076	1004287.1342
	80-84	-658937.3896	647983.98904	.310	-1932936.6875	615061.9083

* The mean difference is significant at the .05 level.

Appendix 2

Comparison of total health care expenditure between group 60-74 and 75 and over at central hospital Bach mai hospital in 2003

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
TOTAL	Equal variances assumed	12.704	.000	-3.589	392	.000	-835207.6035	232707.12246	-1292717.74332	-377697.46375
	Equal variances not assumed			-3.263	221.905	.001	-835207.6035	255974.58483	-1339659.79891	-330755.40816

Group Statistics

	AGE75	N	Mean	Std. Deviation	Std. Error Mean
	1.00	251	2164117.3797	1888877.11370	119224.86623
	2.00	143	2999324.9832	2708708.91150	226513.61847

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