

**A DEMAND FOR HEALTH SERVICES AT LERDSIN HOSPITAL
AFTER IMPLEMENTATION OF
THE UNIVERSAL HEALTH COVERAGE SCHEME**

NUALPUND EAMTRAKUL

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY
(MEDICAL AND HEALTH SOCIAL SCIENCES)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY
2005**

**ISBN 974-04-5554-9
COPYRIGHT OF MAHIDOL UNIVERSITY**

**Thesis
Entitled**

**A DEMAND FOR HEALTH SERVICES AT LERDSIN HOSPITAL
AFTER IMPLEMENTATION OF
THE UNIVERSAL HEALTH COVERAGE SCHEME**

.....
Miss Nualpund Eamtrakul
Candidate

.....
Prof. Santhat Sermsri,
Ph.D. (Sociology & Demography)
Major-Advisor

.....
Assoc. Prof. Kusol Soonthorndhada,
Ph.D. (Population & Development)
Co-Advisor

.....
Assoc. Prof. Somchart Torugsa,
M.D., MPH. (Hospital Administration)
Co-Advisor

.....
Assoc. Prof. Rassmidara Hoonsawat,
Ph.D.
Dean
Faculty of Graduate Studies

.....
Lect. Arayan Trangarn, Sc.D.
Chair
Doctor of Philosophy Programme in
Medical and Health Social Sciences
Faculty of Social Sciences and Humanities

**Thesis
Entitled**

**A DEMAND FOR HEALTH SERVICES AT LERDSIN HOSPITAL
AFTER IMPLEMENTATION OF
THE UNIVERSAL HEALTH COVERAGE SCHEME**

was submitted to the Faculty of Graduate Studies, Mahidol University
for the degree of Doctor of Philosophy (Medical and Health Social Sciences)
on
7 March, 2005

.....
Miss Nualpund Eamtrakul
Candidate

.....
Prof. Santhat Sermsri,
Ph.D. (Sociology & Demography)
Chair

.....
Mr. Porntep Siriwanarangsun,
M.D., Ph.D. (Health Planning & Financing)
Member

.....
Assoc. Prof. Kusol Soonthorndhada,
Ph.D. (Population & Development)
Member

.....
Lect. Arayan Trangarn,
Sc.D. (Health Policy & Management)
Member

.....
Assoc. Prof. Somchart Torugsa,
M.D., MPH. (Hospital Administration)
Member

.....
Assoc. Prof. Rassmidara Hoonsawat,
Ph.D.
Dean
Faculty of Graduate Studies
Mahidol University

.....
Assoc. Prof. Suree Kanjanawong,
Ph.D.
Dean
Faculty of Social Sciences and Humanities,
Mahidol University

ACKNOWLEDGEMENTS

I wish to express my sincere gratitude to the following persons and institutions for their valuable contribution to this thesis. First and foremost I am indebted to my major advisor Professor Dr. Santhat Sermsri and to my two co-advisors Assoc. Prof. Dr. Kusol Soonthorndhada and Assoc. Prof. Dr. Somchart Torugsa, and thesis committee Dr. Porntep Siriwanarangsun and Lecturer Dr. Arayan Trangarn for their kind assistance and valuable guidance as well for their devoted time to go through, revise and edit my draft until this thesis was completed successfully.

I also would like to thank Assoc. Prof. Dr. Thavatchai Vorapongsathorn, Assist. Prof. Peera Krugkrunjit and Assist. Prof. Dr. Vanawipha Pasandhanatorn who advised and did help me in statistical matters as well as Prof. Dr. Frank-Peter Schelp and Ms. Rangsim Vairojananant who checked and corrected the English version of the manuscript.

I am also very grateful to the management and staff of the Lerdsin Hospital who did support me throughout my thesis work in particular for the help in data collection. I am also grateful to all patients and residents of zone9 who co-operated in this investigation and answered willingly the questionnaires during the interviews. In addition I want to thank all my teachers for sharing their experiences and knowledge with me during my studies.

Last but not least I would like to extend my sincere gratitude and give all credit to my mother and family for their love and encouragement and assistance throughout the hard time while working on my thesis.

Nualpund Eamtrakul

**A DEMAND FOR HEALTH SERVICES AT LERDSIN HOSPITAL AFTER
IMPLEMENTATION OF THE UNIVERSAL HEALTH COVERAGE SCHEME**

NUALPUND EAMTRAKUL 4337058 SHMS/D

Ph.D (MEDICAL AND HEALTH SOCIAL SCIENCE)

THESIS ADVISORS: SANTHAT SERMSRI, Ph.D., (SOCIOLOGY&DEMOGRAPHY)

KUSOL SOONTHORNDHADA, Ph.D. (POPULATION&DEVELOPMENT),

SOMCHART TORUGSA, M.D., MPH. (HOSPITAL ADMINISTRATION)

ABSTRACT

This study investigated the factors that affected the demand for health services at Lerdsin Hospital. The opinion of the management staff and the staff working at out-and inpatient departments, after implementation of the Universal Health Coverage scheme, and the reluctance of residents within the catchment areas of the Lerdsin Hospital to receive services at the hospital were assessed in order to see an overview of the demand and supply for health services at Lerdsin Hospital. The data were analyzed using Multiple Regression, One-way ANOVA and Kruskal Wallist test.

The results of the study found that, 800 outpatients had an average of 7.7 outpatient visits/year. The factors that affected the number of visits were in order of importance, the medical costs in the past, age, present residence, travel time, type of illness, time spent for services in the past, marital status, number of years in formal education and occupation. Additionally 700 inpatients had an average length of stay in the hospital of 9 days/year. The factors that affected length of stay were the severity of illness, sex, type of illness, occupation, travel time, the medical costs in the past, present residence and age, in respective importance. The patients were divided into 5 groups according to the eligibility for health services:- 1. Patients who held a gold card with 30 Baht payment 2. Patients who held a gold card without 30 Baht payment 3. Patients who were insured by the social security scheme 4. Patients who were civil servants or employees of the governmental enterprises 5. Patients who paid for the treatment from their own pocket. The different eligibility for health services had a different effect on the demand for health services at out-and inpatient departments. It did not affect the result of the treatment but had an impact on the medical costs and the length of stay in the hospital. Civil servants and state enterprise staff had the highest medical costs and did stay in the hospital longer than the other groups, while the patients who paid for the treatment themselves had the lowest medical costs and shortest length of stay.

After the implementation of the Universal Health Coverage scheme, the satisfaction of 18 of the hospital management staff towards the hospital services was 73.5%, the average satisfaction of 160 of the staff working at out- and inpatient departments towards the services provided to the health receivers was 68.1%. The satisfaction of the two groups towards the Universal Health Coverage scheme was at a low level and it affected hospital management, hospital services, health personnel, quality, efficiency and the finances of the hospital.

The 400 people who lived in the area under the responsibility of Lerdsin Hospital but refused to receive services at the hospital gave the reasons that :- 1. The hospital was too far from home, it was inconvenient to travel there. 2. The patients received treatment at other hospitals and wanted to continue the treatment with the same doctor at that hospital. 3. The service procedure was complicated and had a long waiting time.

Understanding the factors that influence the demand and supply for health services is useful information for the hospital management in order to plan quality and efficient services suitable to the requirements of the people with restricted resources.

**KEY WORDS:- DEMAND FOR HEALTH SERVICES /
UNIVERSAL HEALTH COVERAGE / TYPE OF ELIGIBILITY**

265 P. ISBN 974-04-5554-9

อุปสงค์ด้านการรักษาพยาบาล โรงพยาบาลเลิดสินภายใต้ นโยบายหลักประกันสุขภาพถ้วนหน้า
(A DEMAND FOR HEALTH SERVICES AT LERDSIN HOSPITAL AFTER IMPLEMENTATION
OF THE UNIVERSAL HEALTH COVERAGE SCHEME)

นवलพรรณ เอี่ยมตระกูล 4337058 SHMS/D

ปร.ด. (สังคมศาสตร์การแพทย์และสาธารณสุข)

คณะกรรมการควบคุมวิทยานิพนธ์ : สันศักดิ์ เสริมศรี, Ph.D., (Sociology & Demography)

กุศล สุทธธาดา, Ph.D. (Population & Development)

สมชาติ โตรักษา, M.D., MPH. (Hospital Administration)

บทคัดย่อ

การศึกษานี้มีวัตถุประสงค์ เพื่อศึกษาปัจจัยที่มีผลต่ออุปสงค์ด้านการรักษาพยาบาล ความคิดเห็นของผู้บริหารและผู้ปฏิบัติงาน ร.พ.หลังจากน่านโยบายหลักประกันสุขภาพถ้วนหน้ามาใช้รวมถึงเหตุผลของการไม่ใช้บริการ ร.พ. ของประชาชนที่อยู่ในเขตที่ ร.พ.เลิดสินรับผิดชอบ เพื่อให้เห็นภาพทั้งอุปสงค์ และ อุปทานได้อย่างครอบคลุมมากขึ้น โดยใช้สถิติ Multiple regression, One-way ANOVA และ Kruskal Wallist test

ผลการศึกษาพบว่า ผู้ป่วยนอกจำนวน 800 คน มีจำนวนครั้งการใช้บริการแผนกผู้ป่วยนอกเท่ากับ 7.7 ครั้งต่อปี โดยมีปัจจัยที่กำหนดอุปสงค์การรักษาพยาบาลแผนกผู้ป่วยนอกตามลำดับความสำคัญ คือ ค่ารักษาของ ร.พ. ที่ผ่านมา อายุ ที่อยู่ปัจจุบัน เวลาที่ใช้ในการเดินทาง ลักษณะการเจ็บป่วย เวลาที่ใช้ใน ร.พ.ที่ผ่านมา สถานภาพสมรส จำนวนปีที่ศึกษา และ อาชีพ ขณะที่ผู้ป่วยในจำนวน 700 คน มีจำนวนวันนอนใน ร.พ. 9 วันต่อปี โดยมีปัจจัยที่กำหนดอุปสงค์การรักษาพยาบาลแผนกผู้ป่วยในตามลำดับความสำคัญ คือ ความรุนแรงของโรค เพศ ลักษณะการเจ็บป่วย อาชีพ เวลาที่ใช้ในการเดินทาง ค่ารักษาของ ร.พ.ที่ผ่านมา ที่อยู่ปัจจุบัน และ อายุ เมื่อแยกสิทธิรักษาพยาบาลออกเป็น 5 กลุ่ม คือ 1.กลุ่มใช้สิทธิบัตรทองจ่าย 30 บาท 2.กลุ่มใช้สิทธิบัตรทองไม่จ่าย 30 บาท 3.กลุ่มใช้สิทธิประกันสังคม 4.กลุ่มใช้สิทธิข้าราชการ-พนักงานรัฐวิสาหกิจ และ 5.กลุ่มจ่ายค่ารักษาเอง พบว่าแต่ละสิทธิมีปัจจัยที่มีผลต่ออุปสงค์ด้านการรักษาพยาบาลแผนกผู้ป่วยนอกและแผนกผู้ป่วยในต่างกัน การใช้สิทธิรักษาพยาบาลที่ต่างกันไม่มีผลต่อผลการรักษา แต่มีผลต่อค่ารักษาและจำนวนวันนอนใน ร.พ. โดยกลุ่มใช้สิทธิข้าราชการ-พนักงานรัฐวิสาหกิจ มีค่ารักษาและจำนวนวันนอนสูงสุด ขณะที่กลุ่มจ่ายค่ารักษาเอง มีค่ารักษาและจำนวนวันนอนต่ำสุด

ภายหลังจากน่านโยบายหลักประกันสุขภาพถ้วนหน้ามาใช้พบว่าผู้บริหาร ร.พ. จำนวน 18 คน มีความพึงพอใจต่อผลการให้บริการของ ร.พ. คิดเป็น 73.5% ขณะที่ผู้ปฏิบัติงาน จำนวน 160 คน มีความพึงพอใจต่อการให้บริการแก่ผู้รับบริการ คิดเป็น 68.1% ทั้งสองกลุ่มมีความพึงพอใจต่อนโยบายนี้ค่อนข้างต่ำและคิดว่ามีผลกระทบต่อการบริหารจัดการงานบริการ ด้านบุคลากร ด้านคุณภาพ-ประสิทธิภาพ และด้านการเงินการคลังของ ร.พ.

ส่วนประชาชนในเขตที่ ร.พ.เลิดสินรับผิดชอบ จำนวน 400 คน แต่ไม่ใช้บริการ ร.พ.เลิดสิน ด้วยเหตุผลหลักคือ 1.ไกลบ้าน เดินทางไม่สะดวก 2.เคยรักษาที่ ร.พ.อื่น ต้องการรักษาอย่างต่อเนื่อง 3.ขั้นตอนยุ่งยาก เสียเวลาในการมารับบริการ

ดังนั้นการทราบบัญชีด้านอุปสงค์และอุปทาน จะช่วยให้ ร.พ. สามารถวางแผนจัดบริการตอบสนองความต้องการของประชาชนได้อย่างมีประสิทธิภาพและมีคุณภาพยิ่งขึ้นภายใต้ทรัพยากรที่มีอย่างจำกัด

CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
ABSTRACT(ENGLISH)	iv
ABSTRACT(THAI)	v
LIST OF TABLES	xi
LIST OF FIGURES	xiv
CHAPTER	
I INTRODUCTION	
1.1 Background and rational of the survey	1
1.2 Research questions	13
1.3 Research objectives	14
1.4 Hypothesis	14
1.5 Scope of the study	14
1.6 Benefit of the study	15
1.7 Operational definition	15
II LITERATURE REVIEW	
2.1 The concept and theories of the demand for health services	17
2.2 The characteristics of health service utilization	25
2.3 The concept of equity in health services	29
2.4 The concept of quality services	32
2.5 Thailand's health insurance schemes and payment methods for health care institutions	36

CONTENTS (CONTINUE)

CHAPTER	Page
II LITERATURE REVIEW (CONTINUE)	
2.6 Background information about Lerdsin Hospital	42
2.7 Factors related to the demand for health services	48
2.8 Conceptual framework	66
III RESEARCH METHODOLOGY	
3.1 Research design	68
3.2 Source of data	68
3.3 Study population and sample size	69
3.4 Research instruments	72
3.5 Model building	74
3.6 Data collection and management	78
3.7 Statistical methods used	78
3.8 Limitation of the study	78
IV THE EMPIRICAL RESULTS OF THE STUDY	
4.1 The health receiver at out- and inpatient departments	80
4.1.1 The type and characteristics of the health receiver	80
4.1.2 Health services at the out- and inpatient departments	100
4.1.3 Factors which affected the demand for health services according to the eligibility of health services	111
4.1.4 Relationship between the number of doctors and the number of outpatient of Lerdsin Hospital	126

CONTENTS (CONTINUE)

		Page
CHAPTER		
IV THE EMPIRICAL RESULTS OF THE STUDY(CONTINUE)		
4.1.5 The influence of different health insurance schemes on medical costs for patients, length of stay and result of treatment		127
4.2 Management staff of Lerdsin Hospital		140
4.3 The working staff at out- and inpatient departments		144
4.4 People lived in the area under the responsible of Lerdsin Hospital but refused to receive the services of the hospital		149
V DISCUSSION		155
VI CONCLUSIONS AND RECOMMENDATIONS		
6.1 Conclusion		190
6.2 Recommendations		201
6.2.1 Recommendations for Ministry of Public Health		201
6.2.2 Recommendations to the management of Lerdsin Hospital		202
6.2.3 Recommendations for further studies		205
BIBLIOGRAPHY		206
APPENDIX		221
BIOGRAPHY		265

LIST OF TABLES

TABLES	Page
1 Percentage of population in Thailand according to age groups	4
2 Morbidity rate, mortality rate and admission rate, 1996	7
3 Comparison of the expenses for health and indicator of health	9
4 The bed occupancy rate and the average length of stay, 2000-2002	10
5 Number of doctors, number of out-inpatients and number of beds	11
6 Percentage of health insurance coverage by scheme, 1991-2000	38
7 Comparison of the health insurance systems in Thailand	39
8 Consequences of the capitation scheme on the health system	41
9 Percentage of outpatients at Lerdsin Hospital, 1994-2002	42
10 The major ten diseases outpatients at Lerdsin Hospital, 2001-2002	43
11 Percentage of inpatients at Lerdsin Hospital, 1994-2002	44
12 The major ten diseases outpatients at Lerdsin Hospital, 2001-2002	44
13 Crude death rate, infant mortality rate and under 5 mortality rate	54
14 Morbidity rate, and utility rate per year, 1996	64
15 Health seeking behaviour, 2001	65
16 Summary of Empirical studies on demand for health services	66
17 Variables and measurements used in structural equations	75
18 Percentage of out- and inpatient visits of Lerdsin Hospital in 2003 according to the eligibility for health services	82
19 Sex and age of the patients according to the source of data	83
20 Marital status and place of residence of the patients according to the source of data	84

LIST OF TABLES (CONTINUE)

TABLES	Page
21 The number of outpatient visits and length of stay according to the eligibility for health services	84
22 Socio-demographic factors by the eligibility for health services (%)	89
23 The mean of satisfaction towards the health services of Lerdsin Hospital in the past divided according to the eligibility for health services (Full score=5)	90
24 Health status of patients according to the eligibility for health services	93
25 The characteristic of the economic factors according to the eligibility for health services (%)	97
26 Decision making for and reasons of using services at Lerdsin Hospital according to the eligibility for health services	101
27 Time spend for services at outpatient department in Lerdsin Hospital (in minutes)	103
28 The person paying for treatment costs for the out of pocket patients group, the burden for the family to pay for medical costs, and the reasons why gold card holder refused to use it	104
29 Medical costs and actual payment (Baht) from patients at out- and inpatient departments according to the eligibility for health services	106
30 The mean of satisfaction with the services of Lerdsin Hospital in this time according to the eligibility for health services (Full score=5)	108
31 Satisfaction and dissatisfaction with services provided	109
32 Intention of the patients to obtain the services at Lerdsin Hospital in the future and the reasons for going and not going it again (%)	110

LIST OF TABLES (CONTINUE)

TABLES	Page
33 Correlation of independent variables of outpatient services	112
34 Determinant factors of outpatient services utilization	113
35 Correlation of independent variables of inpatient services	117
36 Determinant factors of inpatient services utilization	118
37 The number of outpatient visits and length of stays at Lerdsin Hospital according to the determinant factors	125
38 The number of doctors in the staff level and the number of outpatients classified by days (Monday-Friday)	126
39 The average medical costs, length of stay and results of treatment of patient who had a normal delivery, caesarian section or myoma uteri according to the eligibility for health services	131
40 The average medical costs, length of stay and results of treatment of patient who had vaccum extraction, forcep extraction or ectopic pregnancy according to the eligibility for health services	134
41 The average medical costs, length of stay and results of treatment of patient who had appendicitis, cataract, ovarian cyst or haemorroid according to the eligibility for health services	138
42 The level of satisfaction of the management staff with the services provided and the Universal Health Coverage scheme	140
43 The level of satisfaction of the health personnel at out- and inpatient departments (possible total scores=10)	145
44 The socio-demographic characteristics of the groups in the area under the responsible of the Lerdsin Hospital but never use the services there	150

LIST OF TABLES (CONTINUE)

TABLES	Page
45 The health status of the group and the health provider they choose for asking for help in case of sickness according to the 6 areas	152
46 The reasons why people living in the area under the responsibility of the Lerdsin Hospital refused to make use of the services there	153
47 Reliability in satisfaction of outpatient services of Lerdsin Hospital	223
48 Reliability in satisfaction of inpatient services of Lerdsin Hospital	224
49 Determinant factors of gold card with 30 Baht payment of outpatients	249
50 Correlation of independent variables of gold card with 30 Baht payment of outpatients	249
51 Determinant factors of gold card without 30 Baht payment of outpatients	249
52 Correlation of independent variables of gold card without 30 Baht payment of outpatients	250
53 Determinant factors of social security scheme of outpatients	250
54 Correlation of independent variables of social security scheme of outpatients	250
55 Determinant factors of civil servants and state enterprise employees of outpatients	250
56 Correlation of independent variables of civil servant and state enterprise employees of outpatients	251
57 Determinant factors of the out of pocket groups of outpatients	251
58 Correlation of independent variables of out of pocket of outpatients	251
59 Determinant factors of gold card with 30 Baht payment of inpatients	251

LIST OF TABLES (CONTINUE)

TABLES	Page
60 Correlation of independent variables of gold card with 30 Baht payment of inpatients	252
61 Determinant factors of gold card without 30 Baht payment of inpatients	252
62 Correlation of independent variables of gold card without 30 Baht payment of inpatients	252
63 Determinant factors of Social security of inpatients	253
64 Correlation of independent variables of Social security of inpatients	253
65 Determinant factors of civil servant and state enterprise employees of inpatients	253
66 Correlation of independent variables of civil servant and state enterprise employees of inpatients	254
67 Determinant factors of out of pocket of inpatients	254
68 Correlation of independent variables of out of pocket of inpatients	254

LIST OF FIGURES

FIGURES	Page
1 The relationship between price and demand for health services	20
2 The relationship between income and demand for health services	20
3 Model of using health care services by Aday and Andersen	27
4 Model of utilization behavior from Hershey et al	29
5 A conceptual framework for understanding health inequalities	31
6 Components of quality in health systems	35
7 Flow chart the health services at Lerdsin Hospital (except Emergency room)	46
8 Concept of this research study	67
9 The catchment areas of Lerdsin Hospital (Zone 9)	70
10 Population and sampling	71
11 Determinant factors of demand for out- and inpatient departments of Lerdsin Hospital	121
12 The patients with the difference eligibility for health services and the diseases which affected the medical costs and length of stay in the hospital	139

CHAPTER I

INTRODUCTION

1.1 Background and rational of the survey

A good health status is very important since the health status of the population directly relates to the economic and social development of a country. This especially relates to the proportion of the population being active and working. The quality of work, increased productive resulting in an increase of income, depends on the health status of those being active and working. The health status of the population also influences the quality of life within a country which depends on a thriving economy and social welfare. The contrary is true if the general health status of the people is not sufficient. Productivity will be low and economic resources are wasted since a huge amount of money is spending on curing illnesses. The ill health of an individual not only affects her or him but also his or her family, who has to care for him or her and by this is deprived of economic resources. A country which has to allocate much of its governmental budget into the health sector instead of supporting other fields of development might delay the overall economic development of the country.

Therefore the general health of the population is a major issue for every government of a given country. Most of them had selected the “Health for All” policy, recommended by the World Health Organization (WHO) as a target for the improvement of public health. The main problem is how to finance the health sector. Germany for instance created a statutory health insurance system which covers more than 90% of the population. Within the statutory health insurance system not only the employed person is secured but also his or her family. For the spouse and the children no additional fees have to be paid. The premiums for the system are paid to 50% from the employed persons and to 50% from the employer. An increase in the premium for the statutory health insurance therefore has a direct effect of the production costs and the economy of the country. The government tries to prevent an increase in premiums. On the other hand the demand for health services using the newest technical and

scientific developments remains which increases costs for the services. In addition the system is misused and exploit by a high proportion of the clients who demand unnecessary services. The client has not to pay the provider directly. It is difficult to control unnecessary usage of the health system by the population. These and other factors increased the expenses for the health sector in Germany to such an extend that the system as such is in danger to collapse and the problems of the health sector are of major political importance nowadays directly related to the survival or defeat of the government in power.

The UK's "National Health Service" is financed by a budget directly derived from taxes and relies to a great extent on a referral system. The role of a primary care provider is taken by the general practitioners. It is their decision whether to transfer the patients to specialists and to hospitals. Since the payment of the provider is not directly related to the time and efforts spend on an individual patient general practitioners tend to choose those people for registration, who are supposed to be in good health. They pay less attention to the elderly and those with chronic diseases. The hospitals are overcrowded and long queues of patients who wait for treatment and hospitalization.

In Malaysia health care is provided by the governmental and the private sector. Besides providing services within the curative sector the governmental service also support general health activities and preventive measures. Those who have no means to make use of the private sector and don't have a health insurance are entitled to be treated by the governmental hospitals without paying fees. This increases the expenses for the public hospitals which they have the difficulty to cover. The health sector in large is facing this problem because most of the hospitals are public hospitals. Low income people prefer to use the service of public hospitals. Those patients who can pay for the services don't have to queue up but those who are treated free of charge have to. This is considered unfair and causes inequity. Doctors prefer not to work in public but in private hospitals where they get higher salaries.

The health system of the United States of America follows a somehow "laissez faire" type of approach. It is up to an individual to register in a health insurance or not depending on his or her capability to pay for the premiums. Through its Medicaid and Medicare system the government takes care of elderly people from the age of 65 years

onwards, low income people and children. The costs for the scheme increases 5% for every year, because of the increase of the proportion of elderly of the total population, the use of expensive and high technology for diagnosis and treatment, high costs for medicine and unnecessary treatment. In the USA 30 million people were not insured and might face a problem, when they fell sick (Ratvigitrasin 2001: 13-31, 76-88).

Thailand's health system might be termed as a pluralistic one. There were health insurance schemes for the poor, the underprivileged, children, handicapped, elderly, civil servants, and staff of governmental enterprises and their families. The rest of the population could decide by themselves, whether they wanted to be insured privately with a health insurance company. The reality was that over 20 million people in Thailand had not yet covered by any health insurance system (Universal Health Care Coverage Development Board, 2001: iii-iv). In 2002 a reform of the health care system took place according to the so called "Universal Health Care Coverage Policy". According to the policy people should not be obstructed from receiving health care by lacking of the money to pay for it.

The economic and social development of Thailand changed the ways of living of the population, had an impact on the economy, social structure of the population and influenced politics in that the demand for public services increased. The main factors related to this development are as follows:

1. Change in the demographic structure of the population The birth and death rate decreased due to an improved standard of living. The infrastructure of Thailand improved considerably. Life expectancy increased due to good nutrition and improvement in health care. In 1964 life expectancy of males and females were 55.9 and 62 years respectively. In 2000 life expectancy increased to 70.2 years for males and 74.7 years for females (The National Statistical Office, 1998, Kalapavit et al, 1998). The reduced birth and death rate as well as an increase in the proportion of elderly people the fraction of the population below 15 years old decreased over the years and now stand at 22.97%. Those in the active and productive age range between 15 to 59 years old amounts to 64.38% and those above 60 years old to 12.65% (Table 1).

Table 1 Percentage of population in Thailand according to age groups, 1960-2001

Age group	1960	1970	1980	1990	2000	2001
0 – 14 year	43.19	45.14	31.31	32.67	23.29	22.97
15 – 59 year	54.01	51.79	65.79	63.44	67.50	64.38
≥ 60 year	2.80	3.07	2.90	3.89	9.21	12.65
Total	26,257,916	34,397,374	44,824,540	54,582,000	61,878,746	62,308,887
Growth rate	3.20	2.70	2.30	1.40	0.35	0.70
Fertility rate	34.70	31.50	23.20	17.00	12.50	12.70
Mortality rate	8.40	6.50	5.30	4.50	5.90	6.00

Source: The National Statistical Office (1996-2001: 20-23)
Bureau of Health Policy and Planning (1997: 42-45)

The disease pattern was related to the demographic structure of the population, in that children were prone to suffer from infectious diseases because of a not yet fully developed immune system. Those working and living a very active life were in danger of particular occupational risks, might be prone to accidents, drug abuse and sexual transmitted diseases (STD). Elderly people might suffer from health deterioration and working endurance. They also were at high risk to fall ill from chronic diseases, which might take a long time to cure and create high medical costs. Therefore the change in the demographic pattern of the population undeniably had an impact upon the demand for medical care.

2. Change of the disease pattern In the course of development of the country infectious diseases decreased in occurrence and severity and diseases related to poverty also declined, instead other risk factors increased:

- *Behavioural changes:* Unhealthy behaviour such as eating food with low nutritional value, toxic substances in food, vegetables and fruits, smoking, alcohol consumption even in young age groups and drug addiction of teenagers and in adults being active and working.

- *Changes in the working environment and modern life style:* There was a change in the working environment, which did go along together with the change from a predominantly agricultural to an industrial economy, which make use of high technologies and sophisticated equipment. It didn't also endanger the health of the people as well. They might be employed or self-employed in stressful jobs where

they had to solve various problems and are exposed to time pressures, had to compete with other individuals and do worry about their careers. This might cause sleeping problems. They had to get up early in the morning and negotiate through heavy traffic on the way to work and bringing their children to school. To counteract reduced concentration at the working place the consumption of stimulating substances increases. The heavy traffic might cause them to spend a considerable time on the roads which leave them less time for recreation. Their physical activity is considerably reduced and they had no time to exercise. The emotional stress causes careless driving and is related to a high risk for traffic accidents as well as to ignore traffic regulations such as wearing safety belts and helmets for motorcyclists.

- *Sexual behaviour*: Young people are sexually active earlier than before and at a time they are not yet fully mature. This might cause an increase in criminal abortions and occurrence of STD including HIV, which is now spreading world wide.

The above mentioned circumstances, mainly related to behavioural changes, increase the occurrence of chronic diseases such as cardio-vascular diseases, cancer, diabetes mellitus, hypertension etc. To treat chronic and non-infectious diseases are time consuming and costly and are related to the ten most frequent causes of death in Thailand. Chronic diseases increase considerably the demand for health services.

3. Awareness of health issues Together with the progress in the field of medicine, new methods for treatment had been developed but also the information about health issues reached a large proportion of the population. People now have confidence in modern medicine in its tools and technology and capabilities for treatment. Health information was also spread by governmental agencies. People nowadays are more likely to immediately consult physicians in cases of unusual symptoms. It seems that people increasingly loose their ability to care for their own health but consult physicians instead.

The expenses for health care increased from 852.9 Baht/person/year in 1978 to 3,732 Baht/person per year in 1997 (The Nation Economic and Development Board: NESDB, 1999: 17). From this overall costs for health care expenses 78% came from the private sector and 22% from the public. Private spending for health care in other countries ranged from 3.1% in England, 22.5% in Germany, 23.1% in France and 28% in Australia (WHO, 2000: 15). These figures clearly indicated that private

spending on health care was very high in Thailand. Severe illnesses such as a heart or brain operation, life long kidney dialysis might have catastrophic consequences for the economic situation of a family. According to the income the poor paid 3.6 times more than the rich people based on their income (Wibulpolprasert et al, 2002: 48). Poor people could not afford to make use of the services of the private hospital since there costs for treatment was much higher than in the public hospitals. Due to a limitation of resource such as budget, health personnel and equipment, the patients had to wait for 2 to 3 hours before they saw the doctor, who only spent 2 to 5 minutes with them in order to come to a diagnosis. The clients of public hospitals were very often frustrated with the slow and complicated process before they could get the services. The service providers on the other hand had to go through a heavy work load, which bear the danger of making mistook and being stressed. All this leads to a low quality of services which could not meet the demand for medical care in public hospitals.

4. Universal Health Care Coverage In the year 2002 a reform of the health care system was carried out in Thailand leading to Universal Health Coverage scheme for all. The aim was to remove the economic barriers so that all had access to the health care system. The patients paid less than the real costs for the services. By changing the payment system from private spending to spending from governmental sources the income of hospitals decreased and the number of patients increased. Taking the example of dental care under the 30 Baht scheme when people came to fix their dentures, in some hospitals they had to wait for 6 months up to a year (Naranong 2002: 29,40). The change of payment for the health care system affected the clients as well as the providers. The income of hospitals decreased but the cost for treatment of patients increased. In order to be able still to provide services the hospitals had to improve their management and service system.

The new scheme had an impact especially on the demand for health services provided by public hospitals where the majority of people were served. In 2000 80% of the hospital beds in the country were within the public hospitals (Bureau of Health Policy and Planning, 2001: 19-21). In the past there was an unequal distribution of public resources in that more resources were allocated to the urban sector than to the rural sector despite the fact that morbidity and mortality of people in the rural areas were higher than in the cities (Table 2).

Table 2 Morbidity rate, mortality rate and admission rate, 1996

Items	Municipal areas	Non-municipal areas
Morbidity rate before 2 weeks of survey	11.6	16.3
Mortality rate		
- Crude death rate	4.9	6.3
- Infant mortality rate	15.2	28.2
- Under 5 year mortality rate	18.8	33.2
Admission rate in hospital	4.8	6.2

Source: The National Statistical Office (1996 : 21)

Resources for public health care such as health personnel, hospitals, hospital beds, medical technology and medical equipment were allocated to areas which high purchase power i.e. especially to urban areas. Because of lack of a quality health services in the rural areas people tend to make use of the health services from large hospitals located in urban areas especially in Bangkok. Decisions about important issues concerning the health service system within the framework of the governmental hospitals was made by the medical profession and the Ministry of Public Health and might not meet the demand of the people since they didn't see the necessity for it. For instance this related to the recommendation to have cervical cancer checks for women in the age of 35 years and over once a year, dental care twice a year, health check before marriage, smoking cessation etc.

The health service resources were not being used efficiently. Taking the example of the Supanburi province, the provincial hospital had more OPD patients per day than all the 51 health stations of the province together. One health stations had only 3.1 persons/day to care for with of two health staff. The reason for this was that 15 health stations were only reached by boat. In the rainy season almost no one was going for treatment to the health stations (Frederick A. and Leoprapi, 1982: 37, 54-56). The country wide records of the health stations for the year 2000 showed that the main diseases for outpatient all over Thailand had been infections of the respiratory tract, diseases of the digestive system and musculoskeletal diseases. Outpatients in Bangkok were mainly suffering from diseases of the respiratory tract, diseases of the digestive system and cardio-vascular diseases. The main causes for hospitalization all

over Thailand had been unclassified symptoms and signs, normal delivery and infection of the intestinal tract. The main cause for admission in hospitals in Bangkok was complication of pregnancy, normal delivery and hypertension diseases. (Bangkok Metropolitan Administration 2000: 3,100, Bureau of Health Policy and Planning 2001: 19-21).

The diseases mainly treated at the OPD of the large hospitals also could be treated at the health stations or the hospitals near the area the patients lived. It would not be necessary for them to go to the large hospitals especially in Bangkok. Doing so patients had to waste money for travelling and time, because they had to wait before they got the services they required. The OPD of the large hospitals were overloaded with patients requiring services, which they could not handle appropriately, causing the services to be of low quality.

The annual records of 63 hospitals with more than 350 beds in 1998. Nine of them had a bed occupancy rate of even more than 100% and three had less than 70%. A number of wards had a bed occupancy rate of more than 100%. Patients had to queue up waiting for a bed to become free. In case of severe illness they had to be admitted to the emergency department or to be transferred to somewhere else. This situation might be risky for the health of the patients. At the same time of other wards had only a bed occupancy rate of lower than 30% but were not able to receive patients from other wards. Despite the low occupancy rate they still were run with the full number of personnel. The insufficient management of hospitals had an effect on the health of the Thai people (Public Health Ministry, 1998: 319-323).

The expenses for health increased from 1982 to 2000 from 3.6 to 8.1% of the Gross Domestic Product (GDP) (The Nation Economic and Development Board: NESDB, 2000: 17). In comparison with Malaysia and Sri Lanka, countries which spent less of the GDP for health than Thailand, but still had lower rates in infant mortality rate, mortality of children under 5 years of age and a higher life expectancy than Thailand. This discrepancy of high spending for the health sector but insufficient results might be due to deficiencies in the management of the health care services in Thailand (Table 3).

Table 3 Comparison of the expenses for health and indicator of health in 3 countries, 1996

Items	Malaysia	Sri Lanka	Thailand
The expenses for health per person (US\$)	85	12	111
Infant Mortality rate	11	15	34
Child Mortality rate under 5 years	17	19	45
Life expectancy Male / Female	70 / 74	71 / 75	67 / 72

Source : World Development Indicators (1998: 25)

World Health Organization (1999: 32-33)

The aim of investigating the requirements of health services was to know factors related to the demand for health services. The information derived from this study might be useful for planning a better distribution of public health resources in order to adjust demand to supply for a more efficient health services. The health care system could be adjusted to the need of the services in a given area and optimize the use of the limited health resources to increase the efficiency and quality of the health services.

The researcher intended to study the demand for health services in a governmental hospital since 70% of the population made use of the services of public hospitals (Viputsiri et al, 1996: 148). It was therefore necessary to study the requirements for services from this group of service providers. Such investigation had to take a number of different variables of the clients into consideration such as sex, age, residence, health status and family income. The performance of a governmental hospital was influenced by a number of variables such as health personnel, service system structure, budget, payment methods to the health providers, and the different eligibility health seekers for health care. It had different effects on the demand of health services.

This study focus on the situation of Lerdsin Hospital, a governmental run public hospital under the Department of Medical Services of the Ministry of Public Health. The hospital is located in Bangkok and had 485 beds. The hospital also serves as training centre for health personnel from Thailand and other countries. One of the

major specialities of the hospital is orthopaedics. Patients were coming from Bangkok and the provinces. In 1998, 37% of the outpatients and 27% of the inpatients had been from the provinces (The committee of Total Quality Management, 1998: 4). Lerdsin Hospital is conveniently located and can easily be reached by public transportation such as bus, sky train, train, boat and by car using the express way. The number of outpatients significantly increased from 1997 to 2002 from 1,400 persons /day to 2,374 persons/day and the number of inpatients increased during this time from 1,790 person/ month to 1,880 person/month (The annual report of Lerdsin Hospital 1997, 2002: 19-20).

According to the annual report of Lerdsin Hospital from the fiscal years 2000 to 2002 the bed occupancy rate of the medical and paediatric units accounted over 100% while the ENT unit was lower than 50% through out the whole 3 years. The bed occupancy rate is one of the major indicators for the quality of the health care management and it is also a good indicator of the efficiency of the health care system (Table 4).

Table 4 The bed occupancy rate and the average length of stay in Lerdsin Hospital, 2000-2002

Department	2000		2001		2002	
	The bed occupancy	Length of stay	The bed occupancy	Length of stay	The bed occupancy	Length of stay
Medicine	110.63	12	109.66	10	111.62	9.37
Pediatric	178.71	4	108.04	4	111.21	4.22
Obstretic	97.74	4	97.89	4	99.64	3.98
Orthopedic	92.89	15	91.62	14	85.55	13.60
Surgery	82.01	11	81.48	11	79.65	9.03
Eye	46.80	4	73.19	4	72.74	2.64
Gynaecology	66.22	4	71.92	4	69.54	4.28
Ear Nose Throat	32.96	3	46.51	3	31.81	2.52
Total	93.55	8	91.35	7	89.98	6.85

Source : The annual report of the Lerdsin Hospital (2000-2002: 19-21)

In the year 2002 the average length of stay of patients in the orthopaedic ward was 13.6 days / person. The problem of shortage of beds was solved by trying to

discharge the patients as soon as possible after operation and making sure that their condition improved and no complications. The patients were cared for further on by the ambulatory services by giving them appointments to be seen in the OPD section of the hospital. This practice was possible because of the usage of high technology such as laser, and ultrasound. Quite a number of cases, who had to be operated before no longer need surgery for treatment nowadays.

From all health staff, the medical doctor is the one, who plays the most important role in the utilization of health and medical resources. It was found from the study, undertaken between 1981 and 2002 at Lerdsin Hospital, that the correlation coefficient between the number of doctors and the number of out-as well as inpatients was 0.92 and 0.85 respectively. The correlation coefficient between out-and inpatients was 0.76. The correlation between the number of beds and the number of inpatients was 0.81. The correlation was significant on the P-value < 0.01 level. These results could be interpreted in the way that, if the number of medical doctors increased also the number of out-and inpatients as well as the number of beds rised. The conclusion was that the number of doctors were related to the magnitude of health services provided (Table 5).

Table 5 Number of doctors, number of out-inpatients and number of beds,1981-2002

Year	# of doctors	# of outpatients	# of inpatients	# of beds
1981	50	189,234	13,796	337
1987	62	256,408	18,785	352
1989	66	232,495	18,930	352
1993	63	241,773	19,396	384
1994	67	254,948	19,496	384
1995	75	245,043	19,780	420
1996	72	251,136	20,808	420
1997	85	281,850	21,477	425
1998	84	367,421	21,013	457
1999	89	394,631	20,563	466
2000	99	402,285	21,269	423
2001	98	426,538	22,053	467
2002	102	463,869	22,564	445

Source : The annual report of the Lerdsin Hospital (1997-2002: 19-21)

The health information system of Lerdsin Hospital was not entirely sufficient. Important details and information were missing from the patients such as income, occupation, education, address of residency and type of health insurance. This information was the basis for planning and conducting the Universal Health Coverage (30 Baht scheme) which started on January the first, 2002 and first covered 6 areas of Bangkok with a total population of 496,535 individuals (The National Statistical Office, 2002: 3). Not all within the area were going to Lerdsin Hospital in case of illness instead patients were coming from the provinces and other areas of Bangkok, not indicated to be the catchment's area for Lerdsin Hospital even they had to pay out of their own pocket. According to the policy of the Ministry of Public Health, the health receiver should use the services of the health provider which was located near the house of health receiver, which was indicated on the gold card for Universal Health Coverage, but a particular health provider might not be the choice of a particular health receiver. In this case the health receiver might not go for health services to the provider as indicated on the gold card. This also might be true for the people who lived in the area under the responsibility of Lerdsin Hospital, who might not be willing to go to receive the health services at Lerdsin Hospital because it was not the hospital of their choice. This behavior contradicted the intention of the Ministry of Public Health and did not follow the ministry's idea how to structure the health service system. In addition the staff of governmental enterprises, civil servants and those being insured under the social insurance scheme could choose the hospitals they were visiting for treatment. All these factors had an effect on the health service system and a good record and health information system, which needed in order to improve the system for caring in a proper way for out- and inpatients.

Lerdsin Hospital used to be one of the main hospitals for central care in that patients had been transferred from the provinces to Lerdsin Hospital for specialist treatment. This was possible because Lerdsin Hospital had 94% of all medical specialities. After the new policy of Universal Health Coverage had been installed Lerdsin Hospital followed the initiative in setting up a Primary Health Care unit outside the hospital serving over 10,000 persons in addition to those derived from the 6 catchment's areas. The medical doctors working in the primary health care unit concentrated on treatment and not on prevention. The setting up of the primary

health care unit improved the convenience of the patients to receive health services, but decreased capacity in self care. The cancellation of an after-working-hours-clinics caused an increase of patients during working hours. It also decreased doctor's time for treatment affecting a low service quality.

Lerdsin Hospital is neither too big nor too small. It can accommodate various types of patients with different income and health status. The number of beds had been increased from 485 to 600 at the beginning of the year 2004. What still needs improvement was the record system for out- and inpatients, which should be a priority for the hospital's management and should increase the efficiency of the hospital and made better use of the health resources. The number of patients increased every year but the quality of health services was inefficient. Lerdsin Hospital is under the Department of Medical Service of the Ministry of Public Health. The improvements of Lerdsin Hospital therefore should be possible since the department is responsible for science and research in relation to public health development.

To choose Lerdsin Hospital for conducting a demand analysis for the health services therefore was very appropriate. The author of this thesis is a staff member of Lerdsin Hospital and knows the management system as well as the working environment of the hospital very well. It was easy for her to collect the necessary information and she could rely on the co-operation of the staff of the hospital. The results of this study would be useful for the development of the health information system, the planning of the health services both inside and outside Lerdsin Hospital, and beneficial to improve the health services in order to meet the demand of the people. Besides Lerdsin Hospital other public hospitals as well as the health centres could use the result of this study to improve their health care system.

1.2 Research questions

1.2.1 What were the requirements for health services for the out-and inpatients of the Lerdsin Hospital ?

1.2.2 How did the different health insurance schemes influence the length of stay, medical costs, and the result of treatment ?

1.2.3 What were the opinion of the management staff and staff of the out-and

inpatient departments after implementation of the Universal Health Coverage scheme?

1.2.4 Why did residents within areas under the responsibility of the Lerdsin Hospital refuse to use the services of this hospital ?

1.3 Research objectives

1.3.1 To analyze the determinant factors on the demand for out- and inpatient services of the Lerdsin Hospital.

1.3.2 To study the demand for health services among different groups of patients being covered by various health insurance schemes for inpatients according to medical costs, length of stay, and the result of treatment.

1.3.3 To identify the opinion of the management staff and staff of the out-and inpatient departments after implementation of the Universal Health Coverage scheme.

1.3.4 To find out the reasons, why residents within the catchment areas of Lerdsin Hospital refused to use the hospital services.

1.4 Hypothesis

1.4.1 The socio-demographic factors were influenced the demand for health services.

1.4.2 The health status factors were related to the demand for health services.

1.4.3 The economic factors had an impact on the demand for health services.

1.4.4 The different health insurance schemes were influenced the demand for health services.

1.4.5 The different health insurance schemes affected on the medical costs.

1.4.6 The different health insurance schemes were related to the length of stay.

1.4.7 The different health insurance schemes had an impact on the result of treatment.

1.5 Scope of the study

This was a quantitative socioeconomic survey undertaken by considering different factors that had influenced on the demand of out- and inpatient for health

services in Lerdsin Hospital in 2003. It was a comparison between length of stay, medical costs and the result of treatment of groups of patients eligible for different entitlements. Also, to study the opinion of the management staff and the staff working at out- and inpatients after implementation of the Universal Health Coverage scheme and to examine the reason, why residents within the catchment areas of the Lerdsin Hospital refused to receive services.

1.6 Benefit of the study

1.6.1 The factors influencing the demand of out- and inpatients for health services would be known and could be used from all concerned for further planning and improvement of the service management of Lerdsin Hospital. The information gathered could be used to develop and improve the out- and inpatient services.

1.6.2 An improvement of the registration of patients and the data collection system and the efficient used of it at Lerdsin Hospital would be initiated.

1.6.3 The change of demand for health services for out- and inpatients for Lerdsin Hospital could be predicted from the information gathered.

1.6.4 The results of this study would provide baseline information about the requirements for health services at the present time. In future similar investigations had to be performed and those results had to be compared with those obtained here. By this it would be possible to know how demand for health services change over time.

1.6.5 Hospitals similar to Lerdsin Hospital could use the information as well in order to improve their services.

1.7 Operational definitions

1.7.1 **The demand for health services** related to health services the patients could pay for including number of outpatient's visits and length of stay in the hospital from the past one year to the present (Soonthorndhada and Thongthai, 1996: 11).

1.7.2 **Eligibility for health services** referred to five groups of health insurance schemes as follows: 1. Universal Health Coverage with 30 Baht payment 2. Universal Health Coverage without 30 Baht payment 3. Social Security Scheme 4. Civil Servant Medical Benefit Scheme 5. Out of pocket

1.7.3 **Socio-demographic factors** referred to sex, age, marital status, place of residence, number of years for education and patient satisfaction towards the services received in the past.

1.7.4 **Health status factors** referred to type and severity of illness.

1.7.5 **Economic factors** referred to occupation, income, travelling time and expenses, time spent for services and medical costs at Lerdsin Hospital in the past.

1.7.6 **Type of illness** According to the symptoms assessed by general nurses was divided into three categories as follows: (The department of Medical services of the Ministry of Public Health, 1996: 50).

1.7.6.1 *Didn't have symptoms of illness but requiring preventive measures* such as antenatal care for pregnant women or vaccination for children or delivery.

1.7.6.2 *Acute illness* It was defined as having symptoms which occurred in a short time and did not last for more than 3 months.

1.7.6.3 *Chronic illness* It was defined as having symptoms which occurred in more 3 months.

1.7.7 **Severity of illness** According to the symptoms as assessed by the general nurses, the severity of illness was divided into three categories as follows: (Prasartkul, 1988: 51)

1.7.7.1 *Mild severity* Symptoms not severe, patient could work.

1.7.7.2 *Moderate severity* Symptoms affecting the wellbeing of the patient but he or she could still work but with limited capacity and efficiency.

1.7.7.3 *Severe symptoms* Patient could not work.

1.7.8 **The result of treatment** referred to patients condition before discharging from the hospital according to a summary of doctor in the patient's history file based on Ministry of Public Health rules (except death cases) (1996: 47). It was classified into three groups:

1.7.8.1 *Complete recovery* referred to the patients not suffering from the illness, after treatment including normal delivery.

1.7.8.2 *Improved* referred to an improvement of patients after treatment but no guarantee of a complete recovery.

1.7.8.3 *Not recovery* referred to no improvement of patients after treatment.

CHAPTER II

LITERATURE REVIEW

To study the demand for health services provided by hospitals is of interest for personnel in the administration who can make use of the information obtained to improve their public health system and strengthen the efficiency of their health care system. For this study the literature review was divided into 8 parts as follows:

2.1 The concept and theories of the demand for health services

The extend of demand for goods or services depends on the ability and the willingness of the consumers to pay for it. In case consumers could not pay for certain services then there will be no demand for those items. In general requirements were unlimited but resources to purchase them are limited. The willingness to purchase services and the ability to pay for it was analyzed by the economist in order to know about the actual activities performed and to measure the demand. The demand for health services is based on:

2.1.1 Economical necessity

Products for treatment and health services are necessary items the consumer has a demand for. The definition of the concept of need by Jeffer and his colleagues was (1971: 61-64):

1. *Need as a supply concept* means that need is generated when there is a possibility to obtain it. In case of health care, the need for health services depends on the accessibility of a health care facility.

2. *Need as a demand concept* can be divided into four perceptions.

- **Normative need** This is what the expert or professional administrator defined so it is not as the norm. This might occur when people have a standard of health care below that which the health care experts have defined as desirable.

- **A felt need** arise if the consumer feels that he or she needs a product or certain services. In terms of health the sick person feels that he or she needs the help of health personnel. The felt need might not correspond with the actual need. Patient might demand special treatment, which the doctor might think is not necessary.

- **The expressed need** This is felt need turned into action. An individual might not feel well and therefore wants to see the doctor.

- **The comparative need** is created by adjusting the demand of an individual for goods or service on what his or her peers had or can have. In terms of health care this might mean that the same quality of health care is given to everybody regardless of the ability to pay for it.

Other professional groups use the term differently. Comparing to public health researchers, health economists used “Need” to refer a concept described as normative need and “Want” refers to felt needs and “Demand” to refer the expressed need (Davis, 1982: 72).

What is necessary or not depends on the concept of individuals. The necessity for health services are defined in a different way in that the patients might have a different opinion of an adequate health services in comparison to the medical profession or the social welfare workers or the economists. An objective measure for defining the necessity for health care is whether the measures demanded for and undertaken improve the health status or cure the diseases. For instance the need for vaccination programs against certain infectious diseases is necessary without questioned since it prevents the occurrence of the diseases (Culyer et al. 1993: 431-457).

2.1.2 Demand for health and demand for health services

The demand for health services is related to the requirement of sick people to had treatment in order to get better and the quest for preventive measures (Kawsoonti, 1981: 70-78).

The demand for health is closely related to the demand for health services and the ability to pay for it, since through them treatment could be obtained and the services will undertake preventive measures. The demand for health services from the consumer depends on the satisfaction they will have after making use of the

services. If the consumer is satisfied he or she might be willing to pay more for the services as otherwise. Since the doctor and not the consumer decided on the way health services are provided consumer might not be satisfied even when the quality of services are sufficient.

The consumers decisions for requiring health services not only depend on the price for the services but also the quality of the services, because he or she wants to be sure that he is treated in the best way and protected from mistakes, dangers etc. For instance in case of pregnancy a pregnant women attending antenatal care wants to be sure that she is going to a normal pregnancy without complications and danger of having an abortion or stillbirth. She probably is not so much interested in the cost for the services provided.

2.1.3 Factors determining the demand for health services

According to Grossman (1972: 15), consumers have a demand for health in three reasons:

1. It is a consumption commodity, it made the consumer feel better.
2. It is an investment commodity, a state of health would determine the amount of time available to the consumer.
3. A decrease in the number of sick days will increase the time available for work and leisure activities, the return to an investment in health is the monetary value of the decrease in sick days.

Grossman considers in his work health as a kind of investment, which is endangered by factors such as increasing age. Decisions to further invest in health depends on economic factors such as price for services, income and an individual values the time he or she has to spend for getting the services, non-economical issues such as the educational background, taste, satisfaction, population size, age structure, which enables the individual to realise the need for making use of the health services. A variation of these factors mentioned will determinate the variation of the health status as well. Clewer and Perkins (1998: 44-49) identified the factors related to the demand for health services:

1. Price for medical care

The price for medical care varies according to hypotheses of economy.

Consumers were assumed to be rational economic decision-makers who had a reason why they were demanding medical care. Following the economical principles the demand for health care will be low if the prices for it were high and vice versa, if the cost for having medical care is low the demand for it will increase. This hypothesis is true if other factors don't change. *Ceteris Paribus* (Figure 1).

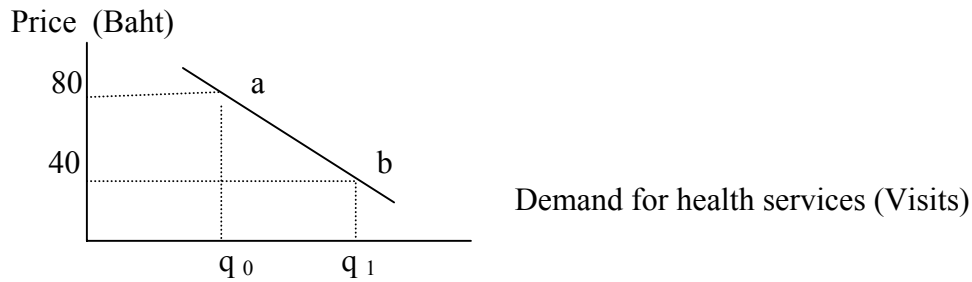


Figure 1 The relationship between price and demand for health services

The National Health Service system in England is free of charge. The expenses for it are calculated based on previous experiences. If the demand for health services increases, it then will be in excess of available resources. Other factors than prices might control demand in this situation such as travelling time to the hospital and time spend on waiting before able to consult a doctor. The number of health personnel and the availability of hospital beds will be other influential factors on demand.

2. Income

The demand for health services also depends on the ability of the consumer to pay for it. In case of increasing income the purchase power for health care will increase (in case the services have quality) and vice versa. In case of a lower income the frequency of visits to the health care facilities will decrease (Figure 2).

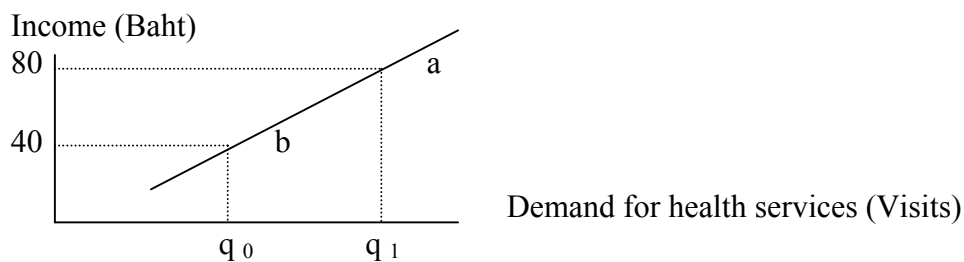


Figure 2 The relationship between income and demand for health services

3. The price for additional items related to health

3.1 **The Substitutes:-** The price for items related to health might influence each other. For instance the demand for brand name drugs should decrease with a decline in the price of generic drugs.

3.2 **The Complement:-** A similar situation occurs when goods or services are related, also in this case the price of them will compliment each other. Supposed the price for paediatric care will increase substantially as well as the price for obstetric care. In this case the demand for paediatric care might still be the same but the demand for obstetric care might decrease, because women might postpone their wish to become pregnant because they want to save the costs for obstetric services.

4. Taste and preferences

They also play an important role in creating demand for health services. These factors are linked to age, gender, education and marital status. Taking the example of having a demand for spectacles, the selection of the kind of spectacles finally purchased depends very much besides the price for it, on the taste and preferences of an individual.

5. Population size and structure

They influence the demand for health services as well. The demand for health services in a highly populated country is naturally higher in comparison with a smaller one. The demographic pattern also influences the demand for health services. In countries with a low birth rate the demand for obstetric care will be less than in a country with a high birth rate. A country with a high proportion of elderly in the age of 70 and above the demand for health services will be high as for other services such as homes for the elderly, or crutches etc. The demand for care of elderly also depends on the families willing to assist them or the governmental policy to establish social security systems for the elderly.

Sukarom (2002: 126-127) relates the demand for health services to another set of factors:

1. **Severity of diseases:-** By nature people are afraid of diseases especially when their health is seriously affected. If they have reasons to be afraid of dying, being crippled, losing an organ etc. they will be willing to spend more for assuring

that they fully recover in comparison to a situation where they are suffering from a disease known to be self-limiting.

2. **Price of medicine:-** Supposed the price for health care is high the consumer hesitates to demand it, even in situations it would be necessary. On the other hand if the price for health care are low, the demand also for unnecessary treatments will increase.

3. **Income:-** People with a higher income will tend to see the doctor more often than those with a lower income. In case the price for health services are decreased by the government also the low income fractions of the population will increase the frequency to visit health care facilities.

4. **Season:-** The demand for health services also is dependent on the season of the year, for instance after the harvest rural people will have time to go to the hospitals.

5. **Age:-** The health status of an individual to a large extend depends on her or his age, in that at older age illness spells are more frequent than in younger age groups. Quite a number of diseases have a preference to occur in older age such as cataract disease, heart diseases, hypertensive disorder in people above 50 years old.

6. **Gender:-** Diseases are also selective for gender such as lung cancer which occurs more in males than in females, cervical cancer for women and prostate cancer for male.

7. **Genetic:-** Genetic factors might influence the occurrence of diseases such as diabetes mellitus, anemia, G6PD.

8. **Education:-** Educated people have higher awareness about their health and understand better to prevent the occurrence of diseases, than people with lower educational level. Therefore people of lower educational level have a higher demand for health services in comparison with well educated ones.

In calculating a multivariate model for identifying the factors related to demand, the above mentioned variables including the number of patient visits within 1 year had to be considered for the equation.

Demand for health services

= f (severity of illness, price, income, season, age, sex, genetic, education)

Santerre and Neun (1998 : 62) pointed the factors related to demand for health services as follows.

<p><i>Demand for health services</i></p> <p>= f (out of pocket price, real income, time cost, price of substitutes and complements, tastes and preferences, rate of health depreciation, stock of health, quality of care)</p>
--

Newhouse (1981: 93) pointed out that the number of doctors and beds are an important indicator of the demand for health care. Fuchs and Kramers (1981: 192) agreed with Newhouse in that the setup of the health service system influences the demand of the population for health services.

<p><i>Demand for health services</i></p> <p>= f (price, income, time cost, travel cost, socio-demographic factors, doctor supply per 1,000 population, total hospital beds)</p>

In analysing the health service system it is necessary to consider the demand and resources for health care. In case the demand exceeds the availability of health facilities and resources for health care, the health services will decrease in quality in that long waiting time will be seen and the doctors will be overworked and can spent less time for diagnosis and treatment. In contrary in case the demand is low at times when investments for health care are high the income of hospitals will decrease. This might initiate the hospitals to increase the cost for the services. An efficient management of health services will optimize the supply for health services to the demand.

2.1.4 The special characteristic of health services

The demand of the consumer for goods and services in general follows the principles that they have an economical rationality for requiring them but they usually expect more benefits than they are willing to pay for. But health services have special characteristic form the general goods (Roodvanit, 1988: 8 -11) as follows:

1. **Consumer ignorance** Modern medicine is linked to complicated treatment schemes and procedures which a consumer, being a non-medical person, cannot grasp and fully understand. They usually are not sure what services they should

require and how much they should pay for it in order to adequately compensate the services they got. Medical morals entail that public health services are not offered through advertisements. The decisions of the consumer therefore are not based on the knowledge about treatment schemes such as what kind of medicine would be the most suitable and what procedure would be the most promising to cure the illness. They only have the possibility to choose the medical doctor or hospital to visit. This is different for example from the decision a consumer has to make while buying food. In this case they select the kind and quantity of food they want to buy and can afford. In case of medical services the doctor or other health staff influences the consumer, what kind of services they should receive and how often they should make use of it. Medical services therefore are not following the principles that the demand for the services come from the consumer and the supply from the provider. In case of medical services both, the demand and the supply are heavily influenced by the provider. The consumer does not know, whether he makes appropriate use of the medical services or not. He or she might utilize the services unnecessarily or exploit them or on the other hand don't use the services to the extend it would be necessary.

2. Uneven and uncertain demand for medical care Sickness cannot be predicted on an individual basis. For the medical services it is uncertain how many patients will ask for services at a given day. Diagnosis and treatment for one and the same disease might vary according to the doctor the patient is faced with. The doctor also has difficulties in predicting the outcome of his efforts, which means he cannot be sure that the patient will recover from his or her sickness or not. The course of a disease also not only depends on the skills of the medical doctor, but also on factors which are related to the patient such as age, the severity of his or her disease, whether complications will occur or not and the investment of his or her health.

3. External effects In general services provided will aim to satisfy the individual consumer only. The after effects of medical services might not only satisfy the individual consumer but also might have an effect on others. The vaccination against whooping cough might be an example. Children vaccinated not only are protected against the disease but also other children are effected in that a vaccinated child, which will not acquire the disease also will not be in the position to spread it.

4. Health services were monopolised Public medical services are under the management of medical personal, medical experts and ruled by regulations. Doctors, hospitals, health stations and clinics require a license before they are allowed to operate. As far as public health services within the framework of governmental services are concerned they are not exposed to severe competition. Lack of competition might result in a decrease of the quality of services especially to the disadvantaged group of consumers. There is a trend to provide better services for the high income group and the rich. The situation is unfair as far as the low income groups are concerned and results in an insufficient distribution of resources.

5. Mixture consumption and investment elements The patient has to cover expenses for treatment and medicine. In case he or she recovers fully and gains back his or her physical fitness and is able to work again the resources spend for treatment can also be considered to be expenses for the investment of human resources.

Besides economical considerations public health services also have to be studied taking care of special aspects inherent to medical services.

2.2 The characteristics of health service utilization

Aday and Andersen (1981: 4-27) provided a framework to study the access to health services. Health Policy determines the characteristics of health delivery systems and should consider the requirements of the population at risk.

1. Health policy determines the budget allocated to the system, planning procedures, manpower development through educational measures and training, and the organization of the system.

2. The characteristic of the health delivery system rules the quantity and the distribution of resources to the system and involves the performance of the health personnel to meet the satisfaction of the consumer.

3. The characteristic of the population at risk is identified by the following:

3.1 **Need factors** are important to know since they determine what services are necessary to restore health such as:

- *Perceived need* stands for the recognition of the severity of

diseases and the needs which had to be met so that the disease can be cured.

- *Evaluated need* refers to the need assessment of the medical doctor for a particular patient considering his or her diseases and the requirements to cure it.

3.2 Enabling factors are related to the ability of the patients to make use of the services such as:

- *Family resources* such as income, place of residence, health insurance or social welfare schemes provided by the government.

- *Community resources* such as access to health care services, number of beds and availability of doctors in health service institutions.

3.3 Predisposing factors related to

- *Demographic variables* such as age, gender, marital status, family size.

- *Social structures* such as education, occupation, nationality, religion.

- *Health believes* such as the belief that medical care can be helpful in treating illness. He or she might unnecessary approach hospitals, while the visit of a health station might be sufficient or he approached a health station in a condition which requires the services of a hospital. The same was true for health personnel in that the patients asked for the services of a medical doctor, while adequate services could be provided by a public health nurse or vice versa.

The utilisation of the health services also depends on the satisfaction of the consumer.

1. **Satisfaction for convenience** is related to the time a patient has to spend before seeing the doctor or other health personnel, the availability of services when need and the easiness to receive care.

2. **Satisfaction for co-ordination** means that the patient is satisfied in the way his or her needs can be met at one place, how the doctor responds to the overall health needs of the patient and how the referral system is managed.

3. **Satisfaction with the courtesy at the place of service** in terms of friendliness, having the feeling that good care is taken, and sufficient attention is paid to the patient.

4. **Satisfaction with the quality of health services** in terms of information concerning to the patients, the quality of medicine, professionalism of the medical doctor or other health personnel and the treatment schemes as far as the patient can judge about this.

5. **Satisfaction with the information** provided to the patient in terms of his or her illness, prognosis and health is given as well as hints to care for the health by her or his own.

6. **Satisfaction with the price for health services** to be paid by the patients.

Characteristics of population at risk related to the utilization of health services was related to the type and locations of the providers, the purpose why the patients are visiting the health services and their office hours. Conventionally the satisfaction of patients was used to evaluate the health service system. See the diagram of the health service system.

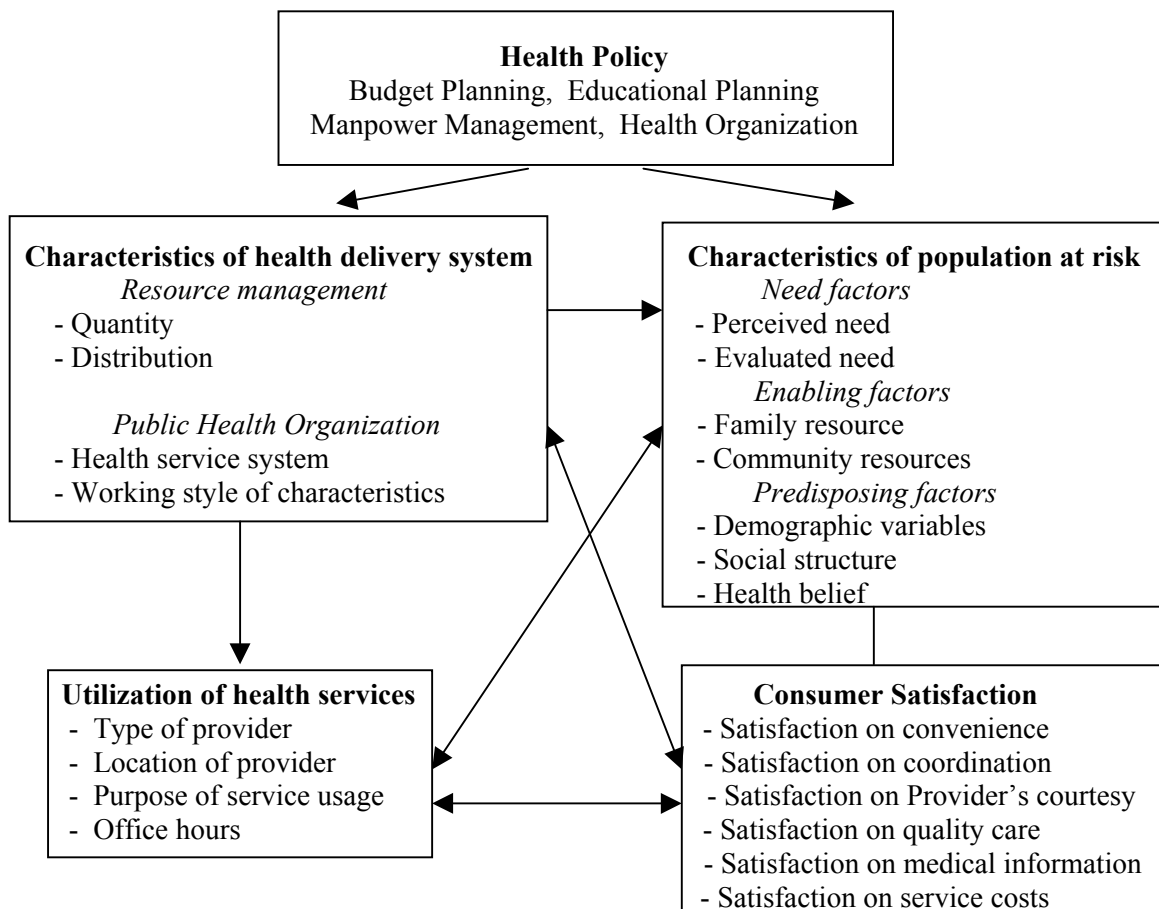


Figure 3 Model of using health care services by Aday and Andersen (1981: 25)

Silapasuwan (1989: 37) suggested as determinants of the utilization of the health service system the following aspects:

1. **Demographic factors** such as age, gender, marital status and family size.
2. **Social structures** such as education, occupation, religion, nationality.
3. **Health believes factors** such as believes, recognition of its own health status, judgement of the severity of the disease, expectations towards the adequacy of the services provided by the health service system.
4. **Family resources factors** such as family income, health insurances, regular health service provider.
5. **Community resources factors** such as health providers serving particular communities, location of providers assigned to the community, the type of communities, and acceptance of health providers from the communities.
6. **Organisational factors** such as the outlay and the procedures followed by the health care system as well as the convenience of access, the price for and the quality of the services and the attitude of the health personnel to provide services.
7. **Health systems** such as underlying policies for the structure and functions of the health service system including provision of resources and funds determines the output of the system and also is related to the economic situation.

Jongudomsuk (1996: 1) related the utilization of health services to the following topics:

1. **Quality of services:-** The services were related to technical- and human dimensions and are judged about the holistic approaches they applied.
2. **Accessibility:-** People should be able to make use of the services without financial and geographical obstruction.
3. **Equity:-** Everyone should get services they need with the same quality.
4. **Efficiency:-** People should get an efficient service.
5. **Freedom of choice:-** People should be able to choose from a variety of services.

Penchansky and Thomas (1981: 137-140) recommended to access services by checking five “ A’s ” :

1. **Availability of services** meant the balance of service supply and the demand for the services.

2. **Accessibility of the services** hinted towards the location of the service facilities which should be in a comfortable reach to the health seekers in terms of distance from his or her home and time spend for travelling.

3. **Accommodation of the services** considered the perception of the health seekers how convenient it is to reach the service facilities and how they are kept.

4. **Affordability of the services** related to the amount of money to be paid for the services and for health insurances.

5. **Acceptability of the services** related to the way how the staff of the health services behave and the attitude of the officials towards providing services.

Hershey, Luft and Gianaris (1975: 838-840) pointed out, that the demand for health services is not only linked to the consumers but also to the health care providers. He composed a utilization model based on the behaviour of people. After the recognition of symptoms the provider, according to his professional ability, defined the need to for treatment which might not include measures the patients actually wanted. The patient then had a demand for health care which was not met by what the provider supplies to the patient, which might effect the future use of services of the provider by the patient.

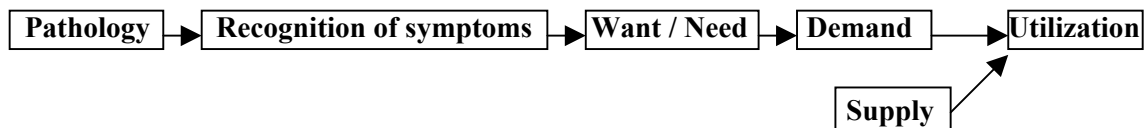


Figure 4 Model of utilization behavior from Hershey et al (1995 : 838)

Planning or restructuring a health care system should involve all aspects of the system including health care providers, health care receivers, policy planner and the social role health services had within the society. The aim should be to use the limited resources in the best way and to offer health services of good quality able to improve the quality of life of the population and satisfy the demand of the population.

2.3 The concept of equity in health services

Equity in health had been defined and operationalized in various ways. Recent WHO documents state that equity in health requires “ reducing unfair and avoidable

disparities in health outcomes between different groups, and ensuring access to quality health care on the basis of need ” (WHO, 1996 : 1).

Widely accessible basic preventive and curative services had been shown to be important in improving health status, particularly in developing countries. Three key elements that were important in assessing equity in health systems were (Daniels N, 1997: 80-85).

1. Progressive financing and equitable resource allocation within the health system
2. Universal entitlement / universal access
3. Quality of health services

Pannarunothai (2001: 95-96) divided the concept of equity into two aspects, i.e. the aspect of libertarians and egalitarianism. The aspect of liberalism denied the right of the people to receive a health care services which was provided to everybody in an equal way, but states that everybody should have access to a minimum of health care. Those who could pay for the services would get a better services than those who could not. In contrast to the concept of libertarians the theory of egalitarianism gave everybody equal rights and opportunities to receive health care in the same way regardless of their economic and social status, so that everybody had the same opportunity to maintain in a good health. The concept of egalitarianism gave more right to the people than the concept of libertarians.

Academics in different fields stress different aspects of equity.

1. Public Health points towards a fair health status of the general population.
2. The economists are anxious to call for health services which is affordable for the general population.
3. The sociologist is concerned with the basic rights of every individual to receive health services meeting the needs and is of the same quality for everyone.

The Commission of Social Justice in England laid down four principles which should be observed (Srithumrongswat and Pannarunothai, 2000: 7).

1. Everybody had to be judged on equal terms.
2. Everybody should have equal chances and are accepted in the society in equal ways.
3. Everybody should have a fair chance to gain access basic needed for a

decent living which involved income, food, accommodation, education and health.

4. Injustice and unfairness should decrease and finally eradicated.

Wagstaff (2002: 99) pointed towards the influence of various external factors on the health status of people such as governmental health policies and actions, the condition of the health care sector and of individual households and communities. In reality it means that individuals with low income and low education will be more at risk to experience a deterioration of their health.

Determinants of health outcomes

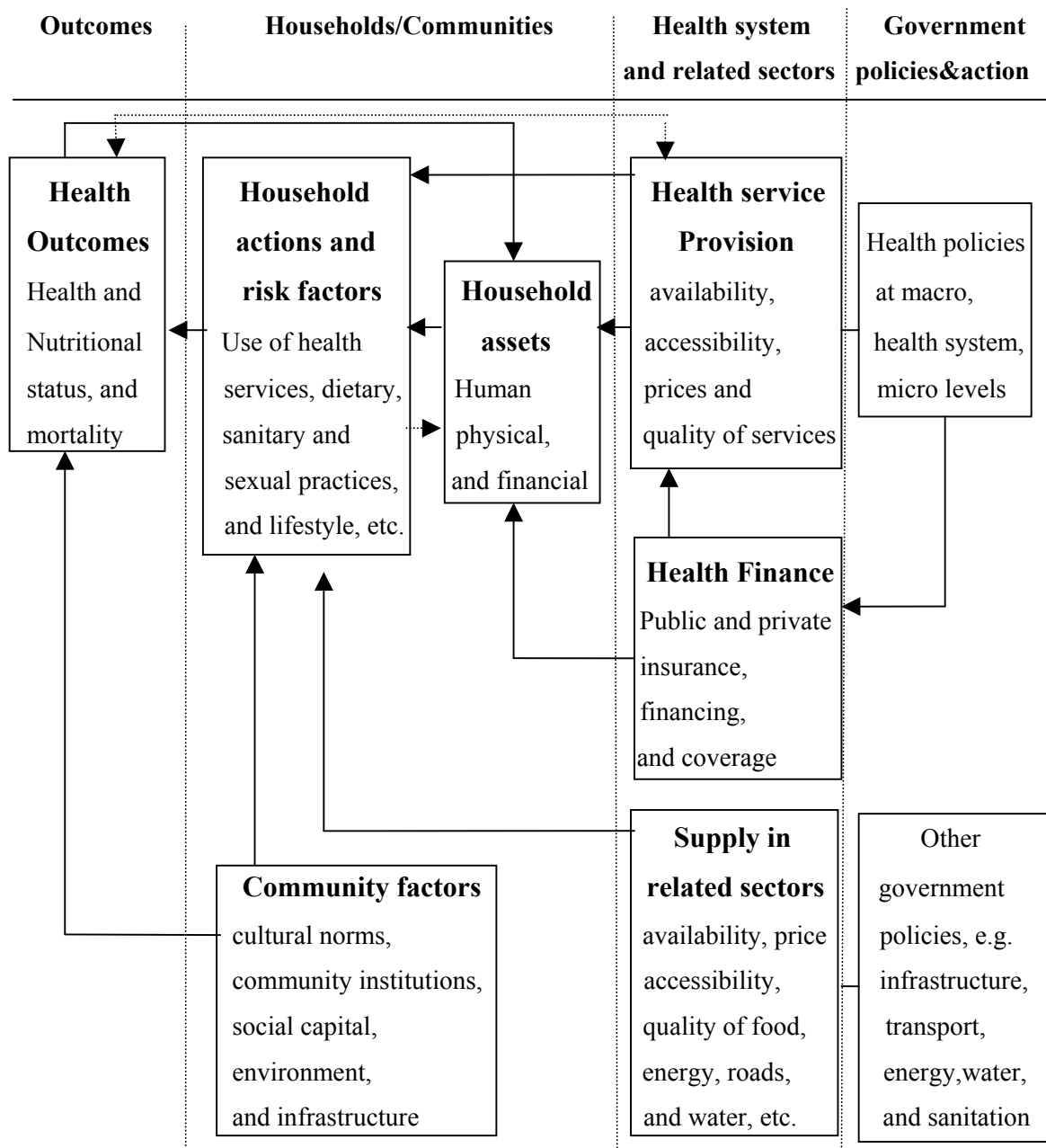


Figure 5 A conceptual framework for understanding health inequalities

Fairness in economical matters was linked to a fair allocation of resources among the population which also applied to health services. The idea of fairness changed with time, context and social concepts. Economists distinguish between two categories of justice (Suksirisareekul, 2002: 282-295).

1. **Horizontal equity** Similar needs of health care should be met in equal ways. For example the management of a particular disease should be managed in an equal way such as the stay in hospital or the way the patient is treated. Waiting times before consultations should not be different according to the economic status of the patient. The basic principle of horizontal equity involves the equal distribution of health services to the population regardless of economical or political factors.

2. **Vertical equity** Vertical equity takes the health status of the health care seeker into consideration. Patients should be treated according to the severeness of the disease and health condition. The patient should be charged according to the ability to pay for the services. Those who could afford more should pay more and those who cannot afford to pay adequately for the services should pay less.

In conclusion, there is no internationally recognized definition of equity of health care. Each country follows its own definition. A common principle however should be, that equity in health care should mean that all individuals have an equal chance to access the health care system according to her or his needs.

2.4 The concept of quality services

The service quality in health care have many definitions. Parasuraman & et al. (1985: 41-50) raised that quality was up customer perception. Quality in customer perception occurs when compared to expectation to acquire that services. Services would possess quality when service receiver acquires what he expected. Many times, it was said that quality was customer satisfaction.

Council on Medical Service of American Medical Association (JAMA) (1986: 1032-1034) gave definition of good treatment that was categorised into eight issues as followed.

1. Makes patient's health as good as possible
2. Emphasizes on supportive and preventive

3. Providers services in time
4. Make patience acknowledge, cooperate and take parts in treatment processes and related decision
5. Stay on evidence-based
6. Consider happiness of patience
7. Effectively utilizes technology and resources in health care system
8. Record necessary data for continuous treatment and traceability

The Joint Commission definition service quality of care defined the quality as the degree to which patient care services increased the probability of desired patient outcomes and reduced the probability of undesired outcomes (Biggs, 1996: 305).

Stanhope & Lancaster (1996: 419) indicated quality care had four components, which include :

1. Professional performance
2. Efficient used of resources
3. Minimal risk to the client of illness or injury associated with care
4. Patient satisfaction

The Canadian Council on Health Service Accreditation (CCHSA) (1996: 72-78) judged about the quality of services according to the following criteria :

1. **Safety** The medical equipments and tools were clean and if required sterile. Operation and consultations as well as other rooms for the treatment of patients were suitable. Treatment including surgery should be without any avoidable risks for the patients. Patients and relatives would be formed about side effects of treatment and the risks of an operation.

2. **Competence** The medical personnel of all levels were well trained, had knowledge and skills as well as experience.

3. **Acceptability** The patient could expect to receive the best possible services to acceptable medical costs.

4. **Effectiveness** The services provided were of such kind, that most of patients recover and gain an improvement of their quality of life.

5. **Appropriateness** The services provided were according to the requirements of the patients and follow proper standards.

6. **Efficiency** The recovery of patients was due to the fact, that they

received efficient health services.

7. **Accessibility** The patients would receive the right services after reaching the place of the service providers conveniently at the right time and the right place according to the basic needs of the patient.

8. **Continuity** The medical personnel co-operates with each other across the different levels in a particular unit as well as throughout the whole hospital and kept providing good services to the patients continuously.

For Supachutikul (1993: 4) the quality of a hospital was determined by the following features:

1. **Accessibility of services** The accessibility of the services depended on the geographical location of health care providers, but also socio-economic conditions of the clients, which allowed or not allowed them to use the services. Poverty and ignorance might prevent clients from using the services. Cultural factors such as language used and the level of languages by the clients and differently by the providers also had an influence on the accessibility of the services for the clients. Administrative procedures such as the appointment system and the service times also determined whether the clients had access to the health care providers or not.

2. **Physical condition of the structures and the overall performance of the services**, not necessarily related directly to health care, place an important role in creating consumer satisfaction as well. The proper appearance of the service place promoted the providers besides the kind and quality of services provided. If the client was satisfied with the cleanliness of the place, the convenience of procedures, the privacy offered and the information about health issues given as well as the entertainment available, the health care seekers would be willing to pay for the services received and would come back another time.

3. **Human relationship** The attitude of the health personal was an other very important issue related to consumer satisfaction and required that the health personal was polite, kept the health status of the patients as a confidential matter and made the patient experience warm and appropriated sympathy while going through the course of his disease.

4. **Technical quality** The quality of the technical equipment should be appropriate to come to a correct diagnosis and assist in the management of the illness

of the patient, to the extent that the patient was not exposed to dangers, cured as fast as possible and fully recover.

Siratanaban (2000: 16-17) linked quality in health care to four components.

1. **Consumer satisfaction** Health services should meet the requirements and the needs of the consumer.

2. **Zero defects** Correct diagnosis and appropriate management of the disease and treatment at first consultation or admission to hospital.

3. **Standards** Acceptational professional standards in health care provision and observations of moral medical standards.

4. **Quality of life** The quality of life also depended on an appropriate management of symptoms and diseases resulting in an improved health status enabling the patient to resume an active life style.

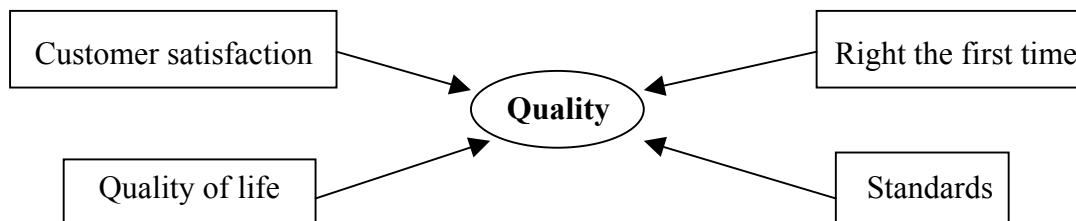


Figure 6 Components of quality in health systems (Sriratanabun, 2000 : 16)

Zeithaml & Bitner (2000: 25-28) interpreted issues of hospital health care systems following market concepts.

1. **Products or services** The hospital should provide high quality services to consumers. High quality implicate that the services provided were of a high technical standard. The medical equipment used was modern and from brand name companies, the medical personal of all levels were very skillful, it is very convenient to stay in the hospital, since it offered besides the medical services also other services of a general type such as a cafeteria, drinking water fountains, newspapers, television in the patient rooms, public telephones and easy access to medical information and patients records by computers.

2. **Price** The costs for the health care services were reasonable. The patient would know about the magnitude of expenses before admission and he would be able to choose the services he could afford and the way of payment such as out of his own pocket or using social insurances.

3. **Place** The hospital should be easy and convenient to reach and had sufficient parking space and were accessible by public transportation as well. If appropriate the hospital should have health care stations and clinics nearby or within communities.

4. **Promotion** The hospital should enhance health education through leaflets, health related programs on television or radio. The hospital also should provide health services within remote areas and work on prevention of diseases in that the people are informed about health risks through small medical publications make sure that administrative procedures were fast and efficient once the patient consulted the hospital or was admitted.

5. **Personnel** The attitude of the hospital staff towards the patient was acceptable in that they approached the patient in a polite way and made him or her realize that they were competent, energetic, and active while providing services.

6. **Physical appearance** The hospital was clean with clean toilets, and an appealing surrounding. The ventilation of the building was good, it was fully equipped, had clear visible exit signs for emergency situations such as fire and sign posts, service units and the staff was wearing clean and proper uniforms.

7. **Process** The hospital provided the services in an efficient way without following complicated administrative procedures The patients were involved in decision making and were allowed also to voice their comments and suggestions.

In conclusion quality could be defines as the proper standard of health care services in matters of administration, health care organisation, handling of clients and the satisfaction of the care receivers.

2.5 Thailand's health insurance schemes and payment methods for health care institutions

Sickness strikes individuals unexpectedly and the events are unpredictable. A deteriorate health puts especially disadvantaged groups of the population into the position that they cannot pay for appropriate health services in case they fall ill. Health insurance schemes are tools to help to decrease the economical burden for the health care seekers. Budget allocation for health insurance schemes are based on the average

expenses to be paid for illness spells of the population which is insured by the insurance schemes. Usually the budget was not sufficient enough to cover cost for new medical technology, and new innovative treatment schemes, especially when imported drugs had to be used. Some groups of the population could not pay for more sophisticated services which might affect their health.

The governments of Thailand introduced various health insurance schemes over time, with special emphasis for people living in remote areas of the country. The following schemes exist:

2.5.1 Social welfare

2.5.1.1 The scheme covers low income groups of the population enabling them to use the services of governmental health services.

2.5.1.2 The scheme cares for elderly people.

2.5.1.3 The scheme cares for students under the Ministry of Education.

2.5.1.4 Children are covered up to the age of 12 unless they are students and are under the care of the scheme of the Ministry of Education.

2.5.1.5 Civil servants, government employees, the staff of state enterprises including parents, spouses and children, are also covered by a governmental based health insurance scheme.

2.5.1.6 A special health insurance scheme exists covering handicapped people, veterans, monks, novices, head of sub-districts and villages, community leaders and village health volunteers and their families.

2.5.2 Compulsory health insurance

2.5.2.1 A substitution fund designed as employer liability scheme covers workers who fall sick because of an occupational hazard or meet an accident at the working place. The fund provides treatment in these cases considering the circumstances and the need of the patients. The employer provides the equivalent of 0.3% of the wages of the employees to the fund.

2.5.2.2 Social fund. Contribution to the social fund is derived to an equal percentage from the wages of employees and employers of the private sector and the social fund is substituted from the governmental budget as well.

2.5.2.3 Car accident fund. The car accident fund is linked to the car insurance schemes. In case of an accident or death the insurance will take care for

the insured person and will compensate the family of the killed individual.

2.5.3 Voluntary health insurance

2.5.3.1 The voluntary health card program was ruled by the Ministry of Public Health and intends to insure individuals, who were not covered by any other program. The people under this scheme had to pay 500 Baht in order to cover a maximum of 5 family members.

2.5.3.2 Private insurances. There are two kinds of private health insurances:

- Individual family health insurances covering husband, spouses and children.
- Group insurances for the staff of commercial companies and factories (Table 6).

Table 6 Percentage of health insurance coverage by scheme, 1991-2000

Health insurance scheme	1991	1992	1995	1997	1998	1999	2000
1. Medical care for the poor and the socially supported (underprivileged) groups	16.6	35.9	43.9	44.7	45.1	42.1	40.8
- The poor	16.3	20.7	15.5	13.4	13.5	10.5	10.6
- The elderly	---	6.2	4.6	4.9	5.5	6.4	6.4
- Children under 5 years	---	---	7.1	7.3	7.3	---	---
- Primary/secondary schoolchildren	---	9.0	8.9	11.1	11.1	20.1	17.2
- War veterans	---	---	0.4	0.3	0.5	0.2	0.3
- Community leaders /schoolchildren	0.3	---	5.0	5.4	5.4	4.4	5.8
- The disabled	---	---	1.8	1.8	1.5	0.3	0.3
- Buddhist monks and novices	---	---	0.6	0.5	0.5	0.2	0.2
2. Medical services for civil servants and state enterprise employees	10.2	11.3	11.0	10.8	10.8	10.8	12.0
- Civil servants and family members	8.7	9.9	9.6	9.4	9.4	9.4	---
- State enterprise employees and family members	1.5	1.4	1.4	1.4	1.4	1.4	---
3. Compulsory health insurance							
- Social security fund / Workmen	3.2	4.4	7.3	7.6	8.5	9.2	9.4
4. Voluntary health insurance	2.9	3.9	9.8	15.3	15.9	15.8	17.5
- MoPH health insurance	1.7	2.3	7.8	13.3	13.9	13.8	14.2
- Private health insurance	1.2	1.6	2.0	2.0	2.0	2.0	3.3
People with health insurance	32.9	55.5	72.0	78.4	80.3	77.9	79.7
People without health insurance	67.1	44.5	28.0	21.6	19.7	22.1	20.3

Source: 1. For 1991, a survey conducted by the Office of the National Statistics, 1991

2. For 1992, Tangcharoensathien, Supchutikul, 1993

3. For 1995, 1997 and 1998, Health Insurance Office, MoPH

4. For 2000, data for September, coverage 81.58%

From the information given in Table 6, it appeared that in the year 2000 79.7% of the Thai population was covered by one or the other health insurance scheme. That meant on the other hand, that 20.3% of the Thai population was not secured by any program. In the year 2002 the government introduced a policy towards a health insurance scheme for the total population. In presently there are four main health insurance systems in Thailand:- Gold card 30 Baht, civil servant insurance, social insurance and private insurance. Each of which has different benefits, service coverage and budgets. The main features of the schemes are summarized.

Table 7 Comparison of the health insurance systems in Thailand

Items	Thirty Baht scheme	Civil servant insurance	Social insurance	Private insurance
Beneficiaries	Card holder	Civil servant with family members (less than 3 children)	Insured person with spouse (only in case of delivery)	Insured person
OPD services	Governmental- and private providers (in case of emergency any institution can be approached within the first 72 hours)	Governmental and private providers (in case of emergency private hospitals can be approached)	Governmental and private providers (in case of emergency any institution can be approached within the first 72 hours)	Governmental and private providers
IPD services	Governmental- and private providers (in case of emergency any institution can be approached within the first 72 hours)	Governmental hospital (in case of emergency private hospitals can be approached)	Governmental- and private providers (in case of emergency any institution can be approached within the first 72 hours)	Governmental and private providers
Service Coverage	Prevention, health promotion, and curative	Prevention, health promotion, and curative	Curative, and monetary assistance	Depending on the regulations of the insurance companies
Annual health check-up	According to regulations of the 30 Baht scheme	Depending on regulations and age of insured person	Not offered	According to necessity
Responsible organization	Health insurance office	Ministry of Finance	Social insurance office	Private insurance companies
Expenses per person per year	1,202 Baht	2,106 Baht	1,558 Baht	According to premium schemes
Type of payment	Capitation	Fee for services	Capitation	Fee for services

Source :- Prakongsry (2002: 278-279)

The advantages and disadvantages of the different schemes according to Sriratanaban (2002: 121-128).

1. **Fee for service payment** resulted in unequal charges for services from different providers. From all the financing schemes in place, used by the different insurance schemes, the fee for services was the most favoured one from the providers because it gave them a free hand in treatment methods and medication regardless of expenses. The providers were not motivated to economise and render services in the most efficient way. This related for instance to the length of hospitalization, frequency of consultations, and the type of treatment. Technologies used for diagnosis and treatment might be too sophisticated and not required for a given situation.

2. **Capitation payment** granted compensates the providers before the services were actually rendered. The amount of funds depended on the number of individuals registered with a particular health service provider. There were two methods possible for transferring the funds to the provider:

2.1 *Flat-Rate Capitation* meant that regardless of gender and age the capitation rate was calculated per head of registered persons. This method was used for the 30 Baht scheme and the social insurance system.

2.2 *Risk-Adjusted Capitation* took into consideration the fact that vulnerable groups of the population might create higher expenses for treatment than groups of people with lower risk of falling ill. Therefore the rate of compensation was not the same for all individuals. There were two ways for calculating the rates:

2.2.1 *Prospective Adjustment* considered the demographic situation in the catchment area of the providers. For instance gender and age distribution of the population was taken into account, in that the compensation for females was higher than for males and it was also expected that expenses for the elderly was higher than for the young adults.

2.2.2 *Retrospective Adjustmen* basically base the compensation on the major kind of illness spells of patients in the OPD and the diagnostic related groups for hospitalized patients. At the time of the actual treatment the provider had to settle with a capitation rate but could adjust that rate according to the above mentioned indicators later and increased compensation in a better way to the actual spending.

The compensation according to capitation payment allows controlling expenses and increases the efficiency of the service and the management. The scheme however is financially risky for the provider because the final compensation might not cover the real expenses for hospitalization and treatment. In order to reduce the financial risk the provider might be selective in the kind of individuals allowed to register by excluding persons from registration who were expected to cause high costs. These persons might be asked to look for the opportunity to register at another health provider. The Universal Health Coverage scheme therefore forces all providers to register the population in their vicinity regardless of their health status.

The compensation of the providers through the capitation scheme had positive and negative effects on the way services are rendered to the population (Table 8).

Table 8 Consequences of the capitation scheme on the health system

Items	Consequences		
	Positive effects	Negative effect	Positive- or negative effects
Management	<ul style="list-style-type: none"> - Decrease of numbers of hospitalizations - Improvement of the hospital management and information system - Improvement of the health services 		Involve paramedical staff such as nurses and doctors aid in treating patients
Services		<ul style="list-style-type: none"> - Decrease the quality of services - Avoid admission of patients - Try to transfer patients with chronic diseases or severe illness to other facilities 	Increase number of clients at OPD
Procedures	<ul style="list-style-type: none"> - Decrease diagnostic procedures and unnecessary treatment - Improvement of co-ordination between ambulatory and stationary care 	<ul style="list-style-type: none"> - Discharge patients too early - Risk of inappropriate treatment - Avoid expensive but necessary treatment 	Transfer patients to rehabilitation centres and for home care early
Conclusion	Decrease hospital infection and complications due to short hospitalization times	<ul style="list-style-type: none"> - Increase number of ill-treated patients and avoidable death - Increase the burden of relatives because of too early discharge of the patients 	

Source :- Davis K, Anderson G, Rowland D, et al. (1990: 143-145)

Each payment system influences the decision of health providers and their clients since the health system was operating within a limited framework of resources.

Another interesting issue was the discussion whether the services provided by medical doctors would be influenced by the fact that they were paid a fixed monthly salary as nowadays or whether there was an improvement of the quality of services if the salary of medical doctors was linked to the financial performance of the hospitals.

2.6 Background information about Lerdsin Hospital

Lerdsin Hospital is a governmental hospital with 485 beds and serves the public under the Department of Medical Services of the Ministry of Public Health. It is located at Silom road in one of the main business of Bangkok. The hospital mainly serves patients with diseases requiring for diagnosis and treatment high medical technologies. Particular emphasis is given to orthopedic treatment. The number of patients increased every year (Table 9). The hospital also is a centre for training of public health personnel from Thailand and other countries.

Table 9 Percentage of outpatients at Lerdsin Hospital, 1994-2002

Department	1994	1996	1997	1998	1999	2000	2001	2002
Orthopedic	18.6	17.0	17.5	17.1	17.2	18.0	16.6	13.0
General Practice	16.4	16.9	18.2	14.2	17.8	17.3	18.4	23.6
Social security	-----	-----	-----	-----	4.2	4.1	3.7	3.7
Medicine	10.9	8.9	8.0	11.6	11.4	12.2	12.3	10.9
Obs-gynecology	10.4	9.5	10.8	8.9	9.0	9.3	8.4	7.9
Rehabilitation	11.9	9.0	7.9	6.0	5.1	3.2	3.4	3.3
Surgery	12.2	5.5	5.7	6.5	5.7	5.9	6.1	7.1
Pediatric	5.7	5.3	6.1	5.9	5.0	4.4	4.1	3.5
Ear Nose Throat	3.9	3.6	3.8	3.4	3.2	2.9	2.8	2.4
Eye	4.8	3.7	3.7	3.2	2.8	3.2	3.9	3.9
Dentist	5.2	8.4	4.7	5.9	6.0	6.9	6.6	5.6
ER	-----	12.2	13.6	17.3	12.6	12.6	13.7	15.1
Total	269,587 100 %	315,936 100 %	344,638 100 %	444,997 100 %	484,248 100 %	499,707 100 %	535,444 100 %	584,069 100 %
Average / day	739	1,230	1,400	1,729	1,968	2,065	2,176	2,374

Source : The annual report of Lerdsin Hospital, 1995-2002

According to the patient's record files the number of patients increased from 1994 to 2002 for 2.2 times. About 1.4% of patients cannot be treated within office hours because of working overload. Specialist's services in various medical fields are provided to the public from 8.30 to 12.00 hrs. From 13.00 to 16.00 hrs. during working days services are available in special service centres which include post natal care, family planning, fertility medicine and care for females in the menopause. General practitioners are providing services from 8.30 to 16.00 hrs. and the unit for patients under the social insurance scheme is providing services from 7.00 to 16.00 hrs. during week days.

Table 10 The major ten diseases outpatients at Lerdsin Hospital, 2001-2002

No.	Diseases in 2001	No.	Diseases in 2002
1	Acute upper respiratory infections	1	Essential hypertension
2	Hypertensive diseases	2	Acute upper respiratory infection
3	Other soft tissue disorders	3	Diabetes mellitus
4	Diseases of oral cavity and jaws	4	Acute pharyngitis
5	Diabetes mellitus	5	Arthrosis
6	Arthrosis	6	Low back pain
7	Other dorsopathies	7	Dyspepsia
8	Diseases of oesophagus, stomach and duodenum	8	Myalgia
9	Injuries to the knee and lower leg	9	Diarrhea and gastroenteritis
10	Intestinal infectious diseases	10	Dermetitis

Source : The annual report at Lerdsin Hospital (2001-2002: 21)

The major ten diseases the patients were treated for in the fiscal year 2001-2002 were listed in Table 10. While Lerdsin Hospital is a tertiary level but the disease mainly treated at the OPD could be treated at the health stations or the hospitals near the area the patients lived. It would not be necessary for them to waste money for travelling and time, and it took the OPD were overloaded. The number of inpatients increased from 1994 to 2002 for 1.45 times. Lerdsin Hospital is very popular and beds provided for inpatients are not enough to meet requirements (Table 11).

Table 11 Percentage of inpatients at Lerdsin Hospital, 1994-2002

Department	1994	1996	1997	1998	1999	2000	2001	2002
Surgery	25.2	17.9	18.9	19.0	19.9	20.3	20.1	20.8
Obstetric	26.4	18.7	19.1	17.6	17.0	17.3	16.5	16.7
Newborn	----	17.9	18.0	16.9	16.5	15.5	14.2	15.1
Orthopedic	26.2	18.1	17.1	17.4	18.2	17.6	17.1	16.3
Medicine	17.4	12.2	11.7	13.6	13.6	13.1	13.8	13.4
Pediatric	----	6.9	6.9	6.6	5.7	7.4	8.3	7.7
Gynaecology	----	5.2	5.6	5.8	6.8	6.2	6.3	5.8
Eye	3.6	1.7	1.5	1.7	1.2	1.4	2.3	2.8
Ear Nose Throat	1.2	1.4	1.2	1.4	1.1	1.2	1.4	1.4
Total	15,296 100 %	20,808 100 %	21,477 100 %	21,013 100 %	20,563 100 %	21,269 100 %	22,053 100 %	22,564 100 %
Length of stay	10	9	8	8	8	8	7	7
Mortality rate	3.21	2.91	2.64	2.75	2.53	2.84	2.70	2.58
Occupation rate	78	88	98	92	92	93	91	90
Number of bed	384	420	425	457	466	423	467	445

Source : The annual report of Lerdsin Hospital (1994-2002: 21).

The year 2002 the proportion of inpatients were the highest, with 20.8% for surgery treatment and the lowest with 1.4% for the patients suffering from diseases related to ENT (Ear, nose and throat). The main ten diseases inpatients had been treated for in the fiscal year 2001-2002 were listed in Table 12.

Table 12 The major ten diseases inpatients at Lerdsin Hospital, 2001-2002

No.	Diseases in 2001	No.	Diseases in 2002
1	Injuries to the head	1	Spontaneous vertex delivery
2	Diabetes mellitus	2	Essential hypertension
3	Intestinal infectious diseases	3	Diabetes mellitus
4	Injuries to the knee and lower leg	4	Injuries to the head
5	Spontaneous vertex delivery	5	Intestinal infectious diseases
6	Cerebrovascular diseases	6	Diseases of appendix
7	Disorders of Lens	7	Disorder of lens
8	Hypertensive disorders	8	Cerebrovascular diseases
9	Injuries to the hip and thigh	9	Accident injury
10	Diseases of appendix	10	Injuries to the knee and lower leg

Source : The annual report at Lerdsin Hospital (2001-2002: 21)

Among the inpatients in 2002 suffering from the mentioned ten diseases the highest proportion related to conditions in the field of obstetric. Even though the mission of Lerdsin Hospital was specialist in orthopedic diseases but the length of stay orthopedic patients were longest than other departments. The average times spent in hospital for obstetric patients were 3.98 days and for orthopedic patients 13.6 days (Table 4). The low hospitalization time for obstetric patients resulted in a high admission rate for this ward. The length of stay in hospitals of patients receiving services under the governmental health insurance schemes decreased continuously. This was due to faster diagnosis and treatment schemes made possible by high medical technology and also to the governmental regulation which did support these patients no longer than for 14 days in hospital. In 2002 the overall bed occupation was 90% but in a number of departments the bed occupation reached 112%, while in other departments the bed occupation rate was only 32% (Table 4). The unequal distribution of the bed occupation rate among the different departments contributed to the overall inefficiency of the hospital.

The number of patients increased and had to be cared for from a limited number of dentist and medical doctors thus increasing the waiting time for the patients before consultations. The department for dentistry for example only provides services for 60 patients a day and the specialist clinics are open from 8.30 to 12.00 hrs. Patients were coming to the hospital already at 05.00 a.m.in the morning to get a queue card. The waiting time for patients increased considerably (The committee of Total Quality Management, 1998: 92). From the patient's satisfaction assessment, which was done every year, it was known, that the patients were most content with the services received by medical doctors. The medical doctors outstrip the other health personnel (The committee of Total Quality Management, 1998: 4-20).

On the 1st of January 2003 Lerdsin Hospital introduced the Universal Health Care Coverage scheme in following the governmental policy. A total of 496,535 persons within the Bangrak, Sathorn, Prakanong, Klongteuy, Pravej and Suangluang district registered with the hospital. Budget allocation to the hospital from the Government amounts to 1,202 Baht per registered person per year. Even if people held the gold card they were willing to pay extra for certain services. There are four groups of patients coming to Lerdsin Hospital such as 1.Gold card 30 Baht 2. The social

insurance scheme 3. Civil servants and staff of governmental enterprises and their family members 4. Those who paid from their own pocket.

Two out of the four groups of patients can select the services of the specialists available with the exception of those patients under the 30 Baht scheme and social insurance scheme. Since 94% of medical doctors of Lerdsin Hospital were specialised they took care for the two groups mentioned above, while patients covered by the 30 Baht scheme and social insurance were cared for by four rotated specialist doctors in the primary care unit and social insurance unit. There, the patients had to wait for approximately one hour before they are attended for. In case doctors at the PCU or Social insurances room consult the patients to the specialists at other departments. The patients had to wait for an additional period. It might be that the specialised units are already closed when the patients were referred to them, so that they had to come back the next morning.

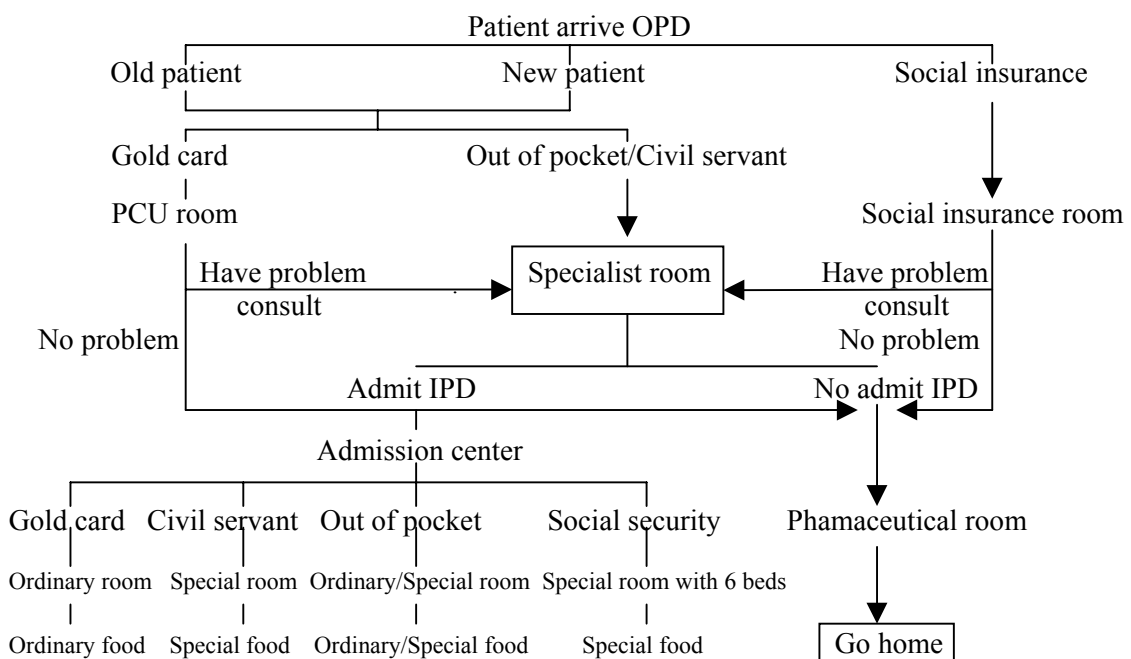


Figure 7 Flow chart the health services at Lerdsin Hospital (Except Emergency room)

*The one who paid by themselves had to pay in advance, if they had to go through diagnostic procedures such as laboratory investigation or X-ray.

*Patients, who wanted to have drugs not listed as conventional drugs for public services, had to pay extra for the medicine they required except patients covered by the social insurance scheme.

*Patients with gold card with 30 Baht payment had to pay 30 Baht each time the receive services, except they participated in a health promotional program.

Only specialists can admit patients to inpatient department and have to take care of them until discharge. Patients within the category of the 30 Baht scheme are admitted to ordinary patient rooms, while patients being civil servants and their family members are offered beds in the special rooms. Patients paying by themselves can choose between the two categories of patient rooms. Patients within social insurance schemes are admitted to special rooms which there are six beds. The benefits for patients within the special rooms are that they get a set of toilet articles, flowers near their beds and are visited by the hospital management twice a week. Lerdsin Hospital got an award as outstanding hospital caring for patients under the social security scheme. In the year 2003 the number of patients from the social security scheme amounted to 117,870 individuals. This assured the management of Lerdsin Hospital that the services given to this group of patients meet their satisfaction so that they come back.

With the exception of the patients in the ordinary room all patients within the special rooms can ask for meals according to their taste, given that the food is suitable for their health.

Although patients in the special rooms have certain privileges above patients in the ordinary rooms the treatment for all categories of patients follows the same rules of good and adequate treatments in the management of the disease, with the exception for patients suffering from kidney diseases and need dialysis or patients who have to go through joint surgery requiring expensive artificial joints. Doctors will choose alternative not so expensive treatments for patients who can not afford to pay for these costly procedures mentioned. Patients under the 30 Baht scheme have to pay extra, if they require or want to have medicine and treatment not listed as conventional drugs and procedures for public services. If they can not afford, there is the possibility they ask for help from the Social Welfare Unit.

The Universal Health Coverage scheme had an impact on the financial situation of Lerdsin Hospital. For instance the budget for training and manpower development for the hospital staff was reduced, in that fewer workshops were held and the number of research projects decreased. Meals and coffee provision for participants of meetings had been cancelled as well as compensation for the staff working after office hours. Also the number of staff employed for after office hour work declined.

Operational expenses also had been cut in that one elevator per building stopped working after 17.00 hrs. and the air conditioners were working only between 8.30 up to 11.30 hrs. and 13.00 to 15.30 hrs. The health services of Lerdsin Hospital was negatively influenced by the increasing number of patients due to the establishment of the policy of Universal Health Care Coverage and the resignation of four medical doctors and one doctor experienced in rehabilitation.

2.7 Factors related to the demand for health services

In case of sickness everyone wants to have health restored. The demand for health services is related to the following factors:

2.7.1 Demographic factors

The demographic factors of the population fundamentally determine the demand for health services. The most important factors are gender, age, marital status, education, place of residence and satisfaction of consumers.

2.7.1.1 Gender

The gender of an individual is fixed. Together with age and marital status it is an important factor related to the demand for health care. In childhood medical costs for males and females are similar but this is different for other age groups. So for instance females in the reproductive age were supposed to give birth and attend obstetric services and therefore had a higher demand for health services than men (Leowpiroge, 1980 : 42). The different styles of living also play a role. Females might be a housewife and men are working outside the house, being more under time stress and care less for their health (Varaviboon, 1992: 18). Females might care more for the health of family members and were more informed about their health status than men. Females also knew more about matters of health and diseases than men (Kumtoonvachara, 1994: 61-62). Important sex specific diseases for females were breast and cervix cancer, while for males lung cancer was more frequent since males smoked heavier than females. Because of the different working environment, the risk of males to be disabled was higher than for females, a fact which was obvious for soldiers and factory workers handling dangerous machineries. The different social roles also influenced demand for health services. Males were considered to be

strong and tough, while females were considered to be weak. Males therefore were reluctant to admit that they were suffering and didn't go to the hospital while females were more willing to rush to see a doctor.

According to the survey of the National Statistic Office undertaken in 1996 (1997: 28) females in the age above 15 had more admitted in hospitals than males. Similar results had been obtained from investigations in Egypt in 1995 (Department of Planning, 1998: 35). More males in the age groups below 16 and above 60 received health care than females but in the age groups 16 to 39 years more females required health services than males for delivery.

In the USA the situation seems to be different (Cohen et al, 2001: 4). Here females seemed to obtain health services not as frequent as males. This was due to the fact that in general medical costs for females were high. Women therefore only went to seek for medical services, if their condition worsen to such an extend that they no longer could ignore it. This was especially true for housewives. In big families more males than females obtain health care and males tended to stay longer in hospital than females (Hershey et al, 1975: 846). This was explained by the fact that females might look for their families and children and could not afford to stay away for long. Even though females tended to select services from a wider variety of health care facilities, males selected clinics and hospitals for treatment which were equipped with modern and high technology, while this did not seem to be of importance to females (Masako li, 1973: 37 and Charenyouth,1979: 24).

In summarizing the results of the studies mentioned it is obvious that gender plays a role in the demand for health services.

2.7.1.2 Age

Age is closely related to the health status of an individual and therefore relates closely to the demand for health services. In getting older the need to consult health services increased in contrast to younger age groups. Elderly also suffer more often from chronic diseases which need more efforts and time for treatment. Models had been calculated showing that for each year one gets older the health status degenerates by 2.1% and consequently the cost for health care increases (Grossman, 1972: 16). In older age the risk to suffer from cancer, heart diseases, degeneration of the skeletal

system, dementia, nervous system increases so medical costs increased as well and could be quite high since quite a number of diseases elderly were suffering from, require long hospitalization. People in the age of 17 years and younger, if sick would stay in hospital only for a short time, while the length of stay of individuals of 55 years and above had to be hospitalized for a much longer time (Cohen et al, 2001: 1-14). Children and elderly made use of the health care system much more often than teenagers or people who were belonging to the working fraction of the population (Watana, 1994: 71-79). This was due to the fact that children easily acquire diseases because of their low immune system while elderly were suffering from a general degeneration of their organism resulting in a high frequency of chronic diseases. Plotting a curve in which each point represents the frequency of receiving health care for a particular age group, this curve would be U-shaped, as it was shown by Shoeprapawan (2000: 18-26) making use of the data from the survey conducted by the Office of National Statistics in the years 1991 to 1996. The overall rate of acute illness spells in females was 25% and for males 21.1%. The morbidity was especially high in the group of pre-school children and lowest for teenagers, and considerably increased again for the age groups of 60 years and older.

Also the findings of Hulka and Wheat (1985: 445) confirm the variation of morbidity rates according to age. Elderly in the age of 65 years and above had more surgery, did stay longer in hospital and visited outpatient departments more often than teenagers and individuals belonging to the more active fraction of the population. Elderly in the age of 85 years and older made use of the health services 10 times more often than those less than 65 years old.

Age of the patients also seem to influence the preference for the kind of health services used (Boonchaluxame, 1987: 71). Younger patients tended to use the services of private and governmental hospitals while elderly patients preferred traditional treatment, bought medicine to treat themselves or just let the disease develop its natural course. Similar results had been obtained from Durongsisitkul (1982: 42), who stated the 70% of the patients being seen at Ramathibodi Hospital were in the age range of 15 to 34 years old. The frequency of visits to hospitals also varies with age. A survey undertaken by Harvard School of Public Health (1998: 27) showed that elderly people over the age of 60 went to health service facilities to a lesser extend

than people of the active age groups. But they more often suffer from chronic diseases their health status worsens during the time they did not go to see the doctor. At the end treatment costs were higher than they would be, if the patients would be cared for frequently and regularly. Consequently medical costs for the elderly in the age of 60 and above were the highest in comparison to patients of all other age groups.

It can be concluded, that age is related to the demand for health services.

2.7.1.3 Marital status

Marital status can be divided into five categories, i.e. single, married, divorced, separated, and widowed. Single women and men tended to stay longer in hospital than married persons. An explanation for this might be that married individuals could be cared at home by family members in case conditions allow this (Feldstein, 1966: 128-130). Disease pattern might differ according to marital status. Single women might be less at risk to suffer from infectious diseases than married women, who might be infected by their spouses with sexual related diseases such as gonorrhoea, syphilis, AIDS or cervix cancer. Roiarejin and Singhadate (1999: 467-469) drew attention to the possibility that married women had a high risk to suffer from sickness during pregnancy such as hyperemesis gravidarum, toxemia, extra uterine gravidity etc. If a particular woman was going to frequent pregnancies and deliveries her health might deteriorate and married women might have a higher risk for developing cervical cancer than single women. Fewer single women were admitted to hospitals in comparison to married, widowed, separated and divorced women (Manga et al, 1987: 666). Married women also staid in hospital longer than females from any other categories of marital status (Rosental, 1970: 101-117). The proportion of married women receiving health care exceeded the proportion of any other category to 40% while the proportion of single women receiving health care was lowest with 17.3% (Chareonkul et al, 1991: 4).

The results quoted clearly shows that the marital status is related to the demand for health services.

2.7.1.4 Education

Individuals with high education more often than not were professionals with an income above the average of the population and were more concerned about their

health compared to persons of a lower educational level (Santerre and Neum, 1998: 75). The length of stay in hospital was longer for individuals highly educated than for those of a lower educational status (Henderson, 2002: 152). On the other hand the health status of the individuals with higher education was better than for not so well educated persons, since high education usually was linked to good living conditions as far as the social and physical environment was concerned. People with higher education also were knowledgeable about factors related to health and diseases, they knew much about nutrition, therefore were in good health and don't need to use health services that often (Leowpiroge, 1980: 42). Findings however were contradictory to some extent. According to Chongwatana et al (1998: 112) graduate from elementary schools was the group to make use of health services the most, while people with higher education did not care much about their health status and were more interested in their jobs. Pensirinapa et al (1997: 318) however stated that in the past people with higher education seek help from the health service facilities more often than people with lower education because the higher educated people believed that the high technology and skills of doctors available in hospitals would be more efficient than traditional medicine. Nowadays highly educated individuals were more interested in disease prevention and tend to take part in health promotion schemes. As a result of this, persons of higher education were less suffering from diseases and less often visit hospitals, while people with lower education were not aware of the importance of health promotion and disease prevention. They often went to seek help in hospitals after the diseases they suffered from developed into a very severe stage, thus the cost for treatment became very high and the length of stay in hospital very long.

It is obvious that education plays an important role in the issue of the demand for health services.

2.7.1.5 Place of residence

Those who were residing in urban areas such as Bangkok, are advantaged in that there are a large variety of different health care facilities and it was easier to communicate with the health personal than in rural areas. It was estimated that Bangkok had 4 times more beds than were available in the rural areas of the eastern part of Thailand, 12 times more doctors, 13 times more dentists, 12 times more

pharmacists, and 5 times more nurses (Viboonponprasert,2000: 243-276). Therefore for the people in Bangkok the opportunity to make use of the health services was much greater than for the people in the rural areas. This might be one of the reasons, why so many people migrate from the rural areas to Bangkok. It was estimated for 2001 that the population density in Bangkok was 30 times higher than for any other area in Thailand (The National Statistical Office, 2002: 15). A large proportion of the population lived in slums with an unhygienic environment including lack of waste disposal. The spread of respiratory diseases was rampant, and soil, water, air and noise pollution high. Poverty and insecure life conditions reduce the quality of life and supports the occurrence of mental diseases. It seems that people in urban areas lead an unhealthier life than residents in rural areas.

According to the findings of the Harvard School of Public Health (1998: 88) people residing in urban areas made use of health care facilities at outpatients department 4.48 times per year while people from the rural areas only for 2.72 times per year. The length of stay in hospital was two times higher for people from the urban-compared to the rural sector. After the introduction of the Universal Health Coverage scheme economical problems no longer prevented people from making used of health care facilities. Citizens of urban made use of out- and inpatient departments to a higher degree than people living in the rural areas because the number of hospitals in urban was much higher than in the rural areas (Anderson, 1973: 108).

One major indicator of the health status of a population was the mortality rate of children under five years of age. This age was especially vulnerable to deficits in the health delivery scheme, since of a high growth spurt, high nutritional requirements in terms of quantity and quality and not fully developed immune system which made this age group especially vulnerable for infectious diseases. The National Statistic Office found for the years 1995 to 1996 that the infant crude death rate, the standardised infant mortality rate and the mortality rate of children under the age of five was lower in Bangkok than in the rural areas (Table 13).

Table 13 Crude death rate, infant mortality rate and under 5 mortality rate by regions, 1996

Region	Crude death rate	Infant mortality rate	under 5 mortality rate
Whole Kingdom	6.0	26.1	31.4
- Municipal areas	4.9	15.2	18.8
- Non-municipal areas	6.3	28.2	33.2
Bangkok	4.7	18.9	29.4
Central (excluding Bangkok)	5.4	19.4	24.5
North	6.3	30.8	34.7
Northeast	6.4	29.4	33.5
South	6.7	25.7	32.4

Source: The Nation Statistical Office (1997: 28)

Feldstein and Cerman (1965: 13) reported about results of his study, which were different from those quoted above, in that the length of stay in hospital of people in the urban areas was longer compared to the rural areas. This was accounted to the fact, that the proportion of people in rural areas being children and elderly was higher since the active working people were moving into the urban areas. The results of Feldstein was confirmed by the National Statistic Office in 1996 (1997: 17-18), which found that the length of stay in hospital of people residing outside of municipalities were longer in comparison with those within the urban areas.

The place of residents is also related to the demand for health services.

2.7.1.6 Satisfaction of consumers

The satisfaction of patients is a major factor in establishing the demand for health services. Whether a person is satisfied or not varies from individual to individual and depends on various factors such as age of the patient, her or his social environment, personal background, former experiences etc. The grade of satisfaction might change over time and is also related to the change of conviction of an individual. After the services of the Lerdsin Hospital at the outpatient and inpatient departments had been improved in 1993 and 1998, the indicators used for measuring the level of patient's satisfaction increased from 50.5% to 68.6%. One of the results was that the

number of outpatients increased every year (Committee of Total Quality Management, 1998: 22). Satisfaction of patients very much depended on which doctor provided the services and how she or he could meet the expectations of the patients. So for instance women preferred to be treated by female doctors especially in the case of gynaecological diseases such as diseases of the uterus or the breast, in case of pregnancies, deliveries or suffering from haemorrhoids, while men preferred to be treated from male doctors in case of diseases affecting their genitals or suffering from sexually transmitted diseases (Lurie, 1997: 693).

The expansion of the health services, both for governmental and private hospitals increased the demand for the services. The percentage of those treating themselves first by purchasing medicine from drug stores decreased from 51.4% in 1970 to 31.6% in 1996, and the proportion of those seeking help in governmental hospitals increased during this time from 15.5% to 38.3%. The preference for different types of health care facilities changed in the years 1998 to 2001 due to the economic crises in between this period, in that the proportion of health care seekers of governmental facilities increased from 12.9% to 34.8% while service demands from private hospitals decreased from 18.7% to 15% (The National Statistic Office, 2001: 15-20, Public Health, 1998-2001: 41).

Kuttavas (1984: 1) investigated the regular utilization of health facilities by patients suffering from tuberculosis and found out that this depended on a number of factors from satisfaction with the services of the health care facilities, the treatment they received, the information they got about their health status, the cost for the services, the convenience in travelling to the facilities and the human relationship with the doctors and other health personal they meet at the hospitals. Polperm (1993: 41) mentioned, that, if patients were satisfied they would come back to the health services i.e. private hospitals, polyclinics or the private praxis of medical doctors.

The conclusion is that demand for health services of a large extend also depend on the satisfaction of the clients.

2.7.2 Health status

Type and severity of illness directly affects the health of individuals and consequently evoke their demand for health services. The demand of healthy people

for health services might be neglectable, for those suffering from acute diseases the demand might be high but only expressed for a short period of time, while those suffering from chronic diseases usually had a high and long lasting demand for health care (Santerre and Neum,1998: 75). The type and severity of diseases also determine the kind of services used by the patients. Those with chronic diseases usually would frequent hospitals or polyclinics or would see a medical doctor in his or her private praxis. In contrast patients suffering from a short episode of acute diarrhoea would buy medicine from the drug store and treat themselves or consult traditional healers instead of going to see a medical doctor (Boonchalexame, 1991: 278). The scenario might vary from place to place. Horold (1987 : 507-516) observed patients in North India, who tended to traditional treatment in case of chronic diseases. Patients being studied by Huntrakul (1986 : 46) and Neumpand (2001: 111) also tended to use traditional treatment in case of chronic diseases but patients suffering from acute diseases liked to visit governmental hospitals. In Bangkok 64.9% of patients suffering from acute diseases visited private hospitals (Polperm, 1993: 50).

By studying the health seek behaviour of people living in the slums in Bangkok the result was, that people with mild symptoms and diseases tended to treat themselves with medicine they bought but some of them consult the nearest health station. In case of a severe illness however they went to governmental hospitals(Wattana,1994:71-79).

The majority of patients of the Pranakorn Sri Ayuthaya Hospital covered by a health insurance scheme suffered from moderate up to severe illnesses and only a minority of patients in this category were suffering from a mild disease (Pranprasith, 1993: 118). These studies confirm the general trend that individuals having mild symptoms were treating themselves by purchasing drugs from the nearest drug store, visited the nearby health stations or went to see traditional healers but look for treatment in case of a more severe illness in governmental hospitals.

In summary it can be stated, that the type and severity of the sickness influence to a great extend the demand for health services.

2.7.3 Economic factors

The most important factors are occupation, income, travelling time, time spent in the hospital, price for medical services and health insurance.

2.7.3.1 Occupation

The kind of occupation someone is in also influences the quality of life. Different jobs have different social security and welfare schemes which relates to health and sickness of the workers and employees. A survey undertaken by the Harvard School of Public Health (1988: 31-32) indicated that academics specialised blue colour workers, white colour workers had the highest demand for health services and had high expenses for health while the contrary was true for housewives. The results of other studies did not confirm this but show that professionals of different categories had lower health expenses than housewives, since their time was too valuable to be spent in waiting for and treated within health care facilities (Mocan et al, 2001: 22). In order to save valuable time by avoiding to wait long before consultations merchants, and professionals in the service sector as well as blue colour professionals tended to seek health care in private hospitals and private doctors offices. Civil servants, employees of governmental enterprises or staff of commercial companies tended to frequent governmental hospitals for health services more than other professional groups (Boonluxame, 1987: 90). People working in the field of vocational professions, academics or executives and decision makers had a higher risk to suffer from hypertension, heart diseases and diabetes mellitus in comparison to other occupational groups. While doctors and nurses were more at risk to acquire HIV (AIDS), dengue haemorrhagic fever, conjunctivitis, tuberculosis, common cold flu etc (Chongwatana et al, 1998: 112).

The occupation one individual is in also rules his or her demand for health services.

2.7.3.2 Income

Family income influences the health status of family members. A ten percent increase in family income resulted in an increase in life expectancy and decreased the infant mortality rate by 8.3%, the child mortality rate by 14.2% and the crude death rate by 1.5% (Jack, 1999: 31). Already Andersen and Anderson (1967: 112) found out in their investigation undertaken between 1953 and 1963, that the proportion of expenses for health services of the poor based on their income was higher in comparison with the high income group, even though the nominal amount spent by the

rich for health services was higher compared with the lower income groups. The kind of health care providers serving the poor and the rich were not the same. According to Coffey (1983: 410) the rich tend to request services from private hospitals more than from governmental hospitals because they spent less time for getting the health services from the private hospitals in comparison to the government ones.

According to investigations undertaken by the Harvard School of Public Health (1998: 29) richer people tended to demand services from out-and inpatient departments two times more frequently than the poorer fraction of the population. Wealthier females obtained health services from outpatient department three times and from inpatient department two times more often than jobless women. Komalatat et al (1993: 7), Lin (1994: 7) and Henderson (2002:151) stated that income was an important factor in determining the demand for health care. People with high income used health services more often than people with lower income. The frequent demand for health care by the rich people however was not due to their concern to protect their health but more depended by their wish to get medicine to relieve ailments.

The kind of health services demanded by the elderly was also dependent on income. While the richer elderly frequently used the services of governmental- and private hospitals as well as health clinics, elderly from the poorer fractions of the population more often tended to go to drug stores to seek help and resorted to traditional medicine (Warawibul, 1992: 123).

In contrast to the findings quoted above, the studies undertaken by Richardson between 1958 and 1963 in the USA (1969: 34) showed that poor people more often seek help from the health services than rich people and individuals from low income families tended to be more often admitted to inpatient departments and stay longer in hospitals than family members of the rich. The fact that individuals from the higher income fraction of the population tended to stay shorter in hospital than those from the poor was related to the high price for time spent. A rich male only asked for services when he was suffering from severe symptoms because his time was too costly to be spent for staying in hospitals or spent to visit other medical services (Manga, Broyles and Angus, 1987: 658, Rosental, 1970: 101-117).

Hulka and Wheat (1985: 457) found that low income people more often asked for services from outpatient department than individuals from the middle income

fraction of the population. Manga, Broyles and Angus (1987: 665) stated that the health status of jobless and retired people was lower than those working and the former tended to stay in hospitals more often and longer, because they could afford the time to do so.

Neupand (200: 120) divided health care seekers into two groups, i.e. those with a monthly income of less than 8,000 and more than 8,000 Baht. Those below the cut-off value made use of the universal health care scheme within the hospitals they registered with, five times more often than those above the cut off value. This phenomenon could be explained by the fact, that the latter had more means to seek health care from other hospitals as well, because they had the means not to restrict themselves to the ones they registered with. This was an example showing how income related to demands in Thailand.

It can be concluded that income has an effect on the demand for health services.

2.7.3.3 Travelling time

In case the majority of the population was covered by health insurance the price for health services no longer played an important role but the distance to the nearest health facility and the travelling time to reach it became a more important issue (Coffey, 1983: 407). Charoenkul et al (1982: 137-140) found that the inconvenience or convenience to go to the health facility was an important factor influencing the demand for health services from the group of elderly. Dor and Gaag (1988: 16-17) pointed out, that if there was an increase of travelling time and waiting time before seeing the doctor of 10% would affect a decrease in the frequency of making use of the services for 3.4%. Janssen (1992: 725) found an inverse relationship between the number of patients at out- and inpatient departments and the distance of the communities to the health care facilities. Slack et al (2002: 22) reported from his investigations, that a distance of more than 15 kilometres of the home to the nearest hospital significantly decreased the frequencies of visits to the health care unit. The demand for health services was highest for those living near to a hospital and lowest who stay far away. The value of time for people with a high income was higher in comparison to those with a lower income. The richer patients therefore preferred to

visit private hospitals because the higher cost for services was made good by the fact that they had to spend less time than in governmental hospitals before seeing a doctor (Feidstein, 1966: 83).

The expenses covered in relation to travelling and the times spent before receiving the services could be termed as “time price for health services”. If there was a “time price” increase of 10% the demand for health services decreased for 1% (Coffey, 1983: 422). Santerre and Neum (1998: 52) added to the concept of “time price” the fact, that while waiting for the health services, opportunities were lost to work and gain money and that someone might have to be employed part time and paid in order to work while the patient was waiting in the health care facility. In this context no “time price” must be considered for children and the elderly. Gulliford et al (2001 : 10) stated, that the convenience to reach the health facility and the expenses covered for travelling was even more important than the distance of the home of the patient to the hospital. This was confirmed by the committee of Total Quality Management (1998: 22) for Lerdsin Hospital, whose study provided evidence that patients chose this hospital because of the convenience to reach it and the fact that its location was near to their homes.

It can be concluded, that time spend to reach a hospital has an effect on the demand for health services.

2.7.3.4 Time spent in the hospital

The service system of big governmental hospitals used to be complicated. Patients seeking help had to wait for a long time before they could obtain the services. In Great Britain for instance all people were covered by the National Health Service scheme. Before getting service people had to wait for a long time, because the government reduced the services provided by the hospitals. According to Enterline et al (1973: 1174-1178) waiting time before seeing a doctor and got treatment increased from 6 to 11 days and to 20 weeks in case of bone surgery. As a result people who were rich enough to afford were likely to go to private hospitals where actually they might be treated by the same doctor as in the NHS but they had to wait for a much shorter time before being treated.

A prolonged waiting time affected the health of elderly and the poor people and negatively influenced longevity, morbidity and quality of life (Bloom and Fendrick, 1987: 138).

Tangcharoensathien et al (1996: 163) investigated the influence of waiting times on the satisfaction of patients and found that the satisfaction of patients at outpatient departments of governmental hospitals were lower in comparison to private hospitals and hospitals run by foundations due to the longer waiting time in governmental hospitals. The complain was that patients had to wait quite a long time to see the doctor, who then just only spent a very short time with them for diagnosis and treatment. An investigation about waiting time at Lerdsin Hospital in 1993 came to the result, that in average the patients had to wait for 106.09 minutes at the outpatient department. After improvement of the services in 1994 the average waiting time could be reduced to 88.32 minutes (Committee of Total Quality Management, 1998: 11). The number of patients increased 3 times while the number of medical doctors only slightly increased. In 1998 the average waiting time again increased to 138.03 minutes. Time was lost while waiting for the results of diagnostic procedures and in front of the counter of the hospital pharmacy, where the patients had to wait for the medicine the doctor prescribed (The Committee of Total Quality Management, 1998: 11). An other investigation about the satisfaction of patients at the outpatient's department did show, that generally they were satisfied with the services received except for the fact, that it took a long time to go through the service procedures.

Some private health providers, when the waiting time was an important issue for them, have a billboard indicating that if waiting time was more than 15 minutes, a nurse should be contacted. Waiting time in private hospitals, polyclinics and private doctor's offices was much shorter, in that 50% of patients had to wait an average time of 15 minutes to see the doctor (Pholperm, 1993: 42).

From the above studies we can conclude that time consumed when receiving services at hospital have an impact on demand for health services.

2.7.3.5 Price for medical services

The expenses to be paid for medical services is one of the important factors ruling the extend of demand for the services. The influence expenses have on demands

can be measured by means of economical indicators. Hypotheses in this field can be formulated and tested using tools common in the science of economy. So for instance it is clear that demand for health services is inversely related to the expenses which have to be paid for it, if all other possible variables related to demand are fixed. To increase the prices for the services will decrease demands and vice versa.

Fabrica (1973: 470-484) listed the following factors in the behaviour of health care seekers which were related to economical considerations:

1. Longing to get the highest benefits from the services for a given price.
2. Trying to get services at the lowest costs possible.
3. To make use of the services to the highest utility.

In Bolivia it was observed that poor people were reacting with higher sensitivity to changes in price for health care than rich people. In case the price for health care was kept to be equal regardless of the economic situation of the health care seekers, the demand for health services from the poor decreased. Consequently the demand for health services from the poor people in total was less than from the rich (Masakoli, 1973: 38).

The Ministry of Health of the Kingdom of Cambodia (1998: 7) conducted a survey in 1998 and found that the proportion of expenses for health care was the highest for the families of the poor. The cost for one visit of the outpatients department in average was USD 15 per visit, and for inpatients USD 65. The amount paid for one illness spell being treated in the inpatient ward of a hospital was twice as high as an average monthly income. The actual costs for treatment in hospitals exceeded the amount the people were willing to spend by 12 to 13 times. The result was that people purchased medicine from the drug store so they did not have to pay fees for consultations. They also had not to queue up and wait for a long time, spent time and money for travelling, didn't have to look for transportation, don't have to tolerate bad road conditions and dangerous driving during the night etc, so that opportunity cost was zero and demand for health services decreased considerably.

Mocan, Tekin and Zax (2001: 22) found in rural areas of China, if fees for health services increased the demand for health services from the poor decreased to a larger extend in comparison with the rich. Rosenthal (1970: 101) found that the price for treatment was negatively related to the length of stay in hospitals, which meant that

when price for treatment increased the length of stay decrease.

In contrast it was also possible, that an increase in price would increase the demand for the health services, because the high costs were believed to be linked to a high quality of the services as the example quoted by Bitran and Innes (1993: 26-44) illustrates. The investigation of Bitran showed, that people preferred to use the services of expensive private hospitals in the believe that the quality of services there was above those from governmental hospitals with lower service fees. An other example was the issue that people preferred to buy expensive imported drugs because they assumed that the quality of these drugs was superior in comparison to locally made medicine. Because of the high expenses for services and medicine, the numbers of patients who could afford and were willing to pay were limited, so that waiting time in these hospitals was acceptable.

From the investigations quoted it can be concluded, that there is a close relationship between prices and demand for health services.

2.7.3.6 Health insurance

To pay the premiums for a health insurance scheme is like paying into a saving account so that in case of sickness resources are available to make use of the health delivery services, but at the same time beneficiaries of a health insurance scheme tend to increase their demand for health services (Feidstein, 1966: 82). Presently, the importance of income for getting health services decreased due to the health insurance schemes. However people with health insurance had higher demand for health services than people, who paid for the services out of their own pocket (Henderson, 2002: 151). This observation was in accordance to the general rule that the demand for health services increased in situations where the health care seekers didn't have to pay directly for the services. They tended not only to approach the services more often than before but also tended to exploit the services in that they required services unnecessary. Mueller et al. (1998: 600) termed this behaviour to be a "moral hazard". In their investigation they found, that individuals covered by a health insurance tended to use the services two times more often than non insured persons. The investigation from Beck (1980: 794) undertaken from 1968 to 1971 disclosed that the demand for health services decreased by 5.66% after the introduction of user charges and co-

payment requirements. Similar observations were made by Hahn (1994: 231-235), who observed that user charges and co-payment decreased the length of stay in hospital and the frequency of visits to the doctor for patients in the age of 18 to 64 years. The frequency to ask for services was lowest for the group of patients without and highest for those with health insurance (Medicaid).

A survey undertaken 1996 by the National Statistics Office revealed that elderly had the highest rate of illness, out- and inpatient departments at 12.3% , 8.4% and 0.16% respectively. Whist those being covered by the social security scheme had lowest rate of illness and outpatient visits at 2.6% and 1.5% (Table 14).

Table 14 Morbidity rate and utility rate per year, 1996

Schemes	Morbidity rate	Outpatient utility rate			Inpatient utility rate		
		Total	Public	Private	Utility rate	Public	Private
Civil servants	4.5	3.2	2.0	1.2	0.08	75	25
State enterprise staff	3.5	2.2	0.9	1.3	0.07	42	58
MoPH health insurance	5.0	3.3	2.5	0.7	0.09	93	7
The poor	5.9	3.7	3.0	0.7	0.09	94	6
Child under 12 years	4.9	3.7	2.1	1.5	0.04	81	19
The elderly	12.3	8.4	6.4	2.1	0.16	79	21
Social security	2.6	1.5	0.7	0.8	0.05	54	46
Private insurance	4.4	3.2	0.8	2.4	0.15	29	71
Other	5.1	3.2	2.6	0.7	0.15	84	16
Uninsured	3.3	1.9	1.1	0.8	0.05	81	19
Total	4.7	3.1	2.0	1.1	0.06	79	21

Source: The National Statistic Office, 1996

40% of civil servants and employees of governmental enterprises and their families approach provincial hospitals as a first attempt to seek help while 18% bought medicine at drug stores as a first attempt to cope with illness spells. Those covered by the social insurance scheme 29% of them bought drugs first in case of illness and 23% visit private hospitals first. All others, who were not covered by one of the mentioned schemes. 23% of them bought medicine first and 22% went to the health stations (The National Statistical Office, 2001) (Table 15).

Table 15 Percentage of health seeking behaviour, 2001

Type	Civil servants	Social security	Others	Total
No treatment	4	3	5	5
Used local remedy	1	1	2	2
Used traditional treatment	0	0	1	1
Bought drug at the drug store	18	29	23	23
Went to health station	5	5	22	20
Went to community hospital	11	6	14	13
Went to public hospital	40	17	18	20
Went to private clinic	15	14	12	12
Went to private hospital	5	23	3	4
Others	1	2	0	1
Total	100	100	100	100

Source: The National Statistic Office, 2001

The introduction of health insurance not only influences the demand for health services but also the quality of demand and the frequency of visits to the different categories of service providers.

From the literature review mentioned before, the conclusion can be drawn, that the people choose the services which are convenient to reach, where services should be provided fast and inexpensive, and where the quality of treatment is high, and the service system is not complicated. The behavior of health receiver in the selection of health services depends on socio-demographic factors, the health status and economic factors. For the hospital, the factor of health resources, service system, quality of services and the attitude of the health personnel towards the patients affects the demand for health services.

Table 16 Summary of Empirical studies on demand for health services

Name / year	Dependent variables	Independent variables	Result
Rosenthal 1962	Length of stay	Cash payment for health services Average room charge/hospital services	- -
Rosenthal 1962	Length of stay Admission rate	Price, Marital status Health insurance, Sex (male)	- +
Russell 1967 and 1969	Admission rate	Age, The number of beds Sex (female), Rural residence	+ -
Davis and Russell 1969	Number of outpatient visits Number of admission rate Length of stay	Outpatient visit price, Inpatient care price Insurance, Occupancy Physician per capita The ratio of specialist to all physicians	- + + + +
Bitran 1994	Number of outpatient visits	Physicians' fee, Age	-
Toonkul 1994	Number of outpatient visits	Age Travel time	+ -
Soonthorndhada and Thongthai 1996	Number of outpatient visits Length of stay	Price, type of payment Income Type of illness, Age, Occupation, Marital status Number of illness days, Price	+ - - - +

2.8 Conceptual framework

The conceptual framework is based on the literature review. The conceptual framework had been designed as shown below.

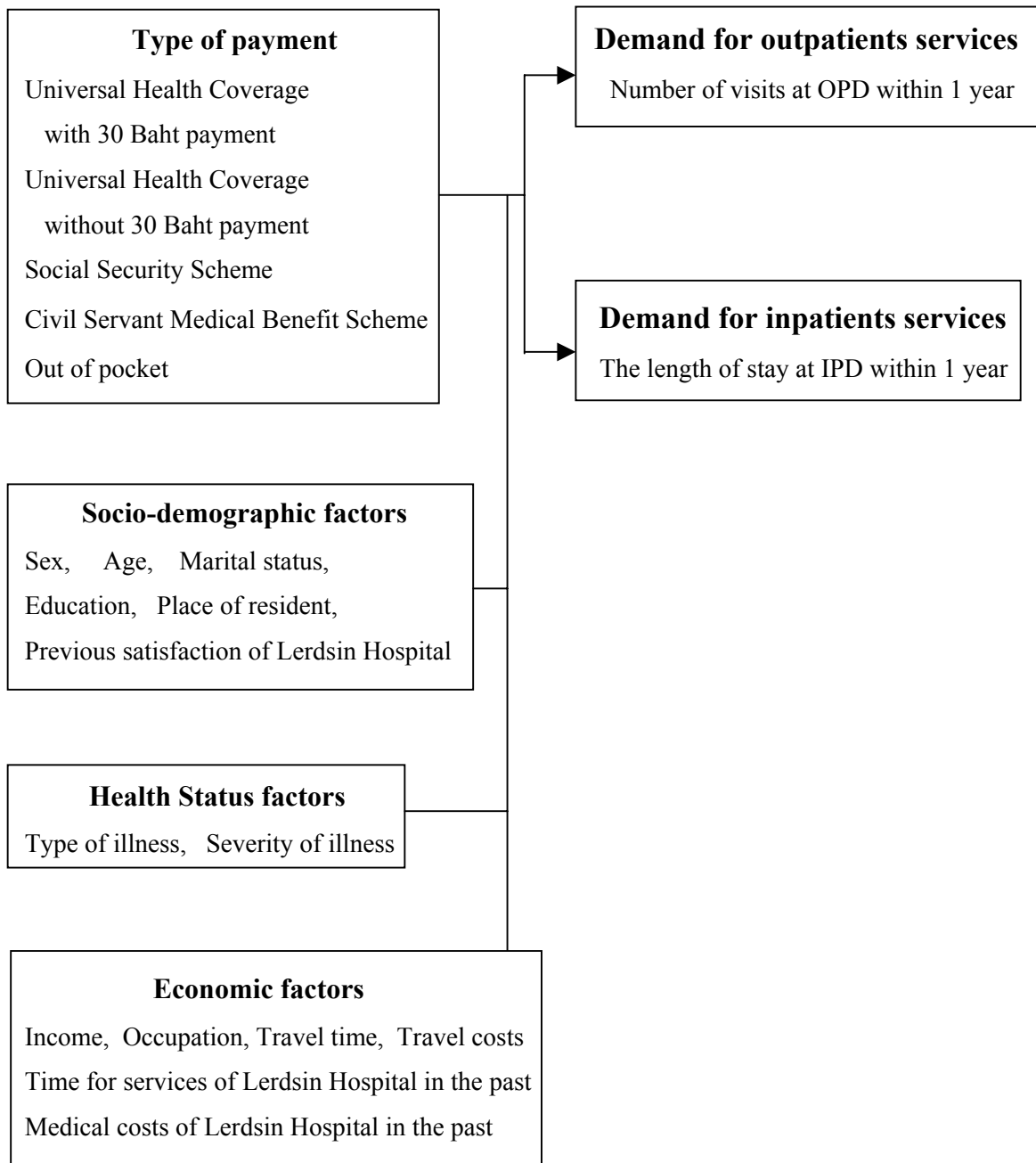


Figure 8 Concept of this research study

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research design

This is a socioeconomic survey which use questionnaires, data forms specially designed for this research, and secondary data from Lerdsin Hospital.

3.2 Source of data

3.2.1 Secondary source of data

From January to December 2003 information had been collected from patients visiting the out- and inpatient departments of Lerdsin Hospital. The patients had been divided into 5 groups:

1. Universal Health Coverage with 30 Baht payment
2. Universal Health Coverage without 30 Baht payment
3. Social Security Scheme
4. Civil Servant Medical Benefit Scheme
5. Out of pocket

3.2.2 Data were collected from the questionnaires from October to December 2003. There are 5 groups as follows:

1. Patient at outpatient department
2. Patient at inpatient department
3. The management staff of Lerdsin Hospital
4. The staff working at out- and inpatient departments of Lerdsin Hospital
5. The people living in the area under the responsibility of Lerdsin Hospital

but never used the services of the hospital.

3.3 Study population and sample size

Information was obtained by means of questionnaires. Patients had been included into the samples if they fulfilled the following criteria:

3.3.1 Patients who visited the outpatient department of Lerdsin Hospital within the above mentioned period of one year under the condition, that they entered the consultation room and received medicine from the pharmaceutical department on Monday until Friday during 8.00 to 12.00 hrs. Patients admitted to the emergency care unit and who visited the Department of Dentistry was excluded.

The calculation of the sample size took care of the fact, that data finally will be evaluated by multiple regressions (Neter et al, 1990: 435). This study is undertaken from a high number of sampling groups of 800 persons. A systematic random sample of 160 patients was drawn from each of the 5 different categories of patients, classified by the different mode of payment and eligibility. Every 20th patient was interviewed while waiting for medicine.

Sample size = 14 independent variables x 10 times x 5 groups = 700 persons
--

3.3.2 Patients who visited the outpatient department of Lerdsin Hospital within the above mentioned period of one year and had been admitted in this time. Patients who had been admitted to the intensive care unit of internal medicine and surgery had been excluded. The calculation of the sample size of this group followed the same intention as for the group of outpatients in that the sample should be big enough to apply a multiple regression for data analysis (Neter at al, 1990: 435). Sampling of patients were done at the hospital admission centre by using a systematic random sampling technique. The 700 patients selected were divided also into five groups according to the mode of insurance coverage and payment. Every 5th patient was interviewed one day before he or she was discharged.

3.3.3 From the management staff of Lerdsin Hospital 20 persons were selected.

3.3.4 From the staff of 277 persons of the out- and inpatient departments, 160 individuals were selected by a purposive sampling method. Those being selected at least should hold a bachelor degree. The estimation of the sample size followed the suggestion of Krejcie and Morgan (1970: 608).

3.3.5 An other group of individuals for this study had been taken from the surrounding of Lerdsin Hospital. Only those persons had been included into this group, who never used the services of the Lerdsin Hospital and did stay in zone 9 of Bangkok, which includes the districts Bangrak, Sathorn, Klongteuy, Phrakanong, Suanluang and Pravej.

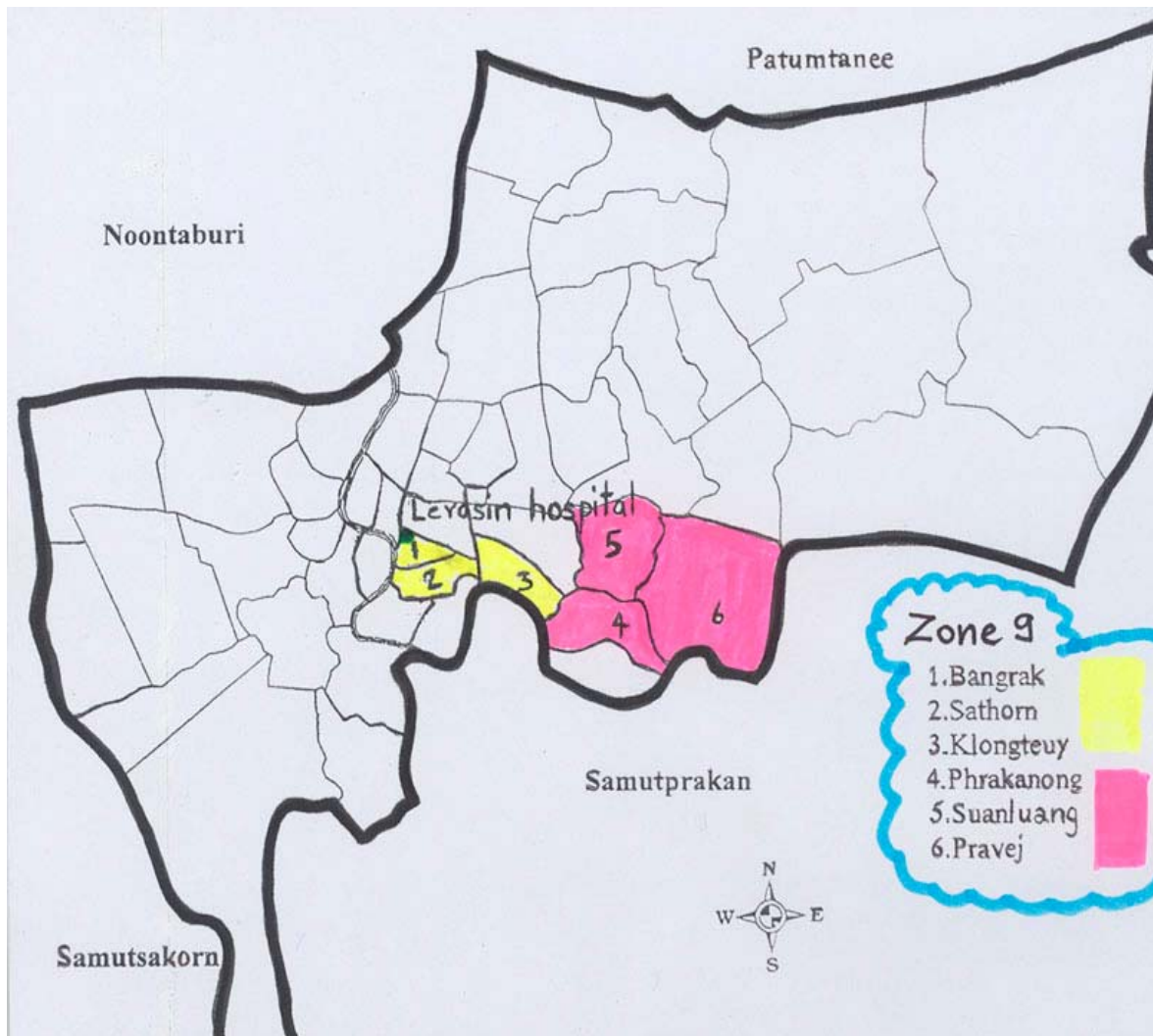


Figure 9 The catchment areas of Lerdsin Hospital (Zone9)

From the above map it revealed that the catchment areas could be divided in 2 groups i.e. those living near and those living not that close to the hospital. The data base for sampling individuals had been derived from the National Statistic Office in the year 2002. (2002: 3). The sample was drawn from a total population of 496,535 persons. The sample size comprised out of 400 persons. The estimation also of this

sample size followed the suggestion of Krejcie and Morgan (1970 : 608). A ratio of 3:2 was used for random sampling, in that for every three persons from areas near the hospital two persons from the area more far away were included into the sample (Figure10). That means a multistage random sampling method was used by stratifying each area proportionally according to the population density. In every 10th house one family member was interviewed. In case she or he did ever use the service of Lerdsin Hospital, the next house was choosen for collecting the required information.

A precondition of those being included into the samples was that they were co-operative and willing to answer the questionnaire. In case of children below the age of 14 one parent was interview. No inpatient was interviewed who already had been interviewed as an outpatients and vice versa.

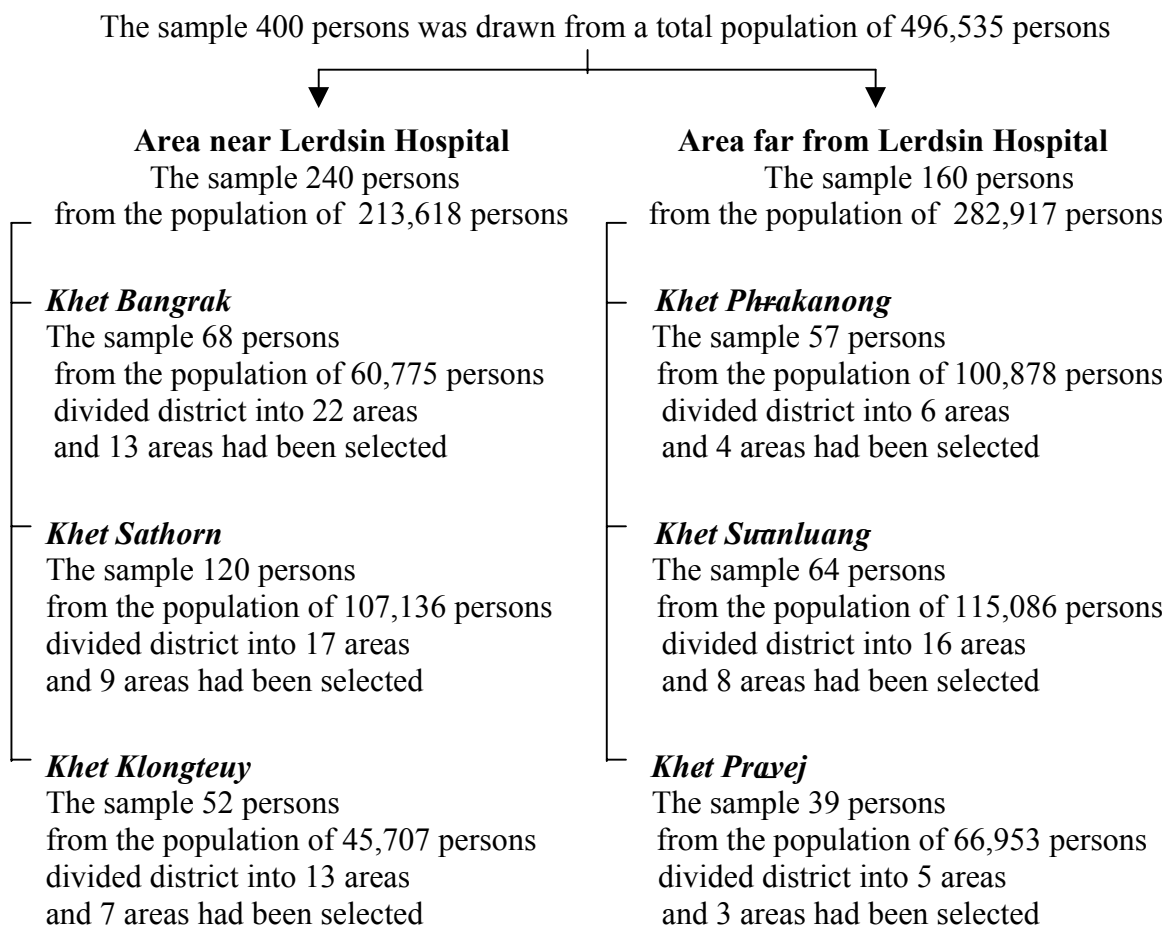


Figure 10 Population and sampling

3.4 Research instruments

3.4.1. Information about out- and inpatients from Lerdsin Hospital were taken from patients records from January to December 2003 under consideration of their insurance and payment status.

3.4.2. Five constructed questionnaires were made between October to December 2003:-

3.4.2.1 The questionnaire for outpatients of Lerdsin Hospital consisted out of 5 parts:

Part 1: General information about the patient such as sex, age, marital status, place of residence, education and the patient's satisfaction in the past.

Part 2: Information about the health status in general and health seeking behaviour.

Part 3: Information about the economic status such as occupation, income, eligibility to receive health services, time and expenses spend for travelling to the hospital, and type of transportation.

Part 4: Information about hospital service such as reasons why Lerdsin Hospital was chosen, the opinion about the medical costs and time consumed in the hospital, who is going to cover the costs the patient's satisfied at present or not, and some suggestions for the improvement of the services.

Part 5: This part had to be filled in by the team researchers and included the history of the patient, such as how often he or she came to receive outpatient services at Lerdsin Hospital for the past year, how long the patient had to wait before she or he could see the doctor and could get the medicine from the pharmaceutical counter, the diagnoses of the doctor, the symptoms of illness, the severity of the illness and the medical costs.

3.4.2.2 The questionnaire for inpatients of Lerdsin Hospital consisted out of 5 parts. In part 1 to part 4 were the same as the outpatient questionnaire and part 5 as follows.

Part 5: This part had to be filled in by the team researchers and included the history of the patient, such as how often he or she came to receive inpatient services at Lerdsin Hospital for the past year, the length of stay, the diagnoses of the doctor, the symptoms and severity of the illness, the result of the treatment, and the details of medical costs.

Satisfaction with the services of the out-and inpatients of Lerdsin Hospital were measured by 5 scores as follows.

Most satisfaction	=	5
Satisfaction	=	4
Fair	=	3
Dissatisfaction	=	2
Most dissatisfaction	=	1

3.4.2.3 An additional questionnaire was used to interview the management staff. Questions asked was linked to the satisfaction of the management staff about the result of services provided at out- and inpatient departments during the past three months, their satisfaction with the results of their services during the same time period, their satisfaction with the Universal Health Coverage policy and the effect on the hospital management, hospital services, health personnel and the financial of the hospital. Also their comments were asked about how to improve the hospital service system after the implementation of the Universal Health Coverage Policy.

3.4.2.4 An additional questionnaire was used to interview the staff working in the out-and inpatient departments. Questions asked was linked to the satisfaction of the staff about the services they provided to the patients during the past three months, their satisfaction with the results of their services during the same time period, their satisfaction with the Universal Health Coverage policy and the effect on the hospital management, hospital services, health personnel and the financial of the hospital. Also their comments were asked about how to improve the hospital service system after the implementation of the Universal Health Coverage Policy.

Satisfaction of the management staff and the staff working in the out- and inpatient departments were measured from 0 to 10. The reference points of the satisfaction score were set up as follows :- (Toorugsa, 2003: 36)

Most dissatisfaction	0	1	2	3	4	5	6	7	8	9	10	Most satisfaction
----------------------	---	---	---	---	---	---	---	---	---	---	----	-------------------

3.4.2.5 The questionnaires for the residents living within the catchments area of Lerdsin Hospital, but refused to go to ask for services there, contained information about age, sex, marital status, education , addresses according to the house registry present address, type of accommodation, income, eligibility to receive health

services, the health seeking behaviour, reasons why they refuse to receive the services from the Lerdsin Hospital and their comments on the improvements of the services.

The content of the constructed questionnaires was adjusted to the concepts, theories and results of similar studies as reviewed in the forgoing chapter. The content of the questionnaires was approved by the thesis committee. The questionnaires were tested with patients from the out- and inpatient departments. Groups of 30 patients each had been selected for this process. The patients used for the trial phase were not included into the main study. The reliability of the questionnaires used had been calculated to be 0.91 for the outpatients and 0.93 for inpatients. (Table 46-47 see in Appendix)

3.5 Model building

The multivariate analysis to assess the demand for health services followed the suggestion of Sukarom, Santerre and Neum, Fuches and Kramer as already mentioned by using the information obtained from the out- and inpatients. Variables related to seasons, the number of beds, and the depreciation on the stock of health was not included as well as investment for health and substitute goods. The reasons for these were:

1. Assessment of number of utilization one year and not taking into account seasons during the year.
2. The number of beds available did not change during the year of observation.
3. It was not possible, due to the lack of suitable indicators, the depreciation on the stock of health and substitute goods.

The following variables were included into the multivariate model for assessing the demand for health services at Lerdsin Hospital:

Demand for health services at Lerdsin Hospital

$$= f(\text{Socio-demographic factors, Health status factors, Economic factors})$$

The details as follows:

Socio-demographic factors = f (sex, age, marital status, education, residence, the satisfaction with the services of Lerdsin Hospital in the past)

Health status factors = f (type of illness, severity of illness)

Economic factors = f (occupation, income, travel time, travel costs, time for services at Lerdsin Hospital in the past, medical costs of Lerdsin Hospital in the past)

Using 5 subequations to predict demand for the outpatient services divided into 5 groups i.e.

1. Universal Health Coverage with 30 Baht payment
2. Universal Health Coverage without 30 Baht payment
3. Social Security Scheme
4. Civil Servant Medical Benefit Scheme
5. Out of pocket

If for the measurements of some independent variables an interval scale could not be used, dummy variables were created. The variables were measured as follows.

Table 17 Variables and measurements used in structural equations

Variables	Measurement
Dependent Variables	
Demand for outpatient services	The number of visits at the outpatient department from the past one year to the present
Demand for inpatient services	The length of stay at the inpatient department from the past one year to the present
Independent Variables	
<i>Socio-demographic factors</i>	
Sex	Male = 0 Female = 1
Age	Number of years. If age was not in equation, it was transformed into three categories.
	Dummy coding :
	Age1 Age2
	age ≤ 12 years 1 0
	age > 60 years 0 1
	age between 13-60 years 0 0

Table 17 Variables and measurements used in structural equations (continue)

Variables	Measurement
Independent Variables	
<u>Economic factors</u>	
Type of payment	The patients had been divided into 5 groups.
Income	Income in Baht per month
Travel time	Time to travel to Lerdsin Hospital in minutes
Travel costs	Expenses to by covered for travelling to Lerdsin Hospital in Baht
Occupation	1. Worker 2. Pupil/student 3. Housewife/jobless 4. Merchant 5. Civil servant 6. Receiving pension 7. Company staff Dummy coding : OCC1 OCC2 OCC3 OCC4 OCC5 OCC6 Worker 1 0 0 0 0 0 Pupil/student 0 1 0 0 0 0 Housewife/jobless 0 0 1 0 0 0 Merchant 0 0 0 1 0 0 Civil servant 0 0 0 0 1 0 Receiving pension 0 0 0 0 0 1 Company staff 0 0 0 0 0 0
Time spent for services of Lerdsin Hospital in the past	1. Not long waiting time 2. Moderate 3. Long waiting time Dummy coding : Wait1 Wait2 Moderate 1 0 Long waiting time 0 1 Not long waiting time 0 0
Medical costs of Lerdsin Hospital in the past	1. Reasonable 2. Expensive 3. Had health insurance Dummy coding : Cost1 Cost2 Expensive 1 0 Had health insurance 0 1 Reasonable 0 0
<u>Other factor</u>	
Result of treatment	Discharge status by medical doctors in 3 types:- 1. Complete recovery 2. Improved 3. Not recovery

3.6 Data Collection and Management

The Faculty of Graduate Study, The Committee on Human Rights Related to Human Experimentation of Mahidol University and The Committee on Human Rights of Lerdsin Hospital gave permission to the collect data for this study. The principal investigator and the research assistants of 20 persons, who passed the training course for the data collection by using the questionnaires, collected the data within Lerdsin Hospital and in the area outside the hospital between October to December 2003. The objective of the interview was explained to all of those being sampled before interviewing them in order to ask for consent and to let them sign a consent form expressing their willingness to participate. The validity of the data was checked again before analyzing them.

3.7 Statistical methods used

3.7.1 Descriptive analysis: Descriptive analysis as used for describe the study subjects according to the general information gathered, such as health status, economic conditions, opinion about the services provided by the hospital. Results are given in case of categorical variables in percentages, the mean, the median and standard deviation.

3.7.2 Multiple regression was calculated in order to compose a model to explain the relationship between the independent and dependent variables.

3.7.3 Analytic analysis: This method was used to test the significance of differences between the 5 categories of patients, for the following variables: medical costs, length of stay, and the result of treatment in 10 diseases. The data were normal distribution and homoscedasticity used One-way ANOVA, but the data were not that condition used Kruskal Wallist test.

3.8 Limitation of the study

3.8.1 Problems incurred from secondary data was, there were no records of important data eg. income, occupation, level of education, actual amount paid by

patients etc. There was no update when there were change in marital status, residence etc. In this study can be chosen only sex, age, marital status, residence and type of eligibility to compare with the data which collected form sampling groups.

3.8.2 As there was no computer systems installed in every departments of the hospital. Therefore the data on length of time receiving services could only be done from consultation rooms and pharmacy room which were the most time wasting areas.

3.8.3 Mendoza – Sassi et al. (2000:14) mentioned that morbidity records based on recall methods should not be traced back for more than 3 months and if the length of stay in hospital was recorded by a recall method, only the period within one give year should be taken. In this study however data had been collected going back to the past year up to the time the interview was actually done. It was no doubt of seasons. Information given by the patients as the number of outpatient's visits and the length of stay in hospital would be counterchecked by looking into the hospital records in order to make sure that the information collected were correct.

3.8.4 Using general nurses to interview patients had both pros and cons i.e. patients were willing to cooperate by giving answers to questions asked, some of the information given might be incorrect since the patients might have the impression that his or her answers might adversely influence the kind of treatment they got afterwards. However the most effective means was using trained general nurses outside uniform but with a batch of hospital staff to obtain data because they were the one with knowledge to access illness. They were courteous, and skillful to persuade patients' cooperation which would facilitate data collection and the success.

CHAPTER IV

THE EMPIRICAL RESULTS OF THE STUDY

The results of the investigation “A demand for health services at Lerdsin Hospital after implementation of the Universal Health Coverage scheme” were given in 4 parts.

- Part 1** The health receiver at out-and inpatient departments of Lerdsin Hospital
- Part 2** Management staff of Lerdsin Hospital
- Part 3** The working staff at out- and inpatient departments
- Part 4** People lived in the area under the responsible of Lerdsin Hospital but refused to receive the services of the hospital.

The details were as follows :-

Part 1 The health receiver at out- and inpatient departments of Lerdsin Hospital

4.1.1 The type and characteristics of the health receiver

Data were collected from patients belonging to the five different categories for eligibility for health services at the out- and inpatient departments of the Lerdsin Hospital in 2003 by the department of technical services (Table 18). A total of 429,188 persons visited the outpatient department, with an average of 1,866 persons per day. At inpatient departments 12,579 patients were admitted. In average the patients stayed in the wards for 7 days per year. The largest proportion of patients at the outpatient department, with 53.2%, had been those, who paid for the treatment out of their own pocket. At the inpatient department this group made up for 42.4%, followed by patients covered by the social security scheme, the patients who were holding the gold card without 30 Baht payment, then patients holding the gold card but had to pay 30 Baht. Civil servants and the state enterprise staff made up the smallest group being cared for at the out- and inpatient departments with a proportion of 1.3% and 3.0% respectively. The General Practice Department was the one which

was frequented most, 19.2% of patients had been treated there followed by the Orthopedic department with 13.0%. The Department of Medicine had to care for 12.2% of the patients and the lowest visited department with 2.5% had been the Department of Gynecology.

Patients holding a gold card with and without 30 Baht payment visited the PCU department (the diagnosis room for the patients who held gold card) more often than any other department, while the majority of patients covered by the social security scheme used the services of the Department of Obstetrics. The majority of patients belonging to the group of civil servants and the state enterprise staff were treated at the Department of Rehabilitation. The majority of patients who paid for themselves approached the Department of General Practice.

The highest proportion of patients with 25.6%, admitted to the inpatient departments, were cared for by the Department of Obstetrics, 18.7% by the Department of Surgery, 17.9% by the Department of Orthopedics and the Department of Ear, Nose and Throat had the lowest number of patients with a proportion of only 1.8%. According to the eligibility for health services, the patients holding the gold card with 30 Baht payment and the patients who paid for the treatment themselves did stay at the Department of Surgery higher rate than any other group of patients. Patients holding the gold card without 30 Baht payment were those staying the largest rate in the Department of Pediatric. Civil servants and the state enterprise staff did stay at the Department of Orthopedics, while the patients covered by the social security scheme were those staying the highest proportion at the Department of Obstetrics. The civil servants and the state enterprise staff were the highest length of stay in the hospital (Mean=9.2 days), followed by the group of patients holding gold cards without and with 30 Baht payment, and the patients under the social security scheme. Patients paying for the treatment by themselves had the lowest average length stay in the hospital with 6 days.

Table 18 Percentage of out-and inpatient visits of Lerdsin Hospital in 2003 according to the eligibility for health services

Type of payment	Outpatient department						Inpatient department					
	1	2	3	4	5	Total	1	2	3	4	5	Total
General practice	2.0	1.4	6.7	29.4	31.2	19.2	---	---	---	---	---	---
Orthopedic	9.5	1.6	9.6	7.5	21.7	13.0	20.5	21.8	11.7	23.8	20.5	17.9
Medicine	11.8	2.8	8.9	10.8	15.6	12.2	20.2	19.0	15.0	15.9	15.0	16.1
PCU	58.1	82.7	---	---	---	10.2	---	---	---	---	---	---
Obstetric	3.1	0.3	26.0	0.5	2.9	9.8	16.8	---	45.2	10.3	20.9	25.6
Surgery	4.8	2.0	7.8	9.8	8.2	9.7	22.9	17.3	12.0	17.4	23.0	18.7
Social security	---	---	25.8	---	---	8.1	---	---	---	---	---	---
Eye	2.3	2.2	3.5	3.8	5.7	4.6	4.7	10.7	2.9	9.7	2.1	3.8
Pediatric	0.1	2.7	---	0.2	7.5	4.3	2.0	25.3	---	6.4	7.3	6.2
Rehabilitation	3.0	2.9	2.7	30.4	3.2	3.4	---	---	---	---	---	---
ENT	1.9	0.9	3.8	5.0	2.9	3.0	0.8	0.7	3.2	3.8	1.1	1.8
Gynecology	3.4	0.5	5.2	2.6	1.1	2.5	10.1	5.2	10.0	12.7	10.1	9.9
Total	6.6	7.7	31.2	1.3	53.2	100.0	10.6	12.1	31.9	3.0	42.4	100.0
	28,159	33,027	133,717	5,699	228,586	429,188	1,482	1,805	4,015	373	5,334	12,579
	Number of outpatients per day						Length of stay per year					
	122	144	582	25	994	1,866	8.02	8.77	6.33	9.21	6.03	6.93

Note:- Type of payment 1. Gold card with 30฿ payment 2. Gold card without 30฿ payment
3. Social security 4. Civil servants and the state enterprise staff 5. Out of pocket

Basic information about sex, age, marital status and residence of the patient had been taken from the service records of the Lerdsin Hospital. The same variables were collected from the sample group from October to December 2003. The information gathered will be useful for future planning. Only the proportion between gender and the age distribution of the patients from the service records and from the sample groups were similar (Table 19). Female paid more visits to the out-and inpatient departments than male. From all patients, those in the age ≤ 12 years had the lowest number of visits to the out-and inpatient departments. Contrary the group of patients in the age over 60 years had been the ones with the highest number of visits to the outpatient department. Patients with the highest number of visits at the inpatient department were those in the age range between 21 to 30 years.

Table 19 Sex and age of patients according to the source of data

Statement	# of outpatients in 2003		Sample size of outpatients		# of inpatients in 2003		Sample size of inpatients	
	Number	%	Number	%	Number	%	Number	%
Number of patients	429,188	100.0	800	100.0	12,579	100.0	700	100.0
Sex								
Male	174,445	40.7	342	42.8	4,668	37.1	328	46.9
Female	254,743	59.3	458	57.2	7,911	62.9	372	53.1
Age								
≤ 12 years	20,928	4.9	35	4.4	1,011	8.0	56	8.0
13 – 20	30,690	7.2	46	5.8	1,348	10.7	58	8.3
21 – 30	83,046	19.3	178	22.3	4,292	34.1	170	24.3
31 – 40	63,007	14.7	102	12.8	2,409	19.2	110	15.7
41 – 50	62,841	14.6	108	13.5	1,270	10.1	85	12.1
51 – 60	72,218	16.8	116	14.5	1,031	8.2	69	9.9
> 60 years	96,458	22.5	215	26.7	1,218	9.7	152	21.7
Mean	45.81		44.41		34.55		38.84	
S.D.	13.78		19.68		18.10		20.21	

Note: Records of out-and inpatients of Lerdsin Hospital in 2003 had been taken from January to December 2003 by the staff in Medical record and statistics division of Lerdsin hospital.

Information of the sample groups were obtained from October to December 2003 by the research team.

Marital status and residence of the patients were different from the hospital records and the sample groups (Table 20). The majority of patients were single as being assessed by their identification card. But when patients had been categorized according to symptoms, married females were the ones most common. From the pregnant women who came for prenatal care 51.6% were single and 47.6% were married. From those women who delivered at Lerdsin Hospital 52.7% were single and 46.1% were married. The information about the marital status obtained from the records of the hospital might be inaccurate and was contrasted by the results from the sample groups in that most of them were married and lived together with spouse. The majority of the patients from hospital records lived in Bangkok but 46.1% of the patients, who visited the outpatient department, lived in the provinces. Also this information had to be interpreted carefully. The patients covered by the social security

scheme migrated to Bangkok to seek for jobs but were not registered in Bangkok, but those questioned from the sample groups were collected according to the present residence so they were registered as residents from Bangkok and only a minority of them were still registered as inhabitants of the provinces.

Table 20 Marital status and residence of patients according to the source of data

Statement	# of outpatients in 2003		Sample size of outpatients		# of inpatients in 2003		Sample size of inpatients	
	Number	%	Number	%	Number	%	Number	%
Number of patients	429,188	100.0	800	100.0	12,579	100.0	700	100.0
Marital status								
Single	287,513	70.0	165	20.6	9,247	73.4	208	29.7
Married	137,769	32.1	527	65.8	2,877	22.9	404	57.7
Widowed	2,854	0.6	80	10.0	335	2.6	55	7.9
Separated/divorced	1,052	0.3	28	3.6	120	1.1	33	4.7
Place of residence								
Bangkok	231,537	53.9	748	93.5	9,526	75.7	641	91.6
Province	197,651	46.1	52	6.5	3,053	24.3	59	8.4

The data from survey were used to determine factors influencing the demand of health services. 800 out- and 700 inpatients participated in this study. The patients had been divided into 5 groups according to their eligibility for the health services. Each outpatient group consisted out of 160 and each inpatient group out of 140 individuals.

From the medical record, the different eligibility for health services effected the number of outpatient's visits and the average length of stay of Lerdsin Hospital per year (P-Value<0.01) (Table 21).

Table 21 The number of outpatient's visits and length of stay in Lerdsin Hospital according to the eligibility for health services

Type of payment	# of OPD per year		Length of stay per year	
	Mean	S.D	Mean	S.D
Gold card with 30 ₪ payment	8.55	6.79	8.89	7.48
Gold card without 30 ₪ payment	11.77	8.80	10.80	8.55
Social security	6.72	3.92	7.14	5.57
Civil servant - state enterprises	6.75	5.19	12.15	9.12
Out of pocket	4.69	3.54	6.12	5.51
Total	7.70	6.70	9.02	7.50
		F-test = 28.64 P-value < 0.001	F-test = 7.61 P-value < 0.001	

A. Outpatient department:-The respondents visited the outpatient department with an average number of visits of 7.7 times per year. Patients holding a gold card without 30 Baht payment had the highest number of visits (Mean=11.8 times/year) followed by the patients held a gold card with 30 Baht payment, the civil servants and the state enterprise staff, and patients covered by the social security scheme. Patients who paid for the treatment by themselves had the lowest number of outpatient's visits (Mean=4.7 times/year).

B. Inpatient department:- The respondents did stay for an average length of stay of 9 days per year in the hospital, the civil servants and the state enterprise staff had the highest average length of stay (Mean=12.15 days/year), the patient with gold card without 30 Baht payment followed and the patient held a gold card with 30 Baht payment as well as patients covered by social security scheme came next. Those paying by themselves had the lowest average length of stay (Mean=6.1 days/year).

The patients of the out-and inpatient departments were grouped according to socio-demographic variables, health- and economic status.

4.1.1.1 **The socio-demographic** consisted of sex, age, marital status, residence, number of years for education and satisfaction with the health services of the Lerdsin Hospital in the past (Table 22). The results of the socio-demographic assessment were as follows:-

A. Outpatient department

Sex: 57.2% of patients were female. This was true also when divided according to the eligibility for health services.

Age: 26.7% of patients were > 60 years while 4.4% of the patients were ≤ 12 years old. In average the patients were 44.4 years old, the patients with gold card without 30 Baht payment had the highest average age (Mean=58.5 years), followed by civil servants and employees of the governmental enterprise, patients holding a gold card with 30 Baht payment and patients who paid for the treatment by themselves, while patients covered by social security had the lowest average age (Mean=30.9 years).

Marital status: From the outpatients 65.8% were married and lived with the spouse, 20.6% were single and 13.6% were widowed, divorced and separated. When divided according to the eligibility most patients were married.

Residence: The information about the residence of the patient was based on the house registration and the present residence was assessed by using the questionnaire. The residence areas were divided into 3 groups, the first group was zone 9 that was the area under the responsibility of the Lerdsin Hospital including the districts of Bangrak, Sathorn, Klongteuy, Phrakanong, Suanluang and Pravej. 50.1% of patients lived in zone 9. The second group was the area outside zone 9 in Bangkok, 22.9% of patients came from this area. The third group was the provinces where 27% of the patients came from. Patients with the gold card lived in zone 9. The majority of patients covered by the social security scheme and the patients who paid for treatment out of their own pocket, lived in the provinces. The majority of patients being civil servants and the state enterprise staff lived outside zone 9 in Bangkok. When compare with the present residence of the patients, the proportion of the patients residing in Bangkok higher than the residence registered in the house registration particularly in areas outside zone 9 in Bangkok. Therefore, in this study, the present residence of the patients used for residence information analysis in order to see the relationship between the residence and the number of outpatient's visits per year.

Number of years of formal education: 39.4% of the patients had 1 to 6 years of formal education and 5.9% spent more than 16 years for their education. In average, patients had 8.1 years of formal education. Patients belonging to the group of the civil servants and the state enterprise staff had the highest average number of years for formal education (Mean=10.9 years) followed by the patients within the social security scheme, patients paying for the treatment by themselves from their own pocket and then patients holding a gold card with 30 Baht payment. Patients holding a gold card without 30 Baht payment had the lowest number of years for formal education (Mean=3.4 years).

Satisfaction with the health services provided by the Lerdsin Hospital in the past: The questionnaire consisted out of 15 questions. (The score for an individual question was set to=5, total scores=75). The patients scored in average with 53.9. Satisfaction was categorized into 3 groups according to the suggestion of Best (1977:

174) : less satisfied (Score<51), fairly satisfied (Score=51-63), and most satisfied (Score>63) by using the highest score minus the lowest score and divided by three. The satisfaction of 60.7% of patients towards the health services was fair, 28.3% was less satisfied and 11% was very satisfied. Patients belonging to the group of civil servants and the state enterprise staff had the highest satisfaction (Mean=55.5 scores), second were patients holding a gold card without 30 Baht payment followed by the patients holding a gold card with 30 Baht payment, then the patients covered by the social security scheme, while the patients who paid by their own for the treatment scored lowest (Mean=53.2 scores). When analyzing these results in more details, then the patients gave the highest score of satisfaction to the competence of the doctors (Mean=3.99 scores) followed by manner and friendliness of the doctors (Mean=3.94 scores) and medicine provided (Mean=3.75 scores). A low score for satisfaction was given to the time the patients had to wait before they got services and the procedures of the services (Mean=3.17 scores and Mean=3.35 scores respectively) (Table 23).

B. Inpatient department

From the socio-demographic factors of the inpatients only the age range differed from the outpatients:-

Sex: 53.1% were female also when divided according to the eligibility for health services, except for patients holding the gold card without 30 Baht payment the proportion within the sex distribution was contrary to the other groups in that more male than female were admitted.

Age: 24.3 % of patients were in the age group between 21 to 30 years while 8% of the patients were ≤ 12 years. In average the patient were 38.8 years old, the patients with gold card without 30 Baht payment had the highest average age (Mean=57.9 years), followed by civil servants and employees of the governmental enterprise, patients holding a gold card with 30 Baht payment and patients covered by social security, while patients who paid for the treatment by themselves had the lowest average age (Mean=33.6 years).

Marital status: From the inpatients 57.7% were married, 29.7% were single and 12.6% were widowed, divorced and separated. When divided according to the eligibility most patients were married.

Residence: More patients lived in non-registered residences than in places with a house registration. 50.7% of patients lived in zone 9. The second group was the provinces where 28.7% of the patients came from. The third group was the area outside zone 9 in Bangkok, 20.6% of patients came from this area. Patients with the gold card live in zone 9. The majority of patients covered by the social security scheme and the patients who paid for treatment out of their own pocket, lived in the provinces. The majority of patients being civil servants and the state enterprise staff lived outside zone 9 in Bangkok. This particular was true for patients living in zone 9. This was in accordance with what was found for the outpatients as well. In this study, the place of residence was analyzed by using the present residence as given by the patients in order to analyze how residence determined the average length of stay in the hospital per year.

Satisfaction with the health services provided by the Lerdsin Hospital in the past: The questionnaire consisted out of 15 questions same as the outpatients. The patients scored in average with 59. Satisfaction was categorized into 3 groups : less satisfied (Score<54), fairly satisfied (Score=54-65), and most satisfied (Score>65) by using the highest score minus the lowest score and divided by three. The satisfaction of 57.6% of patients towards the health services was fair, 22.1% was less satisfied and 20.3% was very satisfied. Patients belonging to the group of civil servants and the state enterprise staff had the highest satisfaction (Mean=60.7 scores), second were patients holding a gold card without 30 Baht payment followed by the patients covered by the social security scheme, then the patients holding a gold card with 30 Baht payment, while the patients who paid by their own for the treatment scored lowest (Mean=58 scores). When analyzing these results in more details, then the patients gave the highest score of satisfaction to the competence of the doctors (Mean=4.28 scores) followed by manner and friendliness of the doctors (Mean=4.23 scores) and the nurses (Mean=4.02 scores). A low score for satisfaction was given to the time the patients had to wait before they got services and the procedures of the services (Mean=3.66 scores and Mean=3.69 scores respectively).

Table 22 Socio-demographic factors by eligibility for health services (%)

Type of payment	Outpatient department						Inpatient department					
	1	2	3	4	5	Total	1	2	3	4	5	Total
Number of patients	160	160	160	160	160	800	140	140	140	140	140	700
Sex												
Male	41.9	40.6	46.9	43.7	40.6	42.8	48.3	56.4	44.3	45.7	38.6	46.9
Female	58.1	59.4	53.1	56.3	59.4	57.2	50.7	43.6	55.7	54.3	61.4	53.1
Age												
≤ 12 year	---	16.2	---	1.8	3.8	4.4	---	31.4	---	1.4	7.1	8.0
13 – 20 year	14.4	---	5.6	1.8	6.9	5.8	13.6	---	7.9	2.9	17.2	8.3
21 – 30 year	13.8	---	58.1	7.5	30.9	22.3	27.1	---	40.7	21.4	32.1	24.3
31 – 40 year	14.4	---	23.1	7.5	17.8	12.8	20.0	---	27.1	17.1	14.3	15.7
41 – 50 year	23.7	---	8.2	22.1	12.4	13.5	23.6	---	12.9	13.5	10.7	12.1
51 – 60 year	33.7	---	3.1	22.8	11.9	14.5	15.7	---	10.7	15.8	7.1	9.9
> 60 year	---	83.8	1.9	36.5	16.3	26.7	---	68.6	0.7	27.9	11.5	21.7
Mean	41.2	58.5	30.9	53.0	38.5	44.4	35.9	57.9	33.7	53.0	33.6	38.8
S.D.	14.1	24.4	9.55	16.1	17.3	29.7	12.8	30.5	10.9	18.2	19.7	20.2
Marital status												
Single	26.6	21.2	15.0	14.4	26.9	20.6	32.9	35.0	30.0	16.4	34.2	29.7
Married	69.3	53.2	82.5	76.2	61.9	65.8	60.0	44.3	60.7	71.4	57.9	57.7
Widowed/Separated/ divorced	12.1	25.6	2.5	9.4	16.8	13.6	10.7	20.7	9.3	12.2	10.1	12.6
Residence register												
Zone 9	100.0	100.0	11.9	25.0	13.8	50.1	100.0	100.0	16.4	25.7	11.4	50.7
Not zone9 in Bangkok	---	---	22.5	51.9	40.0	22.9	---	---	25.0	40.0	37.9	20.6
Provinces	---	---	65.6	23.1	46.2	27.0	---	---	58.6	34.3	50.7	28.7
Residence present												
Zone 9	100.0	100.0	28.1	25.0	21.9	55.0	100.0	100.0	52.1	31.4	37.9	64.3
Not zone9 in Bangkok	---	---	67.5	58.1	66.9	38.5	---	---	43.6	45.0	47.8	27.3
Provinces	---	---	4.4	16.9	11.2	6.5	---	---	4.3	23.6	14.3	8.4
Year of schooling												
No study	3.8	43.8	1.3	2.5	3.8	11.0	1.4	29.3	0.7	3.6	9.3	8.9
1 – 6 years	45.0	41.8	36.9	31.9	41.3	39.4	40.0	51.4	38.6	29.3	46.4	41.1
7 – 12 years	33.7	9.4	44.3	23.1	29.4	28.0	45.0	16.4	38.6	25.0	29.3	30.8
13 – 16 years	15.6	3.1	12.5	29.4	18.1	15.7	9.3	---	16.4	22.8	9.3	11.6
> 16 years	1.9	1.9	5.0	13.1	7.5	5.9	4.3	2.9	5.7	19.3	5.7	7.6
Mean	8.1	3.4	9.1	10.9	9.1	8.1	8.3	4.1	9.2	10.6	7.6	8.0
S.D.	4.4	2.3	4.0	5.8	5.0	5.4	4.1	3.9	4.3	6.0	5.1	5.2
Previous satisfaction												
Less satisfied	27.5	29.4	28.8	21.2	34.4	28.3	28.6	19.3	24.3	13.6	25.0	22.1
Fairly satisfied	61.9	60.6	63.7	65.0	52.5	60.7	53.6	57.1	56.4	60.0	60.7	57.6
Most satisfied	10.6	10.0	7.5	13.8	13.1	11.0	17.8	23.6	19.3	26.4	14.3	20.3
Mean	53.4	53.9	53.3	55.5	53.2	53.9	58.3	59.5	58.6	60.7	58.0	59.0
S.D.	6.1	6.2	6.5	6.7	6.9	6.5	7.3	7.0	7.5	6.9	7.1	7.2

Note:- Type of payment 1. Gold card with 30 ₪ payment 2. Gold card without 30 ₪ payment

3. Social security 4. Civil servants and the state enterprise staff 5. Out of pocket

Table 23 The mean of satisfaction towards the health services of Lerdsin Hospital in the past divided according to the eligibility for health services (Full scores=5)

Type of payment	Outpatient department						Inpatient department					
	1	2	3	4	5	Total	1	2	3	4	5	Total
Number of the patients	160	160	160	160	160	800	140	140	140	140	140	700
1. Welcome	3.43	3.45	3.43	3.71	3.50	3.51	3.83	4.03	3.84	3.94	3.73	3.87
2. Procedure to provide services	3.35	3.35	3.30	3.43	3.29	3.35	3.69	3.81	3.56	3.71	3.68	3.69
3. Time consumed in providing services	3.15	3.25	3.12	3.26	3.08	3.17	3.61	3.89	3.44	3.67	3.69	3.66
4. Co-operation between units	3.38	3.44	3.38	3.57	3.34	3.42	3.61	3.84	3.59	3.71	3.74	3.70
5. Medical equipment	3.53	3.51	3.66	3.66	3.54	3.58	4.03	4.04	3.91	3.98	3.95	3.98
6. Competence of doctor	3.98	4.13	3.92	4.01	3.91	3.99	4.26	4.30	4.24	4.34	4.24	4.28
7. Friendliness of doctor	3.98	4.04	3.88	4.00	3.82	3.94	4.21	4.25	4.27	4.34	4.10	4.23
8. Friendliness of nurse	3.62	3.66	3.55	3.78	3.63	3.65	3.95	4.13	4.05	4.08	3.90	4.02
9. Friendliness of nurse aid	3.48	3.52	3.41	3.69	3.42	3.50	3.79	4.09	3.93	3.86	3.81	3.89
10. Friendliness of pharmaceutical staff	3.50	3.56	3.48	3.58	3.50	3.52	3.67	3.91	3.78	3.79	3.72	3.78
11. Caring of health staff	3.50	3.48	3.50	3.66	3.48	3.52	3.88	4.07	3.88	3.95	3.84	3.92
12. Quality of medicine	3.71	3.65	3.78	3.83	3.77	3.75	3.96	3.98	3.96	4.17	3.86	3.97
13. Information or advice given	3.54	3.51	3.56	3.73	3.61	3.59	3.86	3.99	3.86	3.94	3.79	3.89
14. Result of treatment in the past	3.59	3.66	3.60	3.78	3.70	3.67	4.01	4.07	3.96	4.09	3.92	4.01
15. Overall services quality	3.68	3.71	3.66	3.79	3.73	3.71	3.96	4.09	3.99	4.08	4.04	4.01
Total	3.56	3.70	3.54	3.60	3.55	3.59	3.89	3.97	3.88	4.04	3.87	3.93

Note:- Type of payment 1. Gold card with 30 ฿ payment 2. Gold card without 30 ฿ payment
3. Social security 4. Civil servants and the state enterprise staff 5. Out of pocket

4.1.1.2 Health status

The health status of the patients were determined by self reported health status, the selection of health providers when getting sick, type of illness and severity of illness (Table 24).

A. Outpatient department

Self reported health status: It was assessed by themselves. 50.6% of patients considered their own health condition as being good, 36.9% were in fair condition, 11.4% were not so well off, and 1.1% was in excellent health. These results remained when divided according to the eligibility for health services. 51.5% of patients didn't have chronic illness, 3.5% didn't know whether she/he had chronic illness or not and 45% were suffering from chronic illness. With 68.1% the patients holding a gold card without 30 Baht payment had the highest rate of chronic illness followed by the patients holding a gold card with 30 Baht payment, civil servants and the state enterprise staff, and patients paying by themselves. Patients covered by the social security scheme had the lowest rate of chronic illness with 21.9%.

The selection of health providers when getting sick: The patients were asked about the severity of illnesses in the past. The researcher explained about the level of severity of illness which was divided into 3 groups:- mild symptoms - could work; moderate symptoms - could work but not as normal as before and severe symptoms - could not work. 36% of patients with mild and moderate symptoms bought the medicine from the drug store, 21.1% went to a governmental hospital, and 19.6% went to a private clinic. When divided according to the eligibility for health services, most of them bought the medicine from the drug store. 63.9% never had severe symptoms and 36.1% ever had severe symptoms. 63.3% of patients with severe symptoms went for treatment to governmental hospitals, 13.1% to private hospitals and 9.7% to private clinics. Only 3.5% of the 800 patients with mild-moderate symptoms and 4.8% with severe symptoms went to health center in Bangkok Metropolis. When divided according to the eligibility for health services, the majority of all groups went to also the governmental hospital.

Type of illness: Illness was categorized into three groups. 1. The woman who came for prenatal care or health receivers who came for health promotion. 2. Acute diseased patients with not more than 3 months of being sick. 3. Chronic diseased patients suffering from sickness for more than 3 months. The illness of the patients for this study was determined by a professional nurse. 51.2% of patients visited the hospital with chronic illnesses, 32.8% with acute illnesses and 16% for health promotion or prenatal care. When divided according to the eligibility for health

services, the majority of patients had chronic illnesses except the group of patients, who paid for the treatment alone. The majority of this group suffered from acute illnesses.

Severity of illness: The severity of illness was judged by professional nurses according to the standard of the Ministry of Public Health. 51.4% of patients had moderate-, 47.7% mild- and 0.9% severe symptoms. When divided according to the eligibility for health services, the majority of patients holding gold cards with 30 Baht payment and the patients paying themselves had moderate symptoms while the patients holding gold cards without 30 Baht payment, and the patients covered by the social security scheme as well as the civil servants and the state enterprise staff usually had mild symptoms.

B. Inpatient department

The health status of inpatients was the same as the outpatients as follows:

Self reported health status: 50.3% of patients considered their own health condition as being good, 36.4% were in fair condition, 8.3% were not so well off, and 5.0% was in excellent health. These results remained when divided according to the eligibility for health services. 50.9% of patients didn't have chronic disease, 10.0% didn't know whether she/he had chronic illness or not and 39.1% were suffering from chronic illness. With 39.1% the patients with gold card without 30 Baht payment had the highest rate of chronic illness followed by the patients holding a gold card with 30 Baht payment, civil servants and the state enterprise staff, and patients paying by themselves. Patients covered by the social security scheme had the lowest rate of chronic illness with 22.1%.

The selection of health providers when getting sick: The patients were asked about the severity of symptoms in the past the same as the outpatients. 34% of patients with mild and moderate symptoms bought the medicine from the drug store, 21.3% went to a governmental hospital, and 18.9% went to a private clinic. When divided according to the eligibility for health services, most of them bought the medicine from the drug store. 57.7% ever had severe symptoms. 62.6% of patients with severe symptoms went for treatment to governmental hospitals, 11.1% to private hospitals and 10.4% to private clinics. Only 6.7% of the 700 patients with mild-

moderate symptoms and 4.7% with severe symptoms went to health center in Bangkok Metropolis. When divided according to the eligibility for health services, the majority of all groups went to also the governmental hospital.

Type of illness: Illness was categorized into three groups. 1. The woman who came for delivery. 2. Acute diseased patients. 3. Chronic diseased patients. According to the determination of a professional nurse the same as outpatients. 59.1% of patients were suffering from chronic illnesses, 33.3% with acute illnesses and 7.6% for the patients had been women who came to the hospital for delivery. When divided according to the eligibility for health services, the majority of patients had chronic illnesses except the group of patients covered by the social security scheme. The majority of this group suffered from acute illnesses.

Severity of illness: The severity of illness was judged by professional nurses the same as outpatients. 82.6% of patients had moderate-, 15.9% severe- and 1.5% mild symptoms. When divided according to the eligibility for health services, the majority of patients had moderate symptoms.

Table 24 Health status of patients according to the eligibility for health services (%)

Type of payment	Outpatient department						Inpatient department					
	1	2	3	4	5	Total	1	2	3	4	5	Total
Number of patients	160	160	160	160	160	800	140	140	140	140	140	700
Health status												
Excellent	0.6	1.3	---	1.9	1.9	1.1	8.5	2.1	5.0	6.4	2.8	5.0
Good	45.0	43.1	60.0	57.5	47.5	50.6	42.9	54.3	45.0	45.7	63.6	50.3
Fair	34.4	38.1	34.4	35.0	42.5	36.9	40.1	33.6	40.7	37.9	30.0	36.4
Not so well	20.0	17.5	5.6	5.6	8.1	11.4	8.5	10.0	9.3	10.0	3.6	8.3
History of diseases												
Didn't have chronic disease	41.9	31.9	71.3	51.3	61.2	51.5	22.1	42.9	74.3	48.6	66.4	50.9
Didn't know	0.6	---	6.8	3.1	7.5	3.5	30.0	4.3	3.6	4.3	7.9	10.0
Had chronic disease	57.5	68.1	21.9	45.6	31.3	45.0	47.9	52.8	22.1	47.1	25.7	39.1
Means for mild-moderate symptoms												
Drug store	41.3	37.4	30.0	29.4	41.9	36.0	27.1	40.0	32.9	32.9	37.2	34.0
Public hospital	18.1	13.7	27.5	21.8	24.4	21.1	22.9	21.8	20.0	28.6	13.6	21.3
Private clinic	18.1	24.4	19.4	25.0	11.3	19.6	12.9	17.1	26.4	15.7	22.1	18.9
Didn't do anything	16.3	16.3	10.0	11.3	15.0	13.8	11.4	6.3	13.6	15.7	15.7	12.6
Health center in BMP	3.8	3.8	5.0	2.5	2.5	3.5	12.9	10.6	2.9	2.9	5.0	6.7
Private hospital	1.2	0.6	1.9	5.0	1.9	2.1	9.3	1.4	1.4	2.1	5.7	4.0
Others	1.2	3.8	6.2	5.0	3.0	4.9	3.5	2.8	2.8	2.1	0.7	2.5

Note:- Type of payment 1. Gold card with 30 ₪ payment 2. Gold card without 30 ₪ payment

3. Social security 4. Civil servant and the state enterprise staff 5. Out of pocket

Table 24 Health status of patients according to the eligibility for health services (%)
(Continue)

Type of payment	Outpatient department						Inpatient department					
	1	2	3	4	5	Total	1	2	3	4	5	Total
Number of patients	160	160	160	160	160	800	140	140	140	140	140	700
Have severe symptoms												
Never	70.6	64.4	53.8	76.3	54.4	63.9	36.4	40.7	42.1	37.9	54.3	42.3
Ever	29.4	35.6	46.2	23.7	45.6	36.1	63.6	59.3	57.9	62.1	45.7	57.7
Means for severe symptoms												
Public hospital	66.0	80.7	63.5	52.6	53.4	63.3	60.8	65.2	60.5	73.6	50.0	62.6
Private hospital	10.6	5.3	23.0	13.2	11.0	13.1	11.2	12.0	7.4	12.7	12.5	11.1
Private clinic	6.4	7.0	5.7	23.7	11.0	9.7	9.0	10.8	9.9	6.9	17.2	10.4
Drug store	6.4	1.8	2.6	7.9	11.0	5.9	7.9	1.2	18.5	4.6	12.5	8.7
Health center in BMP	8.5	5.2	1.3	2.6	6.8	4.8	6.7	10.8	1.2	1.1	3.1	4.7
Others	2.1	---	3.9	---	6.8	3.2	4.4	---	2.5	1.1	4.7	2.5
Type of illness												
Prevention/ANC / Delivery	13.1	---	37.5	2.5	26.9	16.0	0.7	---	14.3	0.7	22.1	7.6
Acute illness	34.4	31.9	23.7	35.6	38.1	32.8	37.2	26.4	45.7	32.9	24.3	33.3
Chronic illness	42.5	68.1	38.8	61.9	35.0	51.2	62.1	73.6	40.0	66.4	53.6	59.1
Severity of illness												
Mild symptoms	43.8	56.9	50.6	50.0	36.9	47.7	0.7	3.6	1.4	0.7	1.4	1.5
Moderate symptoms	56.2	43.1	48.2	48.8	60.6	51.4	83.6	73.6	85.0	80.7	90.0	82.6
Severe symptoms	---	---	1.2	1.2	2.5	0.9	15.7	22.8	13.6	18.6	8.6	15.9

Note:- Type of payment 1. Gold card with 30 ฿ payment 2. Gold card without 30 ฿ payment
3. Social security 4. Civil servants and the state enterprise staff 5. Out of pocket

4.1.1.3 Economic factors: The economic factor comprised of income, occupation, travel time and travel expense for coming to the hospitals, time spent for services at Lerdsin Hospital in the past, and the medical costs at Lerdsin Hospital in the past (Table 25). The results were given below:-

A. Outpatient department

Occupation: 39.9% of patients were housewives or jobless, 24.9% were working as worker and when divided according to the eligibility for health services, the majority of patients holding gold cards were housewives or jobless. The patients covered by the social security scheme and those who paid for the treatment from their pocket were mostly working as workers, while most of the patients from the civil servant-employee governmental enterprise medical benefit scheme were civil servants.

Income: The patients had an average monthly income of 10,257 Baht. Civil servants and the state enterprises staff had the highest average monthly income (Mean =15,627 Baht), next came the patients who paid for the treatment by themselves followed by the patients holding gold cards without 30 Baht payment and the those with 30 Baht payment. Patients covered by the social security scheme had the lowest average monthly income (Mean=7,892 Baht).

Travel time: 39.4% of the patients traveled by public transportation from home to the hospital and back, while 20.3% traveled by taxi and 16% by private vehicles. When divided according to the eligibility for health services, the majority of the patients traveled to the hospital by public transportation except the civil servant and the state enterprises staff traveled to the hospital by private vehicles. The average travel time was 115 minutes. The civil servants and the state enterprises staff had the longest travel time (Mean=138 minutes) followed by the patients paid themselves, then the patients covered by the social security scheme and the patients held gold card with 30 Baht payment. Patients held gold cards without 30 Baht payment had the shortest travel time (Mean=102 minutes).

Travel expenses: The average expenses spent for a round trip from home to the hospital and back was 122 Baht. The civil servants and the state enterprises staff had the highest travel expenses (Mean=214 Baht) followed by the patients who paid for the treatment from their pockets, the patients held gold card without and with 30 Baht payment while the patients covered by the social security scheme had the lowest travel expenses (Mean=77 Baht).

Time spent for services at Lerdsin Hospital in the past: 56.1% of the patients were moderately satisfied with the time spent for services while 29.8% were not satisfied and considered the time spent for services at Lerdsin Hospital to be too long and 14.1% considered the time spent for services was just right. Most of the 800 outpatients were moderately satisfied with the time spent for services in Lerdsin Hospital regardless of the status of eligibility.

Medical costs of Lerdsin Hospital in the past: 80% of the patients were eligible for health services. 95.6% of the patients who paid from their pockets were satisfied with the reasonable expenses, and thought they were reasonable and only 4.4% of patients were not satisfied and considered the medical costs as too high.

B. Inpatient department

The economic situation of the inpatients were found to be more or less the same as for outpatients, except for occupation, means for traveling and the time spent for services in the past.

Occupation: 31.3% of patients were housewives or jobless, 30.8% were worker and when divided according to the eligibility for health services, the majority of patients holding gold cards with 30 Baht payment and the patients covered by the social security scheme were mostly working as worker. The patients holding gold cards without 30 Baht payment and those who paid for the treatment from their pocket were housewives or jobless, while most of the patients from the civil servant-employee governmental enterprise medical benefit scheme were civil servants.

Income: The patients had an average monthly income of 9,080 Baht. Civil servants and the state enterprises staff had the highest average monthly income (Mean=11,574 Baht), next came the patients who paid for the treatment by themselves followed by the patients holding gold cards without 30 Baht payment and with 30 Baht payment. Patients covered by the social security scheme had the lowest average monthly income (Mean=7,712 Baht).

Travel time: 49.4% of the patients traveled by taxi from home to the hospital and back, while 14.0% traveled by public transportation and 13.1% by private vehicles. When divided according to the eligibility for health services, the majority of the patients traveled to the hospital by taxi. The average travel time was 125 minutes. The civil servants and the state enterprises staff had the longest travel time (Mean=155 minutes) followed by the patients paid themselves, then the patients held gold card without and the those with 30 Baht payment. Patients covered by the social security scheme had the shortest travel time (Mean=100 minutes).

Travel expenses: The average expenses spent for a round trip from home to the hospital and back was 164 Baht. The civil servants and the state enterprises staff had the highest travel expenses (Mean=187 Baht) followed by the patients who paid for the treatment from their pockets, patients held gold card without and with 30 Baht payment while the patients covered by the social security scheme had the lowest travel expenses (Mean=118 Baht).

Time spent for services at Lerdsin Hospital in the past: Patients holding a gold card with and without 30 Baht payment and patients who paid by their own were largely not satisfied with the time spent for services at Lerdsin Hospital in the past and considered to be too long. Patients covered by the social security scheme and civil servants and the state enterprises staff were moderately satisfied with the time spent for services at Lerdsin Hospital in the past.

Medical costs of Lerdsin Hospital in the past: 80% of the patients were eligible for health services. 93.6% of the patients who paid for the treatment from their pockets were satisfied with the reasonable expenses, and thought they were reasonable and only 6.4% of patients were not satisfied and considered the expenses for the treatment as too high.

Table 25 The characteristic of the economic factors by the eligibility for health services (%)

Type of payment	Outpatient department						Inpatient department					
	1	2	3	4	5	Total	1	2	3	4	5	Total
Number of patients	160	160	160	160	160	800	140	140	140	140	140	700
Occupation												
Housewife/jobless	46.8	77.5	20.6	27.5	26.9	39.9	29.3	45.0	25.1	23.6	33.6	31.3
Worker	26.9	5.0	50.0	8.1	34.4	24.9	45.0	18.6	52.1	8.6	30.0	30.8
Civil servants	---	---	---	43.1	---	8.7	---	---	---	39.2	---	7.9
Company staff	0.6	0.6	28.8	---	10.6	8.0	0.7	---	20.0	---	5.0	5.1
Merchant	16.3	3.8	0.6	1.3	18.7	8.0	12.1	3.6	2.8	6.4	12.1	7.4
Pupil / student	9.4	13.1	---	3.1	9.4	7.0	12.9	32.8	---	4.3	19.3	13.9
Retired servant	---	---	---	16.9	---	3.5	---	---	---	17.9	---	3.6
Income												
≤ 2,000 baht	3.1	3.8	---	1.3	1.9	2.0	5.7	7.9	---	---	1.4	3.0
2,001-5,000	24.4	19.4	38.1	---	20.5	20.5	37.1	30.6	27.2	13.6	21.5	26.0
5,001-10,000	51.9	37.4	46.3	35.5	53.8	49.0	48.6	48.6	52.1	44.3	47.2	48.1
>10,000 baht	20.6	19.4	15.6	63.2	23.8	28.5	8.6	12.9	20.7	42.1	29.9	22.9
Mean	8,702	8,997	7,892	15,627	10,066	10,257	7,838	7,953	7,712	11,574	11,321	9,080
S.D.	5,646	5,027	5,536	10,415	7,897	7,692	4,193	3,987	5,992	6,480	9,069	6,736
Means for travelling												
Bus	44.3	35.6	55.0	23.1	38.7	39.4	11.4	17.1	22.1	8.6	10.7	14.0
Taxi	16.2	27.4	15.0	20.1	22.4	20.3	53.6	63.6	44.3	39.2	46.5	49.4
Private car	5.6	11.3	5.0	40.6	18.1	16.0	6.4	2.9	5.7	32.9	17.9	13.1
Motorecycle	9.4	5.0	8.1	5.6	5.1	6.7	5.7	6.4	7.2	2.9	6.4	5.7
Tricycle	6.9	8.1	5.0	1.3	3.8	5.0	17.1	5.7	12.9	2.9	12.9	10.3
Two side bus	5.6	4.4	4.4	0.6	2.5	3.5	0.7	---	3.6	4.3	---	1.8
Skyline train	3.8	1.9	3.1	5.0	1.9	3.1	3.7	---	1.4	5.7	2.1	2.6
Walking	6.3	3.8	3.1	0.6	1.9	3.1	0.7	0.7	0.7	0.7	2.1	1.0
Others	1.9	2.5	1.3	3.1	5.6	2.9	0.7	3.6	2.1	2.8	1.4	2.1

Table 25 The characteristic of the economic factors by the eligibility for health services (%) (Continue)

Type of payment	Outpatient department						Inpatient department					
	1	2	3	4	5	Total	1	2	3	4	5	Total
Number of patients	160	160	160	160	160	800	140	140	140	140	140	700
Travel time												
≤ 30 min	13.1	9.4	3.8	4.4	3.1	6.8	5.0	3.6	4.3	2.9	3.6	3.9
31-60	33.1	38.1	40.0	26.9	33.8	34.3	35.7	30.7	42.9	24.3	40.7	34.9
61-120	27.5	23.1	33.1	34.3	36.9	31.0	20.0	26.4	30.7	32.8	29.3	27.8
121-180	13.8	21.3	13.7	10.6	16.3	15.1	20.7	27.8	15.0	14.3	12.1	18.0
> 180 min	12.5	8.1	9.4	23.8	9.9	12.8	18.6	11.5	7.1	25.7	14.3	15.4
Mean	107.3	102.3	109.1	138.3	117.1	115.1	121.0	117.8	100.4	155.3	129.3	124.8
S.D.	78.0	65.2	72.8	103.6	78.0	81.4	73.5	66.8	57.0	101.3	80.8	91.1
Travel costs												
No pay	6.3	3.1	3.1	0.6	1.9	3.0	1.4	2.8	---	1.4	1.4	1.4
1-100 baht	69.4	60.0	71.9	34.3	58.1	58.7	45.0	41.4	55.7	36.5	36.5	42.4
101-200	11.3	19.4	16.9	27.5	22.5	19.5	23.6	13.6	33.6	31.4	33.6	27.2
201-300	7.5	10.0	7.5	13.7	11.3	10.0	19.3	34.3	7.9	17.2	19.3	19.6
> 300 baht	5.5	7.5	0.6	23.9	6.2	8.8	10.7	7.9	2.8	13.5	9.2	9.4
Mean	82.7	111.7	77.0	214.3	121.8	121.5	160.0	175.2	118.0	187.4	178.9	163.9
S.D.	47.0	75.9	64.0	150.0	101.6	99.6	101.5	113.6	92.9	119.9	112.1	115.2
Time spent for services												
Not long time	13.1	10.0	14.4	13.8	19.4	14.1	2.9	2.9	5.0	3.6	0.7	3.0
Moderate	56.3	59.4	60.0	49.3	55.6	56.1	42.1	23.6	65.7	56.4	38.6	39.0
Long time	30.6	30.6	25.6	36.9	25.0	29.8	55.0	73.5	29.3	40.0	60.7	58.0
Medical costs												
Reasonable	---	---	---	---	95.6	19.1	---	---	---	---	93.6	18.7
Expensive	---	---	---	---	4.4	0.9	---	---	---	---	6.4	1.3
Had health insurance	100.0	100.0	100.0	100.0	---	80.0	100.0	100.0	100.0	100.0	---	80.0

Note:- Type of payment 1. Gold card with 30 ₪ payment 2. Gold card without 30 ₪ payment
3. Social security 4. Civil servants and the state enterprise staff 5. Out of pocket

From investigating the factors about the socio-demographic pattern, health status and economic factors as mentioned above, the number of outpatient's visits and the length of stay of the inpatient department grouped according to the eligibility for health services, the following conclusion could be drawn:-

1. The patients holding a gold card with 30 Baht payment:- The majority of them were females with the age between 36 to 41 years, were married and

lived with the spouse, the present residence was in zone 9, they had an average number of formal education of 8 years. Most of the outpatients were housewives and jobless while the majority of the inpatients were worker with monthly income between 7,838 to 8,702 Baht. The patients were fairly satisfied with the services in the past. The outpatients considered the time spent for services in Lerdsin Hospital was fair while the inpatients considered it was too long. They came to the hospital because they suffered from chronic illness with moderate severity. The travel time for a round trip from home to the hospital and back lasted between 107 to 121 minutes and travel expenses ranged from 83 to 160 Baht.

2. The patients holding a gold card without 30 Baht payment:- The majority of them were females in the age between 58 to 59 years, were married and lived with the spouse, the present residence was in zone 9, they had an average number of formal education of 3 to 4 years, were housewives or jobless. Their monthly income ranged from 7,953 to 8,997 Baht. The satisfaction towards the Lerdsin Hospital services in the past, the outpatients considered the time spent for services in Lerdsin Hospital was fair while the inpatients considered it was too long. They came to the hospital because they suffered from chronic illness. The outpatients had mild severity and the inpatients had moderate severity. The travel time for a round trip from home to the hospital and back lasted between 102 to 118 minutes and travel expenses ranged from 112 to 175 Baht.

3. The patients covered by the social security scheme:- Mostly of them were females in the age between 31 to 34 years, were married and lived with the spouse, the present residence was in Bangkok but most of them had residence register in provinces. They had an average number of years for formal education for 9 years, were worker, with a monthly income of 7,712 to 7,892 Baht. The patients were fairly satisfied with the services in the past and considered the time spent in Lerdsin Hospital as acceptable. The outpatients went to the hospital with chronic illness and had mild symptoms while the inpatients came to the hospital with an acute illness with moderate symptoms. The travel time for a round trip from home to the hospital and back lasted between 100 to 109 minutes and travel expenses ranged from 77 to 118 Baht.

4. The patients being civil servants and employees of the governmental enterprise:- The majority of them were females with an average age of 53 years, were married and lived with the spouse, the present residence was outside zone 9, and they had an average number of years of formal education of 11 years. Their monthly income ranged from 11,574 to 15,627 Baht. The patients were fairly satisfied with the services in the past and considered the time spent in Lerdsin Hospital as acceptable. They went to the hospital while suffering from chronic illness. The outpatients had mild symptoms while the inpatients had moderate symptoms. The travel time for a round trip from home to the hospital and back lasted between 138 to 155 minutes and travel expenses ranged from 187 to 214 Baht.

5. The patients who paid for the treatment out of their own pocket:- The majority of them were females, within the age of 33 to 39 years, were married and lived with the spouse, the present residence was outside zone 9, they had an average number of years for formal education of 8 to 9 years. The outpatients were worker while the inpatients were housewives and jobless. Their monthly income ranged from 10,066 to 11,321 Baht. They were fairly satisfied with the services in the past. The outpatients considered the time spent in Lerdsin Hospital to be acceptable while the inpatients considered it was too long. Mostly of them considered the medical costs reasonable. The outpatients visited the hospital because of acute illness, while the inpatients came to the hospital with chronic illness. Both groups had moderate symptoms. Travel time for a round trip from home to the hospital and back lasted was between 117 to 129 minutes and travel expenses was approximately 122 to 179 Baht.

4.1.2 Health services at the out-and inpatient departments

From the 1,500 persons who were studied in the out- and inpatient departments, 70.9% of them decided by themselves that they were going to receive health services at the Lerdsin Hospital, for 27% of patients the decision was made by the parents, son/daughter and spouses, for 2.1% of patients the decision was made by friends and acquaintance. When divided according to the eligibility, the majority of patients made the decision to go to the Lerdsin Hospital by them. As reason why to come to the services at Lerdsin Hospital, from 42.9% of patients the good reputation were

mentioned, from 22.1% that they lived near the hospital, 12.6% came because they received a good services in the past, 11.6% had to continue the treatment with the same doctor, 7.7% came because they were eligible for health services at the Lerdsin Hospital and 3.1% because of the reasonable medical costs. When divided according to the eligibility for health services, the main reason the patients came to receive the services at Lerdsin Hospital because of the good reputation for treatment (Table 26).

Table 26 Decision making for and reasons of using services at Lerdsin Hospital according to the eligibility for health services (%)

Type of payment	1	2	3	4	5	Total
Number of the patients	300	300	300	300	300	1,500
Whose decision services						
Yourself	72.0	52.7	90.0	75.7	67.3	70.9
Spouse, parents, son, daughter	27.0	47.3	7.3	23.7	29.7	27.0
Friends, acquaintance	1.0	---	2.7	0.6	3.0	2.1
Reasons to use services						
Good reputation for treatment	44.0	44.3	43.0	40.7	42.7	42.9
Convenient for traveling	21.0	23.0	26.3	20.3	20.0	22.1
Good services	11.3	10.7	10.0	13.7	17.7	12.6
Continue the Rx with the same doctor	13.0	13.3	9.0	13.3	9.3	11.6
Used the eligibility for health services	9.0	7.7	10.7	11.0	--	7.7
Reasonable medical costs	1.7	1.0	1.0	1.0	10.3	3.1

Note:- Type of payment 1. Gold card with 30 ₪ payment 2. Gold card without 30 ₪ payment
3. Social security 4. Civil servants and the state enterprise staff 5. Out of pocket

The data from time spent for services of Lerdsin Hospital, medical costs, satisfaction and comments of patients and whether they would select the Lerdsin Hospital for treatment in future again were collected to analyze. The results were as follows:-

4.1.2.1. Time spent for services at outpatient department

Information about the length of waiting time before being examined by the doctor and diagnosed and could receive the medicine from the pharmaceutical room was obtained from 800 patients (Table 27):-

Time spent at diagnosis rooms: In average the patient had to wait for 78.2 minutes before being examined by the doctor. Patients holding a gold card without 30 Baht payment had the longest waiting time (Mean=86 minutes) followed by patients holding gold card with 30 Baht payment, then patients covered by the social security scheme and patients paying by themselves. The waiting time for civil servants and the state enterprises staff were the shortest (Mean=67.2 minutes). The average time the doctor used to come up with a diagnosis was 8.4 minutes. In average the doctor spent the longest time with patients holding a gold card without 30 Baht payment (Mean=9.3 minutes) followed by the civil servants and the state enterprises staff, patients with held gold card with 30 Baht payment and the patients paying for themselves. For diagnose the disease of patients being insured by the social security the doctor spent the shortest time (Mean=7.6 minutes).

Waiting time in front of the pharmaceutical room: Patients spent an average waiting time of 32 minutes to receive the medicine at the pharmaceutical room. Waiting time for patients holding a gold card without 30 Baht payment was the longest (Mean=37.3 minutes) followed by the group of civil servants and the state enterprises staff, the patients held gold card with 30 Baht payment and the patients who paid for themselves. Patients covered by the social security scheme had the shortest waiting time (Mean=26.2 minutes).

Patients at the outpatient department spent time before seeing the doctor, at the consultation room, in front of the pharmaceutical room and for coming to the hospital and going back altogether in average 243 minutes (4 hours). Total time spent for services of the civil servants and the state enterprises staff were the longest (Mean=260 minutes), followed by the patients holding gold cards with 30 Baht payment, patients holding gold card without 30 Baht payment and patients paying themselves. Patients covered by the social security scheme had the shortest total time spent for services (Mean=231 minutes).

Table 27 Time spent for services at the outpatient department of Lerdsin Hospital (in minutes)

Statement	Gold card with 30 ฿ payment	Gold card without 30 ฿ payment	Social security	Civil servant	Out of pocket	Total
Waiting time before being examined by the doctor						
Mean	85.47	86.01	81.06	67.24	70.14	78.22
S.D.	56.44	53.25	37.79	48.66	34.37	47.44
Time for consult the doctor						
Mean	8.26	9.26	7.58	9.13	8.22	8.41
S.D.	4.11	4.04	3.21	3.61	3.83	3.80
Waiting time for drug						
Mean	34.26	37.29	26.24	36.13	27.56	32.06
S.D.	23.29	24.48	15.65	16.32	18.28	20.38
Total time spent for services						
Mean	244.84	242.83	230.99	259.50	237.46	243.12
S.D.	94.15	85.52	84.65	119.39	94.39	96.67

Note: Total time spent for services included the time spent before being attended, time being examined by the doctor, time spent in front of the pharmaceutical room and traveling time for coming to the hospital and returning back home.

4.1.2.2 The medical costs at the out - and inpatient departments

From the individuals included in this study 1,200 persons were eligible to receive the services at Lerdsin Hospital and 300 persons paid for the treatment out of their own pocket. From those, who paid by out of pocket, 62.7% paid by themselves, 36% of patients in this category the parents, daughter/son or and spouses spent the money, and for 1.3% the employer paid. For 52.3% of the patients it was not a burden for the family to pay for the medical costs, the burden was fairly heavy for 44% and real burden for 3.7%. Patients with gold card, who did not use the eligibility for health services but paid for the treatment by themselves gave the following reasons for not using the card: 1). 54% of patients wanted to continue the treatment at the Lerdsin Hospital, because they were treated here before and the illness record was here, but they did not live in the area the Lerdsin Hospital was responsible for. 2).19% of

patients didn't want to use the card, because this might extend the waiting time due to the more complicated service procedures for this group of patients. 3).15% of patients had the house registration outside zone 9, so that they could not use at the Lerdsin Hospital their eligibility for health services. 4).9.3% of patients holding a gold card were afraid to get medicine minor quality if they make use of their eligibility for health services. 5).2.7% of the patients said that they thought the medical costs was not high and so they could pay for it (Table 28).

Table 28 The persons paying for treatment costs for the out of pocket patient group, the burden for the family to pay for medical cost, and the reasons why gold card holder refused to use it

Statement	Number	%
Whose cover the expenses		
Yourself	188	62.7
Spouse, parents, relatives, son, and daughter	108	36.0
Employer	4	1.3
Medical cost was burden for the family		
Real burden	11	3.7
Fairly burden	132	44.0
Not a burden for the family	157	52.3
Reasons why didn't use gold card but paid by themselves		
Continue the treatment with the same doctor	162	54.0
Convenient for services, not complicated service procedure	57	19.0
The house registration outside Zone 9, couldn't use gold card	45	15.0
Afraid to get medicine minor quality	28	9.3
The medical costs was not expensive	8	2.7
Total	300	100.0

Medical costs at the outpatient's department: The patients held gold card and the patients covered by the social security scheme did not pay for the medical costs at the hospital. The staff responsible for financial issues at the outpatient department took care of the bill and channeled it into the appropriate administrative unit. Civil servants and the state enterprises staff paid for the treatment at the hospital

and were reimbursed afterwards. Patients who paid by themselves did so according to the bill for the treatment. In average the medical costs at the outpatient department was 240 Baht (Table 29), medical costs were highest for civil servants and the state enterprises staffs (Median=566 Baht) followed by the patients covered by the social security scheme, the patients holding gold card without and with 30 Baht payment, while the patients who paid for the treatment from their pockets had the lowest medical costs (Median=200 Baht). Patients covered by the social security scheme and the civil servants had not to pay for the treatment. Patients holding a gold card with 30 Baht payment had to pay 30 Baht service fee. Patients held gold cards without 30 Baht payment spent in average a surplus of 11 Baht out of their pocket for medicine in the case the medicine they wanted for treatment was not listed within the medicine directory. Patients who paid from their pockets had the highest of medical costs (Median=200 Baht).

Medical costs at the inpatient's department: The patients with the health insurance didn't pay for the treatment, but the staff responsible for financial issues of the department sent the bill for treatment to the place where the patients were working from where the bill was settled. Patient paying by themselves had to do so every third day. The average medical costs for the patients at the inpatient departments was 8,192 Baht. Civil servants and the state enterprises staff had the highest average of medical costs (Median=18,914 Baht) followed by patients covered by the social security scheme, patients holding gold cards with and without 30 Baht payment, while the patients who paid for the treatment by themselves had the lowest average of medical costs (Median=3,110 Baht). In case the patients covered by a health insurance scheme received services not being allowed by the regulations of the Ministry of Public Health, such as staying in a special room, getting special meals, extra medicine/medical tool etc., they had to pay for these services. Patients paying by themselves spent the highest amount of money in the hospital for treatment (Median=3,110 Baht). Patients holding a gold card with 30 Baht payment, civil servants and the state enterprises staff and patients holding gold cards without 30 Baht payment paid some money extra. Patient covered by the social security scheme spent the lowest amount of money.

Table 29 Medical costs and actual payment (Baht) from patients at the out-and inpatient departments according to the eligibility for health services

Statement	Gold card with 30 ฿ payment	Gold card without 30 ฿ payment	Social security	Civil servant	Out of pocket	Total
OPD						
Medical costs						
Median	202.50	218.50	220.00	566.00	200.00	240.00
Mean	428.78	302.72	318.54	1,109.36	366.63	505.20
S.D.	747.26	322.90	286.16	1,472.82	689.72	876.24
Actual payment						
Median	30.00	0.00	0.00	0.00	200.00	0.00
Mean	30.00	10.97	0.00	0.00	366.63	93.95
S.D.	0.00	91.43	0.00	0.00	689.72	375.45
IPD						
Medical costs						
Median	7,869.00	6,751.00	8,256.50	18,914.00	3,109.50	8,191.50
Mean	16,134.86	12,408.26	12,896.52	29,790.27	12,408.17	16,712.57
S.D.	30,674.43	22,961.71	15,947.45	33,576.58	24,568.55	27,046.89
Actual payment						
Median	30.00	0.00	0.00	15.00	3,109.50	30.00
Mean	502.77	418.32	38.57	2,463.33	12,408.17	3,166.23
S.D.	1,695.01	2,021.24	274.47	8,181.91	24,568.55	12,518.17

4.1.2.3 Satisfaction with and comments about the service provided

by the Lerdsin Hospital

A. Outpatient department : The patients were interviewed while waiting for the medicine in front of the pharmaceutical room (Table 30). In average satisfaction scored 3.66 which was better than the score for satisfaction for services received in the past (Mean=3.59 scores). Patients held gold card without 30 Baht payment and civil servants and the state enterprises staff had the highest satisfaction scores (Mean=3.71 scores) followed by the patients holding a gold card with 30 Baht payment and the patients covered by the social security scheme. Patients who paid for the treatment by themselves were less satisfied in comparison with any other group of patients (Mean=3.57 scores). The patients studied answered 14 items concerning their

satisfaction. Satisfaction with the competence of the doctor was the highest (Mean=4.05 scores), manner and friendliness of the doctor ranked second (Mean=4.04 scores) above satisfaction with the medicine received (Mean=3.72 scores). A low score for satisfaction was given to the time the patients had to wait before they got services and the procedures of the services (Mean=3.28 scores and Mean=3.47 scores).

B. Inpatient department: Patients were interviewed one day before she/he was discharged. In average satisfaction scored 4.02 which was better than the score for satisfaction for services received in the past (Mean=3.93 scores). Patients held gold card without 30 Baht payment had the highest satisfaction scores (Mean=4.13 scores) followed by civil servants and the state enterprises staff, the patients holding a gold card with 30 Baht payment and the patients covered by the social security scheme. Patients who paid for the treatment by themselves were less satisfied in comparison with any other group of patients (Mean=3.95 scores). The patients studied answered 15 items concerning their satisfaction. Satisfaction with the competence of the doctor was the highest (Mean=4.32 scores), manner and friendliness of the doctor ranked second (Mean=4.29 scores) above satisfaction with manner and friendliness of nurse (Mean=4.12 scores). A low score for satisfaction was given to the meals provided by the hospital staff and time spent in providing services (Mean=3.65 scores and Mean =3.79 scores).

By answering the questionnaire about the satisfaction and dissatisfaction with the services of Lerdsin Hospital, more than one answer was allowed. Results were shown in Table 31:-

A. Outpatient department: High satisfaction scores were given from the patients in relation to the following services, good services provided by health personnel (47.7%), competence and good treatment provided by the doctor (40%), convenience to make use of the services (5.3%), reasonable medical costs (4.4%) and good quality of medicine (2.6%). Patients were dissatisfied with the services in terms of long waiting time (61.3%), impoliteness of some working staff (14.7%), insufficient parking lots (11.4%), small rooms or places (7.8%), doctor diagnosed not carefully enough (4.8%).

B. Inpatient department: High satisfaction scores were given from the patients in relation to the following services, good services provided by health

personnel (60.7%), competence and good treatment provided by the doctor (27.1%), convenience to make use of the services (8.1%), good quality of medicine (2.2%) and reasonable medical costs (1.9%). Dissatisfaction was expressed by the patients in terms of food not delicious (36.2%), room or place too small (25%), insufficient parking lots (19.8%) and patient ward hot (19%).

Table 30 The mean of satisfaction with the services of Lerdsin Hospital in this time according to the eligibility for health services (full score=5)

Type of payment	Outpatient department						Inpatient department					
	1	2	3	4	5	Total	1	2	3	4	5	Total
Number of patients	160	160	160	160	160	800	140	140	140	140	140	700
1. Welcome	3.61	3.62	3.58	3.67	3.50	3.60	4.00	4.13	3.83	4.04	3.87	3.97
2. Procedure to provide services	3.49	3.54	3.46	3.46	3.38	3.47	3.86	3.98	3.76	3.89	3.86	3.87
3. Time consumed in providing services	3.43	3.39	3.23	3.28	3.09	3.28	3.78	3.90	3.66	3.81	3.82	3.79
4. Co-operation between units	3.56	3.57	3.48	3.58	3.44	3.53						
5. Medical equipment	3.64	3.67	3.74	3.63	3.64	3.66	4.12	4.14	3.99	4.01	3.97	4.05
6. Competence of doctor	4.09	4.18	3.94	4.08	3.93	4.05	4.34	4.40	4.28	4.41	4.19	4.32
7. Friendliness of doctor	4.08	4.14	4.01	4.04	3.91	4.04	4.28	4.34	4.31	4.37	4.16	4.29
8. Friendliness of nurses	3.79	3.72	3.55	3.82	3.62	3.70	4.14	4.19	4.10	4.19	3.96	4.12
9. Friendliness of nurse aid	3.63	3.65	3.46	3.68	3.49	3.58	3.91	4.11	3.91	4.01	3.87	3.96
10. Friendliness of pharmaceutical staff	3.64	3.61	3.56	3.64	3.47	3.58						
11. Caring of health staff	3.61	3.65	3.63	3.66	3.51	3.61	4.04	4.11	4.00	4.04	3.96	4.03
12. Satisfaction of medicine	3.71	3.70	3.66	3.80	3.71	3.72	4.04	4.18	4.04	4.11	3.95	4.06
13. Information or advice given	3.65	3.68	3.66	3.74	3.60	3.67	4.11	4.18	4.06	4.19	4.09	4.12
14. Overall services quality	3.82	3.80	3.73	3.80	3.66	3.76	4.17	4.26	4.06	4.15	4.08	4.11
15. The results of treatment							3.99	4.17	3.95	3.98	3.99	4.02
16. Cleanliness of ward							3.89	4.10	3.80	3.76	3.82	3.88
17. Meals provided							3.66	3.70	3.69	3.59	3.59	3.65
Total	3.70	3.71	3.62	3.71	3.57	3.66	4.02	4.13	3.96	4.04	3.95	4.02

Note:- Type of payment 1. Gold card with 30 ฿ payment 2. Gold card without 30 ฿ payment

3. Social security 4. Civil servants and the state enterprise staff 5. Out of pocket

Table 31 Satisfaction and dissatisfaction with services provided by the Lerdsin Hospital (%)

Type of payment	Outpatient department						Inpatient department					
	1	2	3	4	5	Total	1	2	3	4	5	Total
Satisfaction												
Good service	50.5	53.3	52.1	38.9	44.3	47.7	58.0	69.0	59.0	58.2	58.3	60.7
Good reputation for Rx	36.2	37.3	36.6	53.6	35.7	40.0	25.8	19.7	27.0	31.3	31.9	27.1
Convenient for services	6.7	3.9	6.2	3.7	5.2	5.3	9.8	5.2	10.0	8.3	6.2	8.1
Reasonable costs	3.3	3.0	3.1	1.6	11.2	4.4	3.1	3.6	2.0	---	---	1.9
Good quality of drugs	3.3	2.5	2.0	2.2	3.6	2.6	3.3	2.5	2.0	2.2	3.6	2.2
Total	100.0 (182)	100.0 (204)	100.0 (355)	100.0 (270)	100.0 (249)	100.0 (1260)	100.0 (360)	100.0 (249)	100.0 (307)	100.0 (278)	100.0 (257)	100.0 (1451)
Dissatisfaction												
Long waiting time	58.2	67.6	47.8	59.9	74.2	61.3						
Impoliteness of staff	18.8	12.7	16.9	12.3	13.9	14.7						
Insufficient parking	6.8	2.8	18.3	17.3	4.9	11.4	10.5	11.8	14.3	30.0	28.1	19.8
Small rooms or places	6.8	7.0	11.8	9.3	3.5	7.8	31.6	29.4	28.6	25.0	15.6	25.0
Short time for doctor Dx	9.4	9.9	5.2	1.2	3.5	4.8						
Food not delicious							47.4	52.9	25.0	35.0	31.3	36.2
Patient ward hot							10.5	5.9	32.1	10.0	25.0	19.0
Total	100.0 (74)	100.0 (71)	100.0 (136)	100.0 (162)	100.0 (144)	100.0 (587)	100.0 (19)	100.0 (17)	100.0 (28)	100.0 (20)	100.0 (32)	100.0 (116)

Note:- Type of payment 1. Gold card with 30 ₪ payment 2. Gold card without 30 ₪ payment
3. Social security 4. Civil servants and the state enterprise staff 5. Out of pocket

4.1.2.4 Intention of the patients to make use of the services at Lerdsin Hospital in the future and the reasons for going and not going it again

From the 1,500 patients investigated at the out-and inpatient departments (Table 32), 94.9% would choose the Lerdsin Hospital for the health services again, 5.1% would not come back. When divided according to the eligibility for health services, most of the patients would choose the Lerdsin Hospital for their health services again.

The reasons while patients would choose Lerdsin Hospital for health services again were good reputation in treatment (45.5%), satisfied/impressed with the good services (25%), hospital was near the living quarter or residence and convenient to go

there (18.6%), it was possible to get services because of eligibility for health services (8.2%) and reasonable medical cost (2.7%). When divided according to the eligibility for health services, the majority of the patients of all groups would go to receive services at the Lerdsin Hospital because of the good reputation for treatment.

The reasons the patients would not choose Lerdsin Hospital for health services in future: location too far from the residence, inconvenient to travel to the hospital (63.6%), waiting time before receiving the services was too long and complicated procedure (13%), gold card could not be used (11.7%), the services were not good (6.5%) and used the other hospital before etc.(5.2%). When divided according to the eligibility for health services, the majority of patients of all groups who said that they would not choose Lerdsin Hospital again mentioned that the location of the hospital was too far away from the residence of the patient and it was inconvenient to travel there.

Table 32 Intention of the patients to obtain the services at Lerdsin Hospital in the future and the reasons for going and not going it again (%)

Statement	Gold card with 30 ฿ payment	Gold card without 30 ฿ payment	Social security	Civil servant	Out of pocket	Total
Use services at LH in the future						
Choose	94.7	91.0	98.7	99.0	91.0	94.9
Not choose	5.3	9.0	1.3	1.0	9.0	5.1
Reasons for use services						
Good reputation in Rx	44.7	42.1	35.8	55.2	49.8	45.5
Satisfied/impressed	20.1	19.8	29.1	29.0	26.7	25.0
Near home/ convenient	22.2	21.6	21.3	11.1	18.3	18.6
Had eligibility	12.3	13.2	11.5	4.0	---	8.2
Reasonable costs	0.7	3.3	2.3	0.7	5.2	2.7
Reasons for not use						
Far from residence	87.6	88.9	100.0	100.0	14.8	63.6
Wait a long time	6.2	---			33.3	13.0
Couldn't be used eligibility	---	---			33.3	11.7
Services were not good	---	3.7			14.8	6.5
Used other hospitals	6.2	7.4			3.8	5.2

4.1.3 Factors which effected the demand for health services according to the eligibility for health services

To study the interrelationship of factors which affected the demand for health services at Lerdsin Hospital, the data collected were analyzed by using the multiple regression and for factor screening and model building the assumption of Munro BH. (1997:247-248) and Vorapongsathorn (1987: 73-74) was applied.

1. Independent variables and dependent variable must be at the interval level.
2. The relationship between independent variables and dependent variable must be linear.
3. The distribution of independent and dependent variables must be normal.
4. The interrelationship of the independent variables should not be more than 0.75, this is called multicollinearity.
5. The standard error was zero and did not have autocorrelation.

The following model was build:-

$$Y = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + \dots + b_k X_k$$

Y was the dependent variable that changes according to the independent variable X.

$X_1, X_2, X_3 \dots X_k$ was the effect of the independent variables on the dependent variable Y.

K was the number of independent variables that had a relationship with the dependent variable.

b_0 was the constant value of the regression equation.

$b_1, b_2, b_3, \dots, b_k$ was the co-efficient of the independent variables that indicated that the value of X_1 changed for 1 unit and effected the dependent variable Y while other variables had a constant value.

The principal structure of the above equation was applied for establishing a model of the demand for health services at the Lerdsin Hospital. The dependent variables were the number of outpatient's visits per year and the average length of stay in the hospital per year. According to the conceptional framework there were 14 independent variables selected which related to factors of socio-demography, health status and economics. Dummy variables for gender, marital status, residence, type of illness, severity of illness, occupation, time spent for service at Lerdsin Hospital in

the past and medical costs of Lerdsin in the past were created. This was done to enable the application of a multiple regression including the stepwise method for screening the independent variables towards their relationship to the dependent variable. The result of the analysis was as followed:-

A. The outpatient department

The 800 outpatients had an average number of outpatient's visits 7.7 times/year. The correlation of independent variables was not more than 0.270. They were not multicollinearity (Table 33).

Table 33 Correlation of independent variables of outpatient services

Variables	# of OPD visits	Cost2	Age2	Place1	Travel time	Age1	Type2	Wait2	Status2	Edu	OCC3
# OPD visits	1.000										
Cost2	.488	1.000									
Age2	.443	.131	1.000								
Place1	.426	.233	.189	1.000							
Travel time	-.362	-.114	.057	-.250	1.000						
Age1	.328	.015	-.133	.132	-.046	1.000					
Type2	.297	.163	.257	.078	.069	-.136	1.000				
Wait2	-.288	.052	.039	.039	-.104	-.006	.027	1.000			
Status2	.263	-.052	-.062	-.013	-.040	-.029	.135	.017	1.000		
Education	-.250	-.120	-.270	-.216	.035	-.212	-.199	.014	-.131	1.000	
OCC3	.236	.049	.169	.107	.006	-.210	.071	-.029	.036	-.188	1.000

Note: Cost2 = had health insurance, Age2 = age > 60 years, Place1 = residence in zone9, Age1 = age ≤ 12 years, Type2 = chronic illness, Wait2 = long waiting time, Status2 = widowed / divorced / separated, OCC3 = housewives/jobless

The stepwise method was used for screening the effect of the independent variables on the dependent variables and to rank them according to the importance of the variables (Table 34). Cost2, Age2, Place1, Travel time, Age1, Type2, Wait2, Status2, Education and OCC3 had a significantly effected on the demand for outpatient's services (F-test=14.873, P-Value<0.05). From the equation, 41.3% (R^2) could explained the outpatient's visit change and the standard error of the estimate was 5.88.

Table 34 Determinant factors of outpatient services utilization at Lerdsin Hospital

Variables	B	Std.Error	Beta	T	Sig
(Constant)	4.688	0.980		6.011	.000
Cost2	2.033	0.590	0.150	4.265	.000
Age2	1.678	0.565	0.142	4.048	.000
Place1	1.738	0.508	0.138	3.784	.000
Travel time	-0.009	0.003	-0.120	-3.436	.001
Age1	1.431	0.712	0.113	3.162	.002
Type2	1.264	0.462	0.110	3.094	.003
Wait2	-1.375	0.480	-0.104	-3.032	.004
Status2	2.526	0.763	0.097	2.984	.005
Education	-0.147	0.324	-0.095	-2.771	.008
OCC3	1.747	0.653	0.091	2.603	.013
R = 0.643 R² = 0.413 Adjust R² = 0.412 Std.Error = 5.88 F-test = 14.873 P-Value < 0.05					

When the dummy variables were transformed. Health insurance, age >60 years, residence in zone 9, travel time, age ≤12 years, chronic illness, waiting time, marital status separated/divorced/ widowed, education and housewives/jobless were related to the demand for outpatient’s services.

<p>Demand for outpatient’s services</p> <p>= 4.688 + 2.033(Had health insurance) + 1.678(Age> 60 years) + 1.738(Residence in Zone9) -0.009(Travel time) +1.431(Age ≤ 12 years) +1.264(Chronic illness)-1.375(Long waiting time) +2.526(Widowed/separated/divorced)-0.147(# of year of education)+1.747(Housewife/jobless)</p> <p style="text-align: right;">...1</p>
--

From the model estimating the demand for outpatient’s services, the following variables were found:-

-The medical costs at Lerdsin Hospital in the past: If the patients had health insurance, the number of outpatient’s visits would increased 2.03 times per year higher than the patients who paid for the treatment from their pockets while other variables remained constant.

-Age: If the patients were the age > 60 years, the number of outpatient’s visits would increased 1.68 times per year. If the patients were the age ≤ 12 years, the

number of outpatient's visits would increased 1.43 times per year when compared with the patients in the age range of 13 to 60 years while the other variables remained constant.

-Present residence: If the patients lived in zone 9, the number of outpatient's visits would increased 1.74 times per year higher than the patients who lived outside zone 9 while the other variables remained constant.

-Travel time: If traveling time to and back from the hospital increased 100 minutes, the number of outpatient's visits would increased 0.9 time per year while the other variables remained constant.

-Type of illness: If the patients had chronic illness, the number of outpatient's visits would increased 1.26 times per year higher when compared with the patients who came for the health promotion, prenatal care and for treatment of acute diseases while the other variables remained constant.

-Time spent for services at Lerdsin Hospital in the past: The patients who considered time spent for services was too long , the number of outpatient's visits would decreased 1.38 times per year when compared with the patients who considered time spent for services was not long and was fairly long while the other variables remained constant.

-The marital status: The patients whose marital status was to be divorced, widowed, or separated, the number of outpatient's visits would increased 2.53 time per year more frequent in comparison to patients, who were single, married and still lived with the spouse while the other variables remained constant.

-The number of years for education: If the formal education increased 10 years, the number of outpatient's visits would decreased 1.47 times per year while the other variables remained constant.

-Occupation: If the patients were housewives or jobless, the number of outpatient's visits would increased 1.75 times/year higher when compared with patients who worked as worker, pupil or student, merchant, civil servants and the state enterprise staff, and on pension while the other variables remained constant.

Factors affected the demand for outpatient’s services were studied when divided according to the 5 types of eligibility for health services. The results could be concluded as follows:-

1. The patient’s holding gold card with 30 Baht payment

This group had an average number of outpatient’s visits 8.6 times/year. Housewives/jobless, status widowed/separated/divorced, age and education had a significantly effected on the demand of the outpatients holding gold card with 30 Baht payment (F-test=11.997,P-Value<0.05). From the equation,26.5%(R²) could explained the outpatient’s visits changed and the standard error of the estimate was 6.31 (Table 49 see appendix B). The correlation of independent variables was not more than 0.291 (Table 50 see appendix). They were not multicollinearity.

Demand for outpatient’s services The gold card with 30 Baht payment group
 = 5.951 + 1.228(Housewives/jobless) + 2.078(Widowed/separated/divorced) + 0.043(Age)
 - 0.184(Number of year of education) ...2

2. The patient’s holding gold card without 30 Baht payment

This group had an average number of outpatient’s visits 11.8 times/year. Age > 60 years, chronic illness, status widowed/separated/divorced, travel time and long waiting time had a significantly effected on the demand of the outpatients holding gold card with 30 Baht payment (F-test=7.463, P-Value<0.05). From the equation, 33.9% (R²) could explained the outpatient’s visits changed and the standard error of the estimate was 6.85 (Table 51 see appendix). The correlation of independent variables was not more than 0.221 (Table 52 see appendix). They were not multicollinearity.

Demand for outpatient’s services The gold card without 30 Baht payment group
 = 9.263+1.210(Age>60 years)+2.284(Chronic illness)+2.063(Widowed/separated/divorced)
 - 0.003(Travel time)-1.400(Long waiting time) ... 3

3. The patient’s covered by the social security scheme

This group had an average number of outpatient’s visits 6.7 times/year. Housewives/jobless, status married and residence in Zone9 had a significantly effected on the demand of the outpatients covered by the social security scheme scheme (F-test

=9.154, P-Value<0.05). From the equation, 20.9% (R^2) could explained the outpatient's visits changed and the standard error of the estimate was 3.81 (Table 53 see appendix). The correlation of independent variables was not more than 0.150 (Table 54 see appendix). They were not multicollinearity.

Demand for outpatient's services The social security scheme group

$$-3.449+1.884(\text{Housewives/jobless})+1.551(\text{Status married})+1.214(\text{Residence in Zone9}) \dots 4$$

4. The patient's covered by the civil servants and the state enterprise staff scheme

This group had an average number of outpatient's visits 6.8 times/year. Travel time, residence in zone9 and receiving pension had a significantly effected on the demand of the outpatients covered by the civil servants and the state enterprise staff scheme (F-test=15.604, P Value<0.05). From the equation, 24.7% (R^2) could explained the outpatient's visits changed and the standard error of the estimate was 5.06 (Table 55 see appendix). The correlation of independent variables was not more than 0.246 (Table 56 see appendix). They were not multicollinearity.

Demand for outpatient's services The civil servant and the state enterprise staff group

$$= 6.470-0.014(\text{Travel time})+1.218(\text{Residence in Zone9})+1.222(\text{Receiving pension}) \dots 5$$

5. The patient's paying by their own pocket

This group had an average number of outpatient's visits 4.7 times/year. Status widowed/ separated/divorced, residence in Zone9, housewives/jobless and age had a significantly effected on the demand of the outpatients paying by their own pocket (F-test =6.662, P Value<0.05). From the equation, 25.2% (R^2) could explained the outpatient's visits changed and the standard error of the estimate was 3.36 (Table 57 see appendix). The correlation of independent variables was not more than 0.233 (Table 58 see appendix). They were not multicollinearity.

Demand for outpatient's services The out of pocket group

$$= 2.405 + 1.118 (\text{Widowed/separated/divorced}) + 1.071 (\text{Residence in Zone9}) \\ + 1.011 (\text{Housewives/jobless}) + 0.020 (\text{Age}) \dots 6$$

B. The inpatient department

The 700 inpatients had an average length of stay in Lerdsin Hospital for 9 days/year. The correlation of independents variable was not more than 0.258. They were not multicollinearity (Table 35).

Table 35 Correlation of independent variables of inpatient services

Variables	LOS	Severe2	Severe1	Sex	Type2	OCC6	Travel time	Cost2	Place1	Age2
LOS	1.000									
Severe2	.450	1.000								
Severe1	.394	.254	1.000							
Sex	-.390	-.110	-.078	1.000						
Type2	.383	.143	.154	-.175	1.000					
OCC6	.371	.043	.055	-.082	.019	1.000				
Travel time	.353	.005	.005	-.086	.181	.061	1.000			
Cost2	.347	.100	.095	-.083	.057	.096	-.025	1.000		
Place1	-.334	.038	-.038	.035	-.025	-.162	-.239	.176	1.000	
Age2	.329	.248	.242	-.019	.241	.258	-.086	.149	.334	1.000

Note: Severe2 = severe symptoms, Severe1 = moderate symptoms, Type2 = chronic illness, OCC6 = receiving pension, Cost2 = had health insurance, Place1 = residence in zone9, Age2 = age > 60 years

The stepwise method was used for screening the effect of the independent variables on the dependent variables and to rank them according to the importance of the variables (Table 36). Severe2, Severe1, Sex, Type2, OCC6, Travel time, Cost2, Place1 and Age2 had a significantly effected on the demand for inpatient’s services (F-test=18.71, P-Value<0.05). From the equation, 52.0% (R^2) could explained the length of stay changed and the standard error of the estimate was 7.48.

Table 36 Determinant factors of inpatient services utilization at Lerdsin Hospital

Variables	B	Std.Error	Beta	T	Sig
(Constant)	3.317	0.848		3.500	0.000
Severe2	4.203	0.671	0.439	4.280	0.000
Severe1	2.158	0.560	0.358	3.748	0.000
Sex	-2.919	0.783	-0.290	-3.557	0.000
Type2	3.048	0.534	0.260	3.412	0.000
OCC6	3.094	0.411	0.248	3.268	0.000
Travel time	0.011	0.583	0.181	3.233	0.000
Cost2	1.151	0.774	0.177	3.209	0.000
Place1	-1.420	0.482	-0.114	-3.141	0.001
Age2	2.210	0.670	0.100	2.628	0.009
R = 0.721 R² = 0.520 Adjust R² = 0.519 Std.Error = 7.48 F-test = 18.71 P-Value < 0.05					

When the dummy variables were transformed. Severe symptoms, moderate symptoms, female, chronic illness, receiving pension, travel time, had health insurance, residence in zone 9 and age > 60 years were related to the demand for inpatient's services.

Demand for inpatient's services

$$= 3.317 + 4.203 (\text{Severe symptoms}) + 2.158 (\text{Moderate severity}) - 2.919 (\text{Female}) \\ + 3.048 (\text{Chronic illness}) + 3.094 (\text{Receiving pension}) + 0.011 (\text{Travel time}) \\ + 1.151 (\text{Had health insurance}) - 1.420 (\text{Residence in Zone9}) + 2.210 (\text{Age} > 60 \text{ year}) \dots 7$$

From the model estimating the demand for inpatient's services, the following variables were found:-

- Severity of illness: If the patients had severe symptoms, they would stay increased 4.20 days/year while the patients with moderate symptoms did stay increased 2.16 days/year when compared with the length of stay of patients with mild symptoms while the other variables remained constant.

- Sex: Female patients did stay in the hospital less than male patients for 2.92 days/year while the other variables remained constant.

- Type of illness: If the patients had chronic illness, they would stay increased 3.05 days/ year when compared with the patients who came for the delivery and acute diseased patients while the other variables remained constant.

-Occupation: If the patients received pension as former civil servant, they would stay increased 3.09 days/year when compared with patients who worked as worker, pupil and student, housewife or jobless, merchant, civil servants and the state enterprise staff, and staff of a company while the other variables remained constant.

-Traveling time: If traveling time to and back from the hospital increased 100 minutes, the length of stay in the hospital would decreased 1.1 days/year while the other variables remained constant.

-The medical costs at Lerdsin Hospital in the past: If the patients had health insurance, the length of stay would increased 1.15 days/year higher than the patients who paid for the treatment from their pockets while other variables remained constant.

- Residence: If the patients lived in Zone 9, they would stay decreased 1.42 days/year less than the patients who lived outside zone 9 while the other variables remained constant.

-Age: If the patients were the age more than 60 years, they would stay increased 2.21 days /year more than the patients in the age of < 60 years while the other variables remained constant.

Factors affected the demand for inpatient’s services were studied when divided according to the 5 types of eligibility for health services. The results could be concluded as follows:-

1. The patient’s holding gold card with 30 Baht payment

This group had an average length of stay in Lerdsin Hospital for 8.9 days/year. Sex, worker, chronic illness, moderate symptoms, and travel time had a significantly effected on the demand of the inpatients holding gold card with 30 Baht payment (F-test=12.401, P-Value<0.05). From the equation, 34.2% (R^2) could explained the length of stay changed and the standard error of the estimate was 7.12 (Table 59 see appendix). The correlation of independent variables was not more than 0.216 (Table 60 see appendix). They were not multicollinearity.

<p>Demand for inpatient’s services The gold card with 30 Baht payment group</p> <p>= 4.101 – 2.993 (Female) + 1.286 (Worker) + 2.102 (Chronic illness)</p> <p>+ 2.314 (Moderate symptoms) + 0.022 (Travel time) ...8</p>
--

2. The patient's holding gold card without 30 Baht payment

This group had an average length of stay in Lerdsin Hospital for 10.8 days/year. Sex, severe symptoms, chronic illness, housewife/jobless and moderate symptoms had a significantly effected on the demand of the inpatients holding gold card without 30 Baht payment (F-test=15.021, P Value<0.05). From the equation, 41.5% (R^2) could explained the length of stay changed and the standard error of the estimate was 8.61 (Table 61 see appendix). The correlation of independent variables was not more than 0.249 (Table 62 see appendix). They were not multicollinearity.

Demand for inpatient's services The gold card without 30 Baht payment group

$$= 6.819 - 3.484 (\text{Female}) + 5.157 (\text{Severe symptoms}) + 2.123 (\text{Chronic illness}) \\ + 2.426 (\text{Housewives/jobless}) + 2.464 (\text{Moderate symptoms}) \quad \dots 9$$

3. The patient's covered by the social security scheme

This group had an average length of stay in Lerdsin Hospital for 7.1 days/year. Sex, chronic illness, travel time and moderate symptoms had a significantly effected on the demand of the inpatients covered by the social security scheme (F-test= 13.292, P-Value<0.05). From the equation, 33.2% (R^2) could explained the length of stay changed and the standard error of the estimate was 6.28 (Table 63 see appendix). The correlation of independent variables was not more than 0.096 (Table 64 see appendix). They were not multicollinearity.

Demand for inpatient's services The social security scheme group

$$= 3.341 - 3.567 (\text{Female}) + 2.406 (\text{Chronic illness}) + 0.028 (\text{Travel time}) + 1.741 (\text{Moderate symptoms}) \quad \dots 10$$

4. The patient's covered by the civil servants-state enterprise staff scheme

This group had an average length of stay in Lerdsin Hospital for 11.2 days/year. Receiving pension, chronic illness, severe symptoms and moderate symptoms had a significantly effected on the demand of the inpatients covered by the civil servants and the state enterprise staff scheme (F-test=11.431, P-Value<0.05). From the equation, 36.4% (R^2) could explained the length of stay changed and the standard error of the estimate was 6.19 (Table 65 see appendix). The correlation of independent variables was not more than 0.182 (Table 66 see appendix).

<p>Demand for inpatient’s services The civil servants and the state enterprise staff group</p> <p>= 6.447 + 4.965 (Receiving pension) + 4.655 (Chronic illness) + 4.426 (Severe symptoms)</p> <p>+ 2.148 (Moderate symptoms)11</p>

5. The patient’s paying by their own pocket

This group had an average length of stay in Lerdsin Hospital for 6.1 days/year. Chronic illness, travel time, sex, residence in zone9 and age>60 years had a significantly effected on the demand of inpatients paying by their own pocket (F-test =23.648, P-Value<0.05). From the equation, 41.2% (R²) could explained the length of stay changed and the standard error of the estimate was 5.76 (Table 67 see appendix). The correlation of independent variables was not more than 0.395 (Table 68 see appendix). They were not multicollinearity.

<p>Demand for inpatient’s services The out of pocket group</p> <p>= 4.746 + 2.242(Chronic illness)+ 0.019(Travel time)- 3.236(Female)</p> <p>- 2.41(Residence in Zone9) + 2.096(Age > 60 year)12</p>
--

C. Conclusion of the results after determining the factors affecting the demand for health services of the Lerdsin Hospital

The model determined the factors affecting the demand for health services, indicated by the number of outpatient’s visits and the length of stay of the Lerdsin Hospital. The result was achieved by applying multiple regressions with stepwise inclusion of variables into the equation. 9 factors significantly affected the number of outpatient’s visits (Equation 1) and 8 factors significantly affected the average length of stay in the hospital per year (Equation 7). The following can be concluded:-

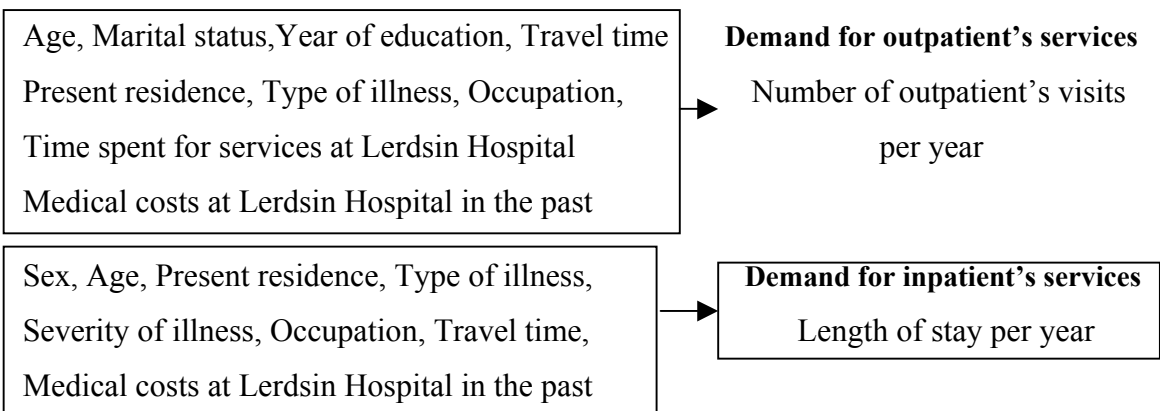


Figure 10 Determinant factors of demand for out-and inpatient departments

The factors were analyzed and the correlation could be concluded as follows:-

1. **Sex:** Sex did not affect the number of outpatient's visits but affected the length of stay in the hospital. Male patients had an average length of stay of 10.5 days/year while the female patients had an average length of stay of 7.8 days/year.

2. **Age:** Age was a factor that affected the number of outpatient's visits and the length of stay in the hospital:-

A. Outpatient department: Age was a factor affecting the number of outpatient's visits. Patients in the age ≤ 12 years had an average number of visits of 8 times/year. The number of outpatient's visits had the lowest in the age range between 13 to 20 years (Mean=5.6 times/year). If age was >20 years, the number of outpatient's visits was positively related with the age. The patients in the age of > 60 years had the highest number of outpatient's visits (Mean=8.6 times/year).

B. Inpatient department: The patient in the age of ≤ 12 years had an average length of stay of 8.1 days/year and the lowest length of stay was found for the age group 13 to 20 years (Mean=6.3 days/year). If age was >20 years, the length of stay in the hospital was positively related with the age. The patients in the age of > 60 years had the highest length of stay in the hospital (Mean=10.4 days/year).

3. **Marital status:** The marital status did not affect the length of stay in the hospital but the number of outpatient's visits. The patients being widowed, divorced, or separated had the highest number of outpatient's visits (Mean=9.5 times/year), followed by married patients (Mean=7.4 times / year). Single patients had the lowest number of outpatient's visits (Mean=7.3 times/year).

4. **Residence:** The residence of the patients affected the number of outpatient's visits and the length of stay in the hospital as follows:-

A. Outpatient department: Patients living in zone9 had the highest number of outpatient's visits (Mean=8.2 times/year) followed by the patients living outside zone9 (Mean=6.1 times/year). Patients living in the provinces had the lowest number of visits (Mean=5.5 times/year).

B. Inpatient department: Patients living in the provinces had the highest length of stay in the hospital (Mean=10.6 days/year) followed by the patients living outside zone9 (Mean=9.1 days/ year). Patients living in zone9 had the lowest length of stay in the hospital (Mean=8.5 days/year).

5. **Number of years for education:** The number of years for education did not affect the length of stay in the hospital but affected the number of outpatient's visits. Uneducated patients had the highest number of outpatient's visits (Mean=9.9 times/year). The number of visits was inversely related with the number of years for education. The patients with > 16 years of education had the lowest number of outpatient's visits (Mean=6.1 times/year).

6. **Type of illness:** The type of illness affected the number of outpatient's visits and the length of stay in the hospital as follows:-

A. Outpatient department: Chronic diseased patients had the highest number of outpatient's visits (Mean=8.8 times/year), followed by patients suffering from acute diseases (Mean=6.8 times/year). Patients who came for health promotion or prenatal care had the lowest number of outpatient's visits (Mean=6.2 times/year).

B. Inpatient department: Chronic diseased patients had the longest length of stay in the hospital (Mean=10 days/year), followed by the acute diseased patients (Mean= 7.8 days/year). Females coming for delivery had the lowest length of stay in the hospital (Mean=3.2 days/year).

7. **Severity of illness:** The severity of illness did not affect the number of outpatient's visits but the length of stay in the hospital. Patients with severe symptoms did stay the longest in the hospital (Mean=9.9 days/year), followed by the patients with moderate symptoms (Mean=7.2 days/year). The length of stay in hospital of patients with mild symptoms was the shortest (Mean=5.5 days/year).

8. **Occupation:** The occupation affected the number of outpatient's visits and the length of stay in the hospital as follows:-

A. Outpatient department: Patients being housewives or jobless had the highest number of outpatient's visits (Mean=8.2 times/year), followed by patient being on pension, pupil/student, patient working as worker, civil servants and the state enterprise staff, and merchant. Patients working as staff of a company had the lowest number of outpatient's visits (Mean=6.1 times/year).

B. Inpatient department: The patients on pension had the longest length of stay in the hospital (Mean=13.4 days/year), followed by civil servants and employees of government enterprise, worker, housewives/jobless, pupil/student and

merchant. Patients working as staff of a company had the shortest length of stay in the hospital (Mean=6.5 days/year).

9. **Travel time:** The time spent for traveling a round trip from home to the hospital and back affected the number of outpatient's visits and the length of stay in the hospital as follows:-

A. Outpatient department: Patients who spent time for traveling ≤ 30 minutes had the highest number of outpatient's visits (Mean=9.7 times/year). The number of outpatient's was related with the time spent for traveling to and from the hospital. Patient who spent time for traveling for more than 180 minutes had the lowest number of outpatient's visits (Mean=5.6 times/year).

B. Inpatient department: Patient who spent time for traveling more than 180 minutes had the longest length of stay in the hospital (Mean=11 days/year). The length of stay in the hospital was positively related with the travel time. Patients who spent time ≤ 30 minutes for traveling had the shortest length of stay in the hospital (Mean=5.7 days/year).

10. **Time spent for services of Lerdsin Hospital in the past:** Time spent for services in the past did not affect the length of stay in the hospital but affected the number of outpatient's visits. The patients who thought that the time spent for services was not long had the highest number of outpatient's visits (Mean=8.1 times/year), followed by the patients who considered the time spent for services was fair (Mean=7.6 times/year). Patients who complained about time spent for services was too long had the lowest number of outpatient's visits (Mean=6.9 times/year).

11. **Medical costs in the past:** The medical costs at Lerdsin Hospital in the past affected the number of outpatient's visits and the length of stay in the hospital as follows:-

A. Outpatient department: The patients with health insurance had the highest number of outpatient's visits (Mean=8.5 times/year), followed by the patients who thought that the medical costs were reasonable (Mean=6.8 times/year). Patients who considered the medical costs as too expensive had the lowest number of outpatient's visits (Mean=6 times/year).

B. Inpatient department: Patients with health insurance had the longest length of stay in the hospital (Mean=9.3 days/year), followed by the patients

who considered the medical costs were reasonable (Mean=7.9 days/year). Patients who considered the medical costs were too expensive had the shortest length of stay in the hospital (Mean= 7.2 days/year) (Table 37).

Table 37 The number of outpatient's visits and the length of stay at Lerdsin Hospital according to determinant factors

Variables	# of OPD visits per year		Length of stay per year	
	Mean	S.D.	Mean	S.D.
Sex	P-Value = 0.710		P-Value = 0.004	
Male	7.94	7.36	10.52	7.25
Female	7.68	6.46	7.82	5.02
Age (year)	P-Value < 0.001		P-Value < 0.001	
≤ 12	7.97	6.36	8.06	6.10
13 – 20	5.64	3.50	6.27	4.16
21 – 30	5.96	3.71	7.09	5.03
31 – 40	6.24	3.96	8.64	6.21
41 – 50	6.78	5.82	9.42	6.89
51 – 60	8.03	6.18	9.78	7.66
> 60	8.62	6.81	10.35	8.42
Marital status	P-Value = 0.002		P-Value = 0.897	
Single	7.28	6.04	8.78	7.59
Married	7.44	5.84	8.91	8.56
Widowed / separated / divorced	9.48	7.48	9.02	8.43
Residence present	P-Value < 0.001		P-Value = 0.001	
Zone 9	8.22	7.80	8.54	6.30
Not zone9 in Bangkok	6.05	4.48	9.05	7.36
Provinces	5.51	3.36	10.61	8.57
Number of years for education	P-Value < 0.001		P-Value = 0.519	
No study	9.88	8.91	9.20	8.53
1 – 6	7.81	5.80	9.15	8.62
7 – 12	6.88	4.81	9.02	7.45
13 – 16	6.12	5.61	8.89	8.17
> 16	6.09	5.02	8.71	7.20
Type of illness	P-Value < 0.001		P-Value < 0.001	
Health promotion / ANC / delivery	6.21	4.50	3.18	1.13
Acute illness	6.76	5.41	7.82	5.30
Chronic illness	8.76	7.37	10.01	7.89
Severity of illness	P-Value = 0.781		P-Value < 0.001	
Mild symptoms	7.64	6.43	5.50	2.85
Moderate symptoms	7.75	6.94	7.17	6.89
Severe symptoms	7.81	6.80	9.88	8.49
Occupation	P-Value = 0.003		P-Value = 0.014	
Housewives/jobless	8.23	7.44	8.75	7.16
Receiving pension	7.63	5.84	13.41	9.86
Pupil / student	7.43	6.57	8.37	7.28
Worker	6.92	5.68	9.41	8.70
Civil servants-state enterprise staff	6.61	5.51	9.79	7.90
Merchant	6.22	4.97	6.77	5.38
Company staff	6.09	4.86	6.53	4.37

Table 37 The number of outpatient's visits and the length of stay at Lerdsin Hospital according to determinant factors (Continue)

Variables	# of OPD visits per year		Length of stay per year	
	Mean	S.D.	Mean	S.D.
Travel time (minute)	P-Value = 0.002		P-Value = 0.001	
≤ 30	9.71	8.86	5.74	4.82
31-60	8.40	7.22	8.15	7.08
61-120	8.05	6.30	8.62	7.19
121-180	7.15	5.17	9.09	6.95
> 180	5.64	3.50	10.97	8.12
Time spent for services in the past	P-Value < 0.001		P-Value = 0.782	
Not long waiting time	8.13	6.84	9.02	8.22
Fair	7.61	6.12	8.96	8.48
Long waiting time	6.91	5.04	8.97	8.13
Medical costs at Lerdsin Hospital	P-Value < 0.001		P-Value < 0.001	
Expensive	6.00	3.65	7.17	4.69
Reasonable	6.76	3.56	7.86	2.96
Had health insurance	8.45	7.08	9.25	5.64

4.1.4 Relationship between the number of doctors and the number of outpatients at Lerdsin Hospital

Information was obtained about the number of doctors in staff level providing health services to patients during working days from 8.00–12.00 hrs. at the outpatient department from October to December 2003. Data collection was done for 63 working days. In average 41 doctors in staff level provided services to patients per day. When considering different week days, Friday was the day with the highest number of doctors (44 persons) providing services, while Thursday was the day with the lowest number of doctors (37 persons) on duty. The names of doctors on duty for every day was displayed on a board in front of the outpatients department, so that the patients could come to see a particular doctor according to their choice and the doctors could follow the course of diseases of individual patients continuously.

The doctors in staff level had to serve in average 1,619 persons during 8.00 to 12.00 a.m., each working day. Friday had the highest number of outpatients (Mean= 1,732 persons) while Thursday had the lowest number of outpatients (Mean=1,503 persons) (Table 38).

Table 38 The number of doctors in the staff level and the number of outpatients

Statement	Monday	Tuesday	Wednesday	Thursday	Friday	Total
Number of doctors	41.00	41.00	41.00	37.00	44.00	40.81
Number of outpatients	1,550	1,641	1,664	1,503	1,732	1,619

To analyze the relationship between the number of doctors and the number of outpatients, simple linear regression was used. The correlation between the number of doctors in the staff level and the number of outpatients was 0.67 and significant on the P-Value=0.019. The number of doctors in the staff level explained the number of outpatients 44.5% (R^2) with a standard error of estimate of 2.78. The equation of regression in this case was:

$$\text{Number of outpatients} = 638,306 + 24.03 \text{ Number of doctors in the staff level}$$

According to this equation an increase of one doctor at the outpatient department would increase the number of outpatients to 24.03 persons.

4.1.5 The influence of different health insurance schemes on medical costs for patients, length of stay and result of the treatment

Information of service utilization was obtained at the inpatient department of the Lerdsin Hospital from January to December 2003 and analyzed in order to relate the medical costs, length of stay and the result of the treatment for patients suffering from selected diseases with service utilization. The diseases were chosen according to the partly suggestion of Siriwanarangsun (1996 : 69-71) and Jack (1999 : 68-69).

1. It was the most common diseases and no complication. To include the complications into the model require a lot of additional variables which complicates the model and the interpretation of the model would be very difficult. For instance heart disease might or might not be associated with hypertension.

2. The prevalence was high enough to compare these variables between groups of different eligibility for health services.

3. Diseases evaluated for this study had to be defined clearly by signs and symptoms.

4. Some of the diseases consumed a lot of resources in terms of time, money, health personnel, and equipment for treatment.

5. The outcome of treatment was easy to measure and the length of stay did not exceed eight days.

6. The kind of treatment did not vary very much for one and the same medical doctor.

7. Some diseases were clearly related to special categories of patients such as patients undergoing a delivery only could belong to the group of females in the reproductive age, while the overwhelming majority of patients suffering from cataracts would belong to the group of elderly.

Therefore only 10 specific diseases without complication were selected, i.e. normal delivery, delivery by caesarean section, delivery by vacuum extraction, delivery by forcep extraction, cataracts, appendicitis, ovarian cyst, haemorrhoid, ectopic pregnancy and myoma uteri. The results of analysis were as follows:-

4.1.5.1 Women who had normal delivery (Table 39):

The number of women going through normal delivery without complications was 2,362 persons. The majority of them, that was 48.8%, were covered by the social security scheme. The lowest proportion with 0.3% was the women from the group of civil servants and employees of the governmental enterprise. In between had been the groups of women who paid for the treatment from their own pocket and women holding gold cards with 30 Baht payment. In average medical costs amounted to 1,460 Baht, civil servants and the state enterprise staff had the highest average of medical costs to be paid for (Mean=1,711 Baht), the women covered by the social security scheme and the women who paid for the treatment from their own pocket were the groups in between while the women holding gold cards with 30 Baht payment had the lowest average payment for medical costs (Mean=1,229 Baht). The difference in eligibility for health services significantly effected the medical cost (P-Value< 0.05).

The average length of stay in the hospital was 2.57 days. This was longer than reported as standard length of stay for 2000 by the Office of Health Insurance (2001: 412), which was 2.26 days. Civil servants and the state enterprise staff had the longest average length of stay (Mean=2.83 days), followed by the women covered by the social security scheme and the women held gold cards with 30 Baht payment. Women, who paid for the treatment from their own pocket had the shortest average of length of stay (Mean=2.54 days). The different in eligibility for health services however did not significantly effected the length of stay (P-Value=0.31)

The results of treatment for women with normal delivery were that 94% of them completely recovered and 6% were their condition improved. The results of the treatment were not significantly influenced by the difference in the eligibility for health services (P-Value=0.14).

4.1.5.2 Patients who gave birth by caesarian section (Table 39):

The number of patients who gave birth by caesarian section without complications were 375 persons. The majority of them, that was 53.6%, were covered by the social security scheme. The lowest proportion with 2.4% was the patients from the group of civil servants and the state enterprise staff. In between had been the groups of patients who paid for the treatment from their own pocket and the patients holding gold cards with 30 Baht payment. In average medical costs amounted to 9,902 Baht, civil servants and the state enterprise staff had the highest average of medical costs to be paid for (Mean=11,380 Baht), the patients covered by the social security scheme and the patients who paid for the treatment from their own pocket were the groups in between while the patients holding gold cards with 30 Baht payment had the lowest average payment for medical costs (Mean=9,104 Baht). The difference in eligibility for health services significantly effected the medical costs (P-Value< 0.05).

The average length of stay in the hospital was 4.18 days. This was shorter than reported as standard length of stay for 2000 by the Office of Health Insurance (2001: 412), which was 4.33 days. Civil servants and the state enterprise staff had the longest average length of stay (Mean=4.33 days), followed by the patients covered by the social security scheme and the patients held gold cards with 30 Baht payment. Patients paying for the treatment from their own pocket had the shortest average of length of stay (Mean=4.08 days). The different in eligibility for health services however did not significantly effected the length of stay (P-Value=0.33)

The result of treatment for the patients who gave birth by caesarian section was their condition improved. The result of the treatment was not significantly influenced by the difference in the eligibility for health services.

4.1.5.3 Patients who suffered from Myoma uteri (Table 39):

The number of patients who suffered from Myoma uteri without complications were 129 persons. The majority of them, that was 40.3%, were the patients who paid for the treatment from their own pocket. The lowest proportion with 3.9% was the patients from the group of civil servants and the state enterprise staff. In between had been the patients who covered by the social security scheme and the patients holding gold cards with 30 Baht payment. In average medical costs amounted to 13,798 Baht, civil servants and the state enterprise staff had the highest average of medical costs to be paid for (Mean=16,001 Baht), the patients covered by the social security scheme and the patients holding gold cards with 30 Baht payment were the groups in between while the patients who paid for the treatment from their own pocket had the lowest average payment for medical costs (Mean=13,077 Baht). The difference in eligibility for health services significantly effected the medical costs (P-Value< 0.05).

The average length of stay in the hospital was 6.19 days. This was shorter than reported as standard length of stay for 2000 by the Office of Health Insurance (2001: 412), which was 7.67 days. Civil servants and the state enterprise staff had the longest average length of stay (Mean=6.32 days), followed by the patients held gold cards with 30 Baht payment and patients covered by the social security scheme. Patients paying for the treatment from their own pocket had the shortest average of length of stay (Mean=5.80 days). The different in eligibility for health services did not significantly effected the length of stay (P-Value=0.92).

The results of treatment for the patients who suffered from Myoma uteri were that 77.6% of them improved, 20.9% of them were complete recovery and 1.5% of them were not improved. The results of the treatment were not significantly influenced by the difference in the eligibility for health services (P-Value=0.85).

Table 39 The average medical costs, length of stay and results of treatment of women who had a normal delivery, the patients who gave birth by caesarian section and the patients who suffered from Myoma uteri according to the eligibility for health services

Statement	Gold card with 30 Baht payment	Social security	Civil servant	Out of pocket	Total	P-Value
Normal delivery						
Number of patients	272 (11.5%)	1,152 (48.8%)	7 (0.3%)	931 (39.4%)	2,362 (100.0%)	
Price (Baht)						
Mean	1,229	1,627	1,711	1,318	1,460	
S.D.	196	256	427	198	283	< 0.001
LOS (Days)	LOS standard = 2.26 (Days)					
Mean	2.57	2.59	2.83	2.54	2.57	
S.D.	0.80	0.74	0.75	0.77	0.76	0.310
Results						
Complete recovery	91.2%	94.1%	85.7%	95.0%	94.0%	
Improved	8.8%	5.9%	14.3%	5.0%	6.0%	0.139
Caesarian section						
Number of patients	32 (8.5%)	201 (53.6%)	9 (2.4%)	133 (35.5%)	375 (100.0%)	
Price (Baht)						
Mean	9,104	10,445	11,380	9,174	9,902	
S.D.	1,780	1,123	1,449	1,777	1,597	< 0.001
LOS (Days)	LOS standard = 4.33 (Days)					
Mean	4.09	4.26	4.33	4.08	4.18	
S.D.	0.73	0.89	0.50	0.80	0.84	0.332
Results						
Improved	100.0%	100.0%	100.0%	100.0%	100.0%	No sig
Myoma uteri						
Number of patients	28 (21.7%)	44 (34.1%)	5 (3.9%)	52 (40.3%)	129 (100.0%)	
Price (Baht)						
Mean	13,339	14,690	16,001	13,077	13,798	
S.D.	3,133	2,540	1,370	2,803	2,854	0.009
LOS (Days)	LOS standard = 7.67 (Days)					
Mean	6.25	6.09	6.32	5.80	6.19	
S.D.	1.92	1.97	1.85	0.84	1.88	0.915
Results						
Complete recovery	14.3%	22.7%	---	25.0%	20.9%	
Improved	85.7%	77.3%	100%	71.2%	77.6%	
Not recovery	----	---	---	3.8%	1.5%	0.854

4.1.5.4 Patients who gave birth by Vaccum extraction (Table 40):

The number of patients who gave birth by vaccum extraction without complications were 73 persons. The majority of them, that was 54.8%, were covered by the social security scheme followed by the patients who paid for the treatment from their own pocket. The lowest proportion with 6.8% was the patients holding gold cards with 30 Baht payment. In average medical costs amounted to 2,276 Baht, the

patients covered by the social security scheme had the highest average of medical costs to be paid for (Mean=2,362 Baht), followed by the patients holding gold cards with 30 Baht payment while the patients paying for treatment from their own pocket had the lowest average payment for medical costs (Mean=2,035 Baht). The difference in eligibility for health services did not significantly affected the medical costs (P-Value =0.32).

The average length of stay in the hospital was 2.91 days. This was shorter than reported as standard length of stay for 2000 by the Office of Health Insurance (2001: 412), which was 3.00 days. The patients covered by the social security scheme had the longest average length of stay (Mean=3.10 days), followed by the patients held gold cards with 30 Baht payment. Patients paying for the treatment from their own pocket had the shortest average of length of stay (Mean=2.50 days). The different in eligibility for health services did not significantly effected the length of stay (P-Value=0.26).

The result of treatment for the patients who gave birth by vaccum extraction was their condition improved. The result of the treatment was not significantly influenced by the difference in the eligibility for health services.

4.1.5.5 Patients who gave birth by Forcep extraction (Table 40):

The number of patients who gave birth by forcep extraction without complications were 68 persons. The majority of them, that was 48.6%, were the patients who paid for the treatment from their own pocket, followed by the patients covered by the social security scheme. The lowest proportion with 8.8% was the patients holding gold cards with 30 Baht payment. In average medical costs amounted to 2,161 Baht, the patients covered by the social security scheme had the highest average of medical costs to be paid for (Mean=2,281 Baht), followed by the patients holding gold cards with 30 Baht payment while the patients paying for treatment from their own pocket had the lowest average payment for medical costs (Mean=1,913 Baht). The difference in eligibility for health services did not significantly effected the medical costs (P-Value=0.10).

The average length of stay in the hospital was 2.74 days. This was shorter than reported as standard length of stay for 2000 by the Office of Health Insuranc

(2001: 412), which was 3.00 days. The patients held gold cards with 30 Baht payment had the longest average length of stay (Mean=3.50 days), followed by the patients covered by the social security scheme. Patients paying for the treatment from their own pocket had the shortest average of length of stay (Mean=2.24 days). The different in eligibility for health services significantly effected the length of stay (P-Value<0.05).

The result of treatment for the patients who gave birth by forcep extraction was their condition improved. The result of the treatment was not significantly influenced by the difference in the eligibility for health services.

4.1.5.6 Patients who suffered from Ectopic pregnancy (Table 40):

The number of patients who suffered from Ectopic pregnancy without complications were 68 persons. The majority of them, that was 51.4%, were the patients who paid for the treatment from their own pocket, followed by the patients covered by the social security scheme. The lowest proportion with 11.8% was the patients holding gold cards with 30 Baht payment. In average medical costs amounted to 12,799 Baht, the patients covered by the social security scheme had the highest average of medical costs to be paid for (Mean=13,935 Baht), followed by the patients holding gold cards with 30 Baht payment while the patients paying for treatment from their own pocket had the lowest average payment for medical costs (Mean=12,014 Baht). The difference in eligibility for health services significantly effected the medical costs (P-Value< 0.05).

The average length of stay in the hospital was 4.13 days. This was shorter than reported as standard length of stay for 2000 by the Office of Health Insurance (2001: 412), which was 4.22 days. The patients held gold cards with 30 Baht payment had the longest average length of stay (Mean=4.88 days), followed by the patients covered by the social security scheme. Patients paying for the treatment from their own pocket had the shortest average of length of stay (Mean=3.80 days). The different in eligibility for health services significantly effected the length of stay (P-Value<0.05).

The results of treatment for the patients who suffered from Ectopic pregnancy were that 73.5% of them improved and 26.5% were completely recovered. The results

of the treatment were not significantly influenced by the difference in the eligibility for health services (P-Value=0.54).

Table 40 The average medical costs, length of stay and results of treatment of the patients who gave birth by vacuum-and forcep extraction and the patients who suffered from Ectopic pregnancy according to the eligibility for health services

Statement	Gold card with 30 B payment	Social security	Out of pocket	Total	P-Value
Vacuum extraction					
Number of patients	5 (6.8%)	40 (54.8%)	28 (38.4%)	73 (100.0%)	
Price (Baht)					
Mean	2,171.25	2,361.50	2,035.00	2,276.07	
S.D.	665.24	460.80	388.91	552.95	0.320
LOS (Days)	LOS standard = 3.00 (Days)				
Mean	2.68	3.10	2.50	2.91	
S.D.	0.90	1.10	0.71	1.03	0.260
Results					
Improved	100.0%	100.0%	100.0%	73 (100.0%)	No sig
Forcep extraction					
Number of patients	6 (8.8%)	29 (42.6%)	33 (48.6%)	68 (100.0%)	
Price (Baht)					
Mean	2,084.70	2,281.48	1,913.00	2,160.76	
S.D.	495.60	348.10	182.96	433.45	0.100
LOS (Days)	LOS standard = 3.00 (Days)				
Mean	3.50	3.21	2.24	2.74	
S.D.	1.29	1.42	1.03	1.32	0.010
Results					
Improved	100.0%	100.0%	100.0%	68 (100.0%)	No sig
Ectopic pregnancy					
Number of patients	8 (11.8%)	25 (36.8%)	35 (51.4%)	68 (100.0%)	
Price (Baht)					
Mean	12,678.88	13,935.08	12,014.54	12,798.78	
S.D.	924.50	1,164.83	1,654.19	1,663.94	< 0.001
LOS (Days)	LOS standard = 4.22 (Days)				
Mean	4.88	4.36	3.80	4.13	
S.D.	1.73	1.19	1.08	1.24	0.043
Results					
Complete recovery	---	24.0%	39.3%	18 (26.5%)	
Improved	100.0%	76.0%	65.7%	50 (73.5%)	0.539

4.1.5.7 Patients who suffered from Appendicitis (Table 41):

The number of patients who suffered from Appendicitis without complications were 467 persons. The majority of them, that was 37.5%, were the patients who paid for the treatment from their own pocket, followed by the patients who covered by the social security scheme, the patients holding gold cards with and without 30 Baht payment. The lowest proportion with 1.2% was the patients from the group of civil

servants and the state enterprise staff. In average medical costs amounted to 9,586 Baht, civil servants and the state enterprise staff had the highest average of medical cost to be paid for (Mean=13,861 Baht), followed by the patients covered by the social security scheme, the patients who paid for the treatment from their own pocket and the patients holding gold cards with 30 Baht payment. The patients held gold cards without 30 Baht payment had the lowest average payment for medical costs (Mean=8,710 Baht). The difference in eligibility for health services significantly effected the medical costs (P-Value< 0.05).

The average length of stay in the hospital was 4.03 days. This was shorter than reported as standard length of stay for 2000 by the Office of Health Insurance (2001: 412), which was 6.42 days. Civil servants and the state enterprise staff had the longest average length of stay (Mean=4.39 days), followed by the patients held gold cards without and with 30 Baht payment and the patients covered by the social security scheme. Patients paying for the treatment from their own pocket had the shortest average of length of stay (Mean=3.66 days). The different in eligibility for health services significantly effected the length of stay (P-Value<0.05).

The results of treatment for the patients who suffered from Appendicitis were that 89.9% of them improved and 10.1% of them were complete recovery. The results of the treatment were not significantly influenced by the difference in the eligibility for health services (P-Value=0.72).

4.1.5.8 Patients who suffered from Cataract (Table 41):

The number of patients who suffered from Cataract without complications were 439 persons. The majority of them, that was 64.2%, were the patients holding gold cards without 30 Baht payment, followed by the patients who paid for the treatment from their own pocket, the patients holding gold cards with 30 Baht payment and the patients from the group of civil servants and the state enterprise staff. The lowest proportion with 7.3% was the patients who covered by the social security scheme. In average medical costs amounted to 15,218 Baht, civil servants and the state enterprise staff had the highest average of medical costs to be paid for (Mean= 15,932 Baht), followed by the patients holding gold cards with 30 Baht payment, the patients who paid for the treatment from their own pocket and the patients covered by

the social security scheme. The patients held gold cards without 30 Baht payment had the lowest average payment for medical costs (Mean=15,070 Baht). The difference in eligibility for health services significantly effected the medical costs (P-Value< 0.05).

The average length of stay in the hospital was 2.02 days. This was shorter than reported as standard length of stay for 2000 by the Office of Health Insurance (2001: 412), which was 3.71 days. Civil servants and the state enterprise staff had the longest average length of stay (Mean=2.11 days), followed by the patients held gold cards without 30 Baht payment, the patients covered by the social security scheme and the patients held gold cards with 30 Baht payment. Patients paying for the treatment from their own pocket had the shortest average of length of stay (Mean= 1.99 days). The different in eligibility for health services did not significantly effected the length of stay (P-Value=0.16).

The results of treatment for the patients who suffered from Cataract were that 70.7% of them improved and 29.3% of them were complete recovery. The results of the treatment were not significantly influenced by the difference in the eligibility for health services (P-Value=0.44).

4.1.5.9 Patients who suffered from Ovarian cyst (Table 41):

The number of patients who suffered from Ovarian cyst without complications were 72 persons. The majority of them, that was 38.9%, were the patients who covered by the social security scheme, followed by the patients holding gold cards without and with 30 Baht payment and the patients who paid for the treatment from their own pocket. The lowest proportion with 6.9% was the patients from the group of civil servants and the state enterprise staff. In average medical costs amounted to 13,047 Baht, civil servants and the state enterprise staff had the highest average of medical costs to be paid for (Mean=14,400 Baht), followed by the patients covered by the social security scheme, the patients holding gold cards without and with 30 Baht payment. The patients who paid for the treatment from their own pocket had the lowest average payment for medical costs (Mean=12,156 Baht). The difference in eligibility for health services did not significantly effected the medical costs (P-Value= 0.36).

The average length of stay in the hospital was 6.11 days. This was shorter than reported as standard length of stay for 2000 by the Office of Health Insurance (2001: 412), which was 7.67 days. Civil servants and the state enterprise staff had the longest average length of stay (Mean=6.67 days), followed by the patients held gold cards without and with 30 Baht payment, and the patients covered by the social security scheme. Patients paying for the treatment from their own pocket had the shortest average of length of stay (Mean=5.61 days). The difference in eligibility for health services significantly affected the length of stay (P-Value<0.05).

The results of treatment for the patients who suffered from Ovarian cyst were that 86.1% of them improved and 13.9% of them were complete recovery. The results of the treatment were not significantly influenced by the difference in the eligibility for health services (P-Value=0.93).

4.1.5.10 **Patients who suffered from Hemorrhoid** (Table 41):

The number of patients who suffered from Hemorrhoid without complications were 70 persons. The majority of them, that was 50.0%, were the patients holding gold cards without 30 Baht payment, followed by the patients who paid for the treatment from their own pocket, the patients holding gold cards with 30 Baht payment and the patients from the group of civil servants and the state enterprise staff. The lowest proportion with 7.1% was the patients who covered by the social security scheme. In average medical costs amounted to 8,703 Baht, civil servants and the state enterprise staff had the highest average of medical costs to be paid for (Mean=10,122 Baht), followed by the patients covered by the social security scheme, the patients holding gold cards with and without 30 Baht payment. The patients who paid for the treatment from their own pocket had the lowest average payment for medical costs (Mean=8,129 Baht). The difference in eligibility for health services did not significantly affect the medical costs (P-Value=0.12).

The average length of stay in the hospital was 3.91 days. This was shorter than reported as standard length of stay for 2000 by the Office of Health Insurance (2001: 412), which was 4.62 days. Civil servants and the state enterprise staff had the longest average length of stay (Mean=4.75 days), followed by the patients held gold cards without and with 30 Baht payment, and the patients covered by the social

security scheme. Patients paying for the treatment from their own pocket had the shortest average of length of stay (Mean=3.50 days). The different in eligibility for health services did not significantly effected the length of stay (P-Value=0.06).

The results of treatment for the patients who suffered from Hemorrhoid were that 87.1% of them improved and 12.9% of them were complete recovery. The results of the treatment were not significantly influenced by the difference in the eligibility for health services (P-Value=0.07).

Table 41 The average medical costs, length of stay and result of treatment of the patients who suffered from Appendicitis, Cataract, Ovarian cyst and Hemorrhoid according to the eligibility for health services

Statement	Gold card with 30 Baht payment	Gold card without 30 Baht payment	Social security	Civil servant	Out of pocket	Total	P-Value
Appendicitis							
Number of patients	84 18.0%	61 13.1%	141 30.2%	6 1.2%	175 37.5%	467 100.0%	
Price (Baht)							
Mean	8,848	8,710	10,325	13,861	9,577	9,586	< 0.001
S.D.	2,277	2,437	2,450	1,758	2,698	2,598	
LOS (Days)	LOS standard = 6.42 (Days)						
Mean	3.94	4.08	3.67	4.39	3.66	4.03	< 0.001
S.D.	0.84	0.85	1.15	0.89	0.77	0.87	
Results							
Complete recovery	4.7%	11.5%	10.6%	---	12.0%	10.1%	0.716
Improved	95.3%	88.5%	89.4%	100%	88.0%	89.9%	
Cataract							
Number of patients	39 8.9%	282 64.2%	32 7.3%	35 8.0%	51 11.6%	439 100.0%	
Price (Baht)							
Mean	15,302	15,070	15,222	15,932	15,275	15,218	< 0.001
S.D.	1,104	542	153	309	233	621	
LOS (Days)	LOS standard = 3.71 (Days)						
Mean	2.04	2.10	2.06	2.11	1.99	2.02	0.162
S.D.	0.28	0.31	0.44	0.32	0.39	0.37	
Results							
Complete recovery	23.1%	31.2%	37.5%	14.3%	29.4%	29.3%	0.442
Improved	76.9%	68.8%	62.5%	85.7%	70.6%	70.7%	

Table 41 The average medical costs, length of stay and result of treatment of the patients who suffered from Appendicitis, Cataract, Ovarian cyst and Hemorrhoid according to the eligibility for health services (Continue)

Statement	Gold card with 30 Baht payment	Gold card without 30 Baht payment	Social security	Civil servant	Out of pocket	Total	P-Value
Ovarian cyst							
Number of patients	12 16.7%	21 29.2%	28 38.9%	5 6.9%	6 8.3%	72 100.0%	
Price (Baht)							
Mean	12,404	13,162	13,343	14,400	12,156	13,047	0.364
S.D.	1,407	2,314	1,776	141	989	1,754	
LOS (Days)	LOS standard = 7.67 (Days)						
Mean	6.22	6.42	6.12	6.67	5.61	6.11	0.049
S.D.	1.68	1.41	0.97	1.53	1.31	1.36	
Results							
Complete recovery	16.7%	9.5%	17.8%	---	16.7%	13.9%	0.934
Improved	83.3%	90.5%	82.8%	100%	83.3%	86.1%	
Hemorrhoid							
Number of patients	10 14.3%	35 50.0%	5 7.1%	7 10.0%	13 18.6%	70 100.0%	
Price (Baht)							
Mean	8,732	8,629	9,823	10,122	8,129	8,703	0.121
S.D.	1,158	1,351	2,351	1,903	1,257	1,396	
LOS (Days)	LOS standard = 4.62 (Days)						
Mean	3.80	4.69	3.57	4.75	3.50	3.91	0.056
S.D.	1.32	1.25	1.24	0.96	0.71	1.29	
Results							
Complete recovery	20.0%	---	40.0%	---	38.5%	12.9%	0.073
Improved	80.0%	100.0%	60.0%	100.0%	61.5%	87.1%	

Eligibility for health services, significantly effected the medical costs of 6 diseases and the average length of stay in the hospital of 4 diseases (P-Value <0.05) Eligibility for health services did not effected the result of treatment in the 10 diseases under study:-

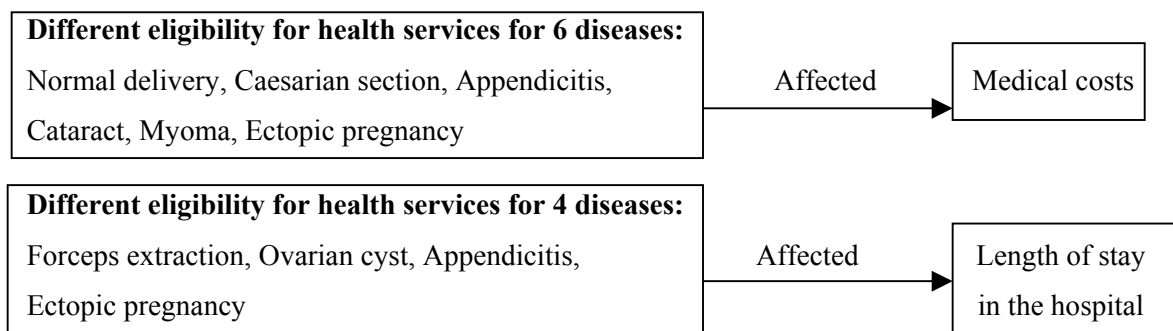


Figure 12 The patients with the different eligibility for health services and the diseases which affected the medical costs and length of stay in the hospital

Part 2 Management staff of Lerdsin Hospital

After the implementation of the Universal Health Coverage scheme at Lerdsin Hospital in January 2002, the heads of the departments were asked to answer a questionnaire about the satisfaction towards the management system, and how the Lerdsin Hospital was affected by the scheme and they also were asked for comments about the development to improve the health services. There had been 25 sets of questionnaires given to the staff of the hospital, which were heads of departments. The questionnaires were collected from them one week later. 18 sets of the questionnaire were returned back, which was 72% of the total of the questionnaires distributed. The questionnaire was answered by the hospital director, 3 vice directors and 14 heads of departments.

The results of this part of the study were given in Table 42. Satisfaction with the services provided at the out-and inpatient departments during 3 months before answering the questionnaire was scored 7.35 (S.D.=0.49). Satisfaction with the Universal health coverage scheme during 3 months before answering the questionnaire was scored 5.25 (S.D.=0.91).

Table 42 The level of satisfaction of the management staff with the services provided and the Universal Health Coverage scheme (Possible total score=10)

Content	Mean	S.D.	Min	Max
1. The results of the services at out-and inpatient department during the past 3 months	7.35	0.49	7.00	8.00
2. The Universal Health Coverage scheme during the past 3 months	5.25	0.91	3.00	6.00

The comment of the managers of the Lerdsin Hospital about the hospital management, hospital services, health personnel, quality and efficiency, and the financial management of the hospital was as follows:-

4.2.1 Hospital management

4.2.1.1 In Bangkok, patients holding gold cards had not to follow the same service procedure as the patients in the provinces. Patients had to follow 3 steps of service procedures (Primary health care, Secondary care and Tertiary care) before the Universal Health Coverage scheme was introduced. Under the Universal Health Coverage scheme, Lerdsin Hospital became the principal health provider to provide health services to patients, holding gold cards. They were entitled to come to receive

the services at Lerdsin Hospital directly. This improved the convenience and accessibility for the services so that the number of health receivers increased (33.3%).

4.2.1.2 After the implementation of the Universal Health Coverage scheme, the mission of Lerdsin Hospital changed from the concentrate on complicated disease and conditions which need medical tools of high technology to general disease treatment by the special doctors. As a result of these circumstances, it effected the medical science development to be decreased (26.7%).

4.2.1.3 The hospital management could not predict the demand for health services of the health receiver when they did not have the financial barrier (20%).

4.2.1.4 The medical costs for patients who had no permanent residence in Bangkok became a burden for hospital (20%).

4.2.2 Hospital services

4.2.2.1 Service procedure became more complicated. Checking the eligibility for health services before seeing the doctor prolonged the waiting time (21.1%).

4.2.2.2 The health services provided to the patients with and without the health insurance according to the health service standard of clinical practice guideline and protocol (21.1%).

4.2.2.3 The patients holding gold cards wanted to have the same medicine as they got when paying for the treatment out of their own pocket. However the doctor could only prescribe medicine that had been listed in the medicine directory. That made patients dissatisfied because they understood that the medicine given was of substandard (15.7%).

4.2.2.4 The specialists rotated in working at primary care unit (PCU) outside the hospital. Most of them preferred to work in the hospital instead at the PCU. They preferred to provide treatment in their field of specialization and were not satisfied by acting as general practitioners. The new scheme emphasizes on health promotion and disease prevention, but it was difficult to achieve the targets in these fields, since the specialists still cling to the old health system which emphasized on treatment (15.7%).

4.2.2.5 The risk to be sued by the patients for insufficient treatment increased. The doctors had the impression that patients now have a high opportunity to sue them. This negatively influenced the patient – provider relationship. In case the relationship was friendly before but now was influenced by suspicion (15.7%).

4.2.2.6 Some patients holding the gold card did not inform the health personnel about this, they were afraid that the services they receive was not good, if they used the gold card. But they changed their mind, when it came to pay for the treatment (5.4%).

4.2.2.7 A lot of patients who held gold cards had the means to pay for the treatment out of their own pocket, but use the gold card and were willing to pay for the extras such as special rooms, special meals, imported medicine, services of a special nurse to care for them etc. To treat the patients on the basis of the gold card scheme caused the hospital to loose money and the government had to spend unnecessarily the budget for patients, who were able to pay for the treatment. It would be better to spend the money for those in real need instead of wasting it for those, who were much better off financially (5.3%).

4.2.3 Health personnel

4.2.3.1 The working task increased but the health personnel decreased (30.8%).

4.2.3.2 Paid by salary was no motivation for the health staff to work that hard. It should be paid according to the performance (23.2%).

4.2.3.3 The health personnel felt that the health policy was only in favor of the health receivers and neglect their well founded interest. The decision makers, who formulated the health policy, should consider the interest of all people involved in the health system and not only the health receiver (23.2%).

4.2.3.4 The budget for the development and improving of manpower in the health sector, for instance education, training courses and the seminar decreased. If health personnel upgrade their knowledge and capability they had to pay for training courses and other means of further training by themselves. This affected the development of health personnel particularly those on the lower and middle level of professionalism (15.2%).

4.2.3.5 The frustration of the health personnel increased due to the health policy because there was an increasing risk to be sued while caring for patients at the same time there was an increase in the number of patients with the consequence that the time for caring for them decreased and this might result in dissatisfaction with the treatment (7.6%).

4.2.4 Quality and efficiency

4.2.4.1 The fact that specialist doctors in the hospital of tertiary level had to treat patients in the field of general practitioners was causing capital cost for treatment to be higher than for the hospital at secondary and primary level. This was an inefficient utilization of resources (38.5%).

4.2.4.2 The doctors provided the services to the patients according to the treatment standard of the hospital, it did not effect the quality and the efficiently of the treatment. (38.5%).

4.2.4.3 The number of patients increased while the number of the health personnel decreased with the results that there was only limited time for a single patient, which affected the quality and the efficiency of the health services (23%).

4.2.5 The financial of Lerdsin Hospital

4.2.5.1 The executive personnel of the hospital set up the policy to control the hospital expenses more strictly. That effected the scientific development, health personnel and health service development (69.2%).

4.2.5.2 The budget provided to the hospital should consider other factors of the patients such as their age, sex, the type-severity of illness, risk factors, levels of hospital etc. This was important especially for big hospitals that had high cost for health education, training course etc (23.1%).

4.2.5.3 The patient who had ability to pay for the treatment should be asked for the co-payment (7.7%).

Comments of the hospital management concerning the service quality

1. In order to increase the income, the hospital should increase the number of beds, open special rooms without decreasing the number of ordinary rooms, offer traditional Thai medicine, health massage and herbal products etc. (35%).

2. Patient illness records were kept badly in that they were incomplete and not up date. The information from the records could not be used by the hospital management for decision making to improve the health services (25%).

3. It was necessary to reviewing the vision of the hospital services and service activities. An important issue in this aspect would be to improve the documentary system which should be redesigned, so that it could be used for improving health services (20%).

4. The hospital management should allow keeping the OPD open also after the governmental office hours according to the requirement of the patients. Patients making use of the service provided after the official governmental opening time could be charged with an extra fee. This might diminish the great number of patients coming during the morning shift. For many patients extended OPD opening hours would be very convenient. The staff providing services could be paid for overtime from the budget which would be gained by the hospital for this extra services (20%).

Part 3 The working staff at out- and inpatient departments

An additional questionnaire was answered by 160 persons of the health personnel working in the out- and inpatient departments, who graduated with a bachelor degree and who were willing to answer the questionnaire. Questions were asked about the satisfaction with the service provide to the patients, the impact of the Universal Health Coverage scheme on the services of Lerdsin Hospital and the participants were asked to give comments how the health services could be developed. The questionnaire was collected 1 week later and all of them were returned. Those who answered the questionnaire were 36 doctors, 7 dentists, 5 pharmacists, 3 radiology staff, 85 professional nurses, 3 documentary staff, 4 biochemistry staff, 5 financial staff, 10 pharmaceutical staff and 2 public relation staff.

The results from this questionnaire showed, that the level of satisfaction with the services provided to the patients during 3 months before answering the questionnaire scored 6.8 (S.D.=1.27) and the level of the satisfaction towards the Universal health coverage scheme during 3 months before answering the questionnaire scored 5.91 (S.D.=1.62) (Table 43).

Table 43 The level of satisfaction of the health personnel at out-and inpatient departments (Possible total score=10)

Content	Mean	S.D.	Min	Max
1. The services provided to patients during the past three months	6.81	1.27	3.00	10.00
2. The Universal Health Coverage scheme during the past 3 months	5.91	1.62	1.00	9.00

The comment of the staff about the hospital management, hospital services, health personnel, quality and efficiency and the financial management of the hospital:-

4.3.1 Hospital management

4.3.1.1 Improvement of the capability of the health personnel, better financial management, better medical supplies and tools should be provided to make the health services more efficient (27.2%).

4.3.1.2 For the management it was difficult to improve matters due to the limitation of public health resources, for instance health personnel, budget and medical supplies and tools (24.8%).

4.3.1.3 It was difficulty to meet the expectation of the Universal Health Coverage scheme, since it was the policy of the hospital to concentrate on treatment and not on health promotion and disease prevention (20.9%).

4.3.1.4 The understanding of the health personnel at all levels about the policy of the universal health coverage should be enhanced so that it would be possible to respond adequately to that policy (9.1%).

4.3.1.5 People should be allowed to choose among the health provider so that they have the opportunity to choose those near to their homes. This also would result in competition between the hospitals and enhance the quality of the services of the health providers (8.7%).

4.3.1.6 The management of the hospital improved in terms of the policy in respect of the gold card with 30 Baht payment for instance try to decreased unnecessary length of stay in the wards, decrease the expenses of medical supplies and tools, save electricity and water (5.4%).

4.3.1.7 It should be increased the establishment of the primary care unit (PCU) outside the hospital for decreased the number of outpatient's visits (3.9%).

4.3.2 Hospital services

4.3.2.1 The number of patients increased but the number of health personnel decreased. The result was a delay in providing the services, and the doctors had less time for examining the patients (40.5%).

4.3.2.2 The number of patients increased especially those with diseases that was not acute and could be cared for at home. Because the patients now had a kind of health insurance they rushed to the hospital, which they would not do without the 30 Baht scheme (15.3%).

4.3.2.3 Patients and relatives believed that using the gold card with 30 Baht payment, they would receive substandard health services and medicine (13.9%).

4.3.2.4 Patients often complain about the insufficient service provided by the health personnel and did not recognize that because of heavy work overload, the personnel could not attend all patients immediately (9%).

4.3.2.5 The patients were confused about the health service procedures because they didn't know and understand the rational of the service procedure (3.7%).

4.3.2.6 The length of stay of the patients holding gold cards with 30 Baht payment, who suffered from chronic diseases increased because the family and relatives of the patients could not pay for treatment if the patients stayed at home, even the condition of the patient did not require admission to the hospital for a long time (3.2%).

4.3.2.7 All patients were treated equally according to requirements disregarding their insurance status. The only exception from this was that inpatients had to pay extra for imported medicine and the use of high medical technology and tools (3.2%).

4.3.2.8 The health personnel should emphasize health promotion and disease prevention more so that the unnecessary visits of the patients to the hospital decreased (3.2%).

4.3.2.9 The number of beds was sufficient to accommodate the number of patients (2.6%).

4.3.2.10 The list of medicine of the medicine directory should be adjusted to the real need of the patients in order to reduce the uneven health services to the different categories of patients according to their health insurance status (2.6%).

4.3.3 Health personnel

4.3.3.1 The health personnel did not have the courage to ask for an increase in salary although the workload and work stress increased and besides that they had to face the complains from the patients (77.4%).

4.3.3.2 The health personnel had difficulties to follow the policy of the universal health coverage scheme (20.3 %).

4.3.3.3 The health personnel understood and knew about the necessity for eligibility for health services and could give correct advice to the patients (2.3%).

4.3.4 Quality and efficiency

4.3.4.1 The number of patients increased but public health resources were limited, for instance health personnel, budget, medical supplies and tools. That negatively effected quality and efficiency of the hospital (36.5%).

4.3.4.2 Treatment provided to the patient with and without health insurance was given by observing the clinical practice guidelines and protocol (28.8%).

4.3.4.3 Because the number of patients increased, the waiting time before receiving the services at the service unit increased as well. This was true for instance as far as the register unit, the diagnosis room, the pharmaceutical room, the laboratory unit, and the X-ray room was concerned. It affected the services provided to the patients since the doctor had to finish the examinations up to 12.30 hrs. This gave him not enough time to examine the patients very carefully (26.4%).

4.3.4.4 The length of stay in the hospital decreased because the patients with the health insurance did not pay for the treatment out of their own pocket, therefore, they didn't have to wait for their relatives to pay for the treatment as before. The hospital could discharge them earlier than before and at the same time could admit more patients who needed to be treated in the hospital (4.7%).

4.3.4.5 With a good management, the utilization of the public health resources could be efficiently improved (3.6%).

4.3.5 The financial of the hospital

4.3.5.1 The fact that the expenses of the hospital were now very much controlled had a negative effect on the work of the health personnel (54.5%).

4.3.5.2 The hospital had to bear the high medical costs of chronic diseased patient who stayed very long in the hospital (24.3%).

4.3.5.3 Patients who could afford should pay for the treatment expenses (7.5%).

4.3.5.4 The patients who did not use the 30 Baht gold card scheme, paid for the treatment from their own pocket but when they stayed very long in the hospital, the medical costs for treatment increased to such an extent that they could not pay for it. This was a burden for the hospital (2.6%).

4.3.5.5 Patients who came to receive the service at the hospital, but could not use their 30 Baht gold card because they lived in the provinces. They could not pay for the treatment, and became a burden of the hospital (2.6%).

Comments of the health personnel concerning the service development at out-and inpatient departments

1. Services could be improved if there would be an evaluation of the work performance of the health personnel at all levels. The number of health personnel for some service units should be increased (21.4%).

2. Try to decrease service procedure to be shorter and faster (16.6%).

3. The number of health personnel should match the working tasks (14.7%).

4. More primary care unit (PCU) should be established so that the patients went to get the services at the PCU instead of the hospital (13.4%).

5. The health services should be provided by a “patient center” system (9.2%).

6. Service hours at the OPD should be extended above the time from 8.00 - 16.00 hrs. This would help to reduce the number of patients during the morning shift (7.3%).

7. The documentary system of the hospital was very important. If it was correct, complete and always updated, it helped the hospital management in decision making for the improvement of the health services (3.6%).

8. Health promotion and disease prevention should be emphasized more, that would help the patients to care better for their health and this could help to decrease the treatment expenses, expenses for home care and home visits (3.6%).

9. The health personnel should have a better attitude towards the services (1.8%).

10. The hospital management should motivate and treat the health personnel in a fair way (1.8%).

11. The management should establish a unit where patients could complain. The staff of this unit could help to improve the services and follow up matters from time to time (1.2%).

12. The capital costs of the hospital services should be calculated (1.2%).

13. Welfare for the hospital staff should be improved (1.2%).

14. The satisfaction of the patients and the health personnel should be regularly assessed (0.6%).

15. Training courses to improve the understanding and knowledge should be offered to all levels of the hospital staff and not only to the management (0.6%).

16. Hospital services should be evaluated continuously with the a clear evaluation plan throughout the year (0.6%).

17. There should have quality assurance and should improved quality of services continuously (0.6%).

18. Health service units under the responsible of Lerdsin Hospital were health stations within the Bangkok metropolitan area under the authorization of the Ministry of Interior. A better cooperation and coordination of work between Lerdsin Hospital and the health stations would help to provide efficient health services to the people (0.6%).

Part 4 People lived in the area under the responsible of Lerdsin Hospital but refused to receive the services of the hospital

Information from people who never used the services of Lerdsin Hospital but live in zone 9, the area of the responsible of Lerdsin Hospital which are Bangrak, Sathorn, Klongteuy, Prakanong, Suanluang and Pravej District had been collected. The area under survey had been divided into one near the hospital and into another one far away from the hospital. Participants for this group were selected by using a multistage random sampling method. The data base for this was derived from the National Statistical Office 2002. The groups of people living near the hospital were

69 persons from Bangrak District, 120 persons from Sathorn District and 51 persons from Klongteuy District. The group, who lived far from the hospital, consisted out of 57 persons from Prakanong District, 64 persons from Suanluang District and 39 persons from Pravej District. The reasons why those persons refused to get services at Lerdsin Hospital had been analyzed and were shown below.

The total group consisted out of 52.5% female and 47.5% male. 27.6% were in the age range between 31 to 40 years with an average age of 40 years, 41.3% had 7 to 12 years of formal education, 50% were married and lived with the spouse, 43.5% were single, 6.5%, were widowed or divorced or separated, 31.7%, were workers, 29%, were merchants, 13.3% were housewives or jobless, 10.2% were pupils or students, 9.5% were company employee and 6.3% were civil servants. The average monthly income was 10,938 Baht. The majority of them had a monthly income between 5001 to 10,000 Baht. 86% of the group lived in the house where they were registered. 35% lived in a single house, 32.7%, in a commercial building, 15.7%, in a townhouse, 6.2%, in a dormitory or apartment, 5.1% in a rented house, 3.3% in a flat or condominium to and 2% in a house for civil servants (Table 44).

Table 44 The socio-demographic characteristics of the group in the area under the responsible of the Lerdsin Hospital but never used the services there (%)

District	Bangrak	Sathorn	Klongteuy	Phrakanong	Suanluang	Pravej	Total
Number of interviewer	69	120	51	57	64	39	400
Sex							
Male	52.2	38.3	54.9	47.4	50.0	53.8	47.5
Female	47.8	61.7	45.1	52.6	50.0	46.2	52.5
Age							
15 – 20 years	1.5	9.1	21.6	17.5	33.4	9.4	13.0
21 – 30 years	15.9	23.3	25.5	10.5	20.5	21.9	20.0
31 – 40 years	26.1	21.7	33.3	26.3	15.4	45.3	27.6
41 – 50 years	36.2	29.2	13.7	19.3	25.6	7.8	23.3
51 – 60 years	15.9	9.2	2.0	8.9	5.1	9.4	9.0
> 60 years	4.4	7.5	3.9	17.5	---	6.2	7.1
Mean	42.46	41.40	40.32	41.21	39.36	38.40	40.06
S.D.	11.69	12.31	12.65	13.14	13.03	12.47	12.63
Years of schooling							
No study	7.2	1.7	5.8	3.5	4.7	2.6	4.0
1 – 6 years	27.6	24.2	27.4	29.8	17.2	33.3	25.7
7 – 12 years	43.5	31.7	31.4	45.6	57.8	46.2	41.3
13 – 16 years	15.9	34.2	31.4	19.3	17.2	12.8	23.7
> 16 years	5.8	8.2	3.8	1.8	3.1	5.1	5.3
Mean	9.19	11.21	10.53	9.26	10.33	9.54	10.19
S.D.	5.11	5.00	5.07	4.42	4.31	4.92	4.88

Table 44 The socio-demographic characteristics of the group in the area under the responsible of the Lerdsin Hospital but never used the services there (%) (Continue)

District	Bangrak	Sathorn	Klongteuy	Phrakanong	Suanluang	Pravej	Total
Number of interviewer	69	120	51	57	64	39	400
Marital status							
Single	37.7	45.9	52.9	40.4	34.4	53.8	43.5
Married	58.0	50.0	39.2	49.1	57.8	38.5	50.0
Widowed/separated/ divorced	4.3	4.1	7.9	10.5	7.8	7.7	6.5
Occupation							
Worker	37.7	27.5	45.1	38.6	14.0	35.9	31.7
Merchant	44.9	29.2	13.7	21.0	37.5	17.9	29.0
Housewife/jobless	7.3	16.7	7.8	22.8	14.0	5.1	13.3
Pupil/student	---	5.0	15.7	15.8	9.4	30.8	10.2
Company staff	5.8	14.1	15.7	1.8	6.3	10.3	9.5
Civil servant	4.3	7.5	2.0	---	18.8	---	6.3
Income							
≤ 5000 Baht	17.4	12.5	19.6	31.6	15.6	35.9	19.7
5001 – 10000	43.5	59.2	49.0	47.4	51.6	48.7	51.3
> 10000 Baht	29.1	28.3	31.4	21.0	32.8	15.4	29.0
Mean	13,622	10,928	10,598	10,039	10,825	8,159	10,938
S.D.	10,633	6,866	6,389	8,061	5,958	4,369	7,558
Residence the same register							
The same	89.9	84.2	88.2	78.9	90.6	84.6	86.0
Not the same	10.1	15.8	11.8	21.1	9.4	15.4	14.0
Type of domicile							
Single house	13.0	32.5	51.0	52.6	26.6	48.7	35.0
Commercial building	69.7	32.5	25.5	19.3	23.4	12.8	32.7
Townhouse	1.4	15.0	17.6	17.5	39.1	---	15.7
Dormitory/Apartment	8.8	10.8	---	---	3.1	10.3	6.2
Rented house	---	2.6	3.9	5.3	3.1	25.6	5.1
Flat /Condominium	1.4	3.3	2.0	5.3	4.7	2.5	3.3
House for civil servant	5.7	3.3	---	---	---	---	2.0

When the health status of the group was assessed it turned out that 70.3% did not have chronic diseases, but 29.7% suffered from chronic diseases (Table 45). 55.6% of individuals surveyed held gold cards with 30 Baht payment, 25% were covered by the social security scheme, 12.2% were either civil servants or employees of the governmental enterprises, and 7.2% of patients held gold cards without 30 Baht payment. In case of mild and moderate sickness symptoms, 32.5% bought medicine from drug stores, 27.8% went to doctors at private clinics, 12.8% did not do anything and no treat, 11.8%, went to the governmental hospitals, 75.8% never had severe sickness symptoms but 24.2% had severe sickness symptoms. The 55.7% of the group who had severe sickness symptoms went to governmental hospitals, 33% to the private hospitals and 11.3% consulted a doctor in a private clinic.

Table 45 The health status of the group and the health provider they chose for asking for help in case of sickness according to the 6 areas

District	Bangrak	Sathorn	Klongteuy	Phrakanong	Suanluang	Pravej	Total
Number of interviewer	69	120	51	57	64	39	400
Had chronic disease							
No	62.3	60.8	74.5	84.2	73.4	82.1	70.3
Yes	37.7	39.2	25.5	15.8	26.6	17.9	29.7
Health insurance							
Gold card w/o 30 ฿ payment	71.0	50.8	45.1	56.2	50.0	64.0	55.6
Social security	21.8	25.0	43.1	26.3	9.4	30.8	25.0
Civil servant	4.3	17.5	2.0	7.0	29.7	2.6	12.2
Gold card with 30 ฿ payment	2.9	6.7	9.8	10.5	10.9	2.6	7.2
Means for mild-moderate symptoms							
Drug store	17.4	38.4	41.2	35.1	28.1	33.3	32.5
Private clinic	33.3	22.5	35.3	31.6	26.6	20.5	27.8
Didn't do anything	5.8	13.3	11.8	12.3	15.6	20.5	12.8
Governmental hospital	11.6	14.2	5.9	14.0	10.9	10.3	11.8
Private hospital	20.3	7.5	3.9	3.5	12.5	7.7	9.5
Health center in BMP	5.8	2.5	1.9	3.5	6.3	7.7	4.4
Traditional medicine	5.8	1.6	---	--	---	---	1.2
Had severe sickness							
Never	78.3	81.7	74.5	47.4	90.6	74.4	75.8
Ever	21.7	18.3	25.5	52.6	9.4	25.6	24.2
Means for sever sick							
Governmental hospital	40.0	40.9	46.2	73.3	83.3	54.5	55.7
Private hospital	60.0	40.9	38.5	20.0	16.7	18.2	33.0
Private clinic	---	18.2	15.3	6.7	---	27.3	11.3

The reasons why persons in this group did not choose Lerdsin Hospital for health services were listed in Table 46. The residence and the working place were far away and it was inconvenient to reach the hospital (25.4%), others received treatment at another hospital and wanted to continue the treatment there (24.5%), too long waiting time before being examined and complicated service procedure were mentioned from 23.9%. Individuals from the group living near the hospital did not go for health services there because waiting time was too long and service procedures too

complicated (34.2%). Others got treatment at other hospital and wanted to continue the treatment there (30.2%), 9.8% accompanied relatives to the hospital and found that the services were bad. The group who lived far from the hospital refused to receive the services at the Lerdsin Hospital, due to the fact that the hospital was far from their residence and working place and inconvenient to reach (50.7%), 15.6% received the treatment at other hospitals and wanted to continue the treatment there 9.7% did not know where to find the Lerdsin Hospital.

Table 46 The reasons why people living in the area under the responsibility of the Lerdsin Hospital refused to make use of the services of the Lerdsin Hospital (more than 1 answer possible)

District	1	2	3	4	5	6	Near hosp	Far hosp	Total
Number of interviewer	129	191	153	115	122	71	473	308	781
Far from house	7.0	7.3	12.4	51.3	54.2	43.6	8.9	50.7	25.4
Use other hospitals	26.4	32.5	30.7	13.8	11.4	25.4	30.2	15.6	24.5
Long waiting time	35.6	31.5	36.6	7.9	11.4	2.8	34.2	8.1	23.9
Couldn't use gold card	5.4	9.9	3.9	10.5	4.9	8.5	6.8	7.8	7.1
Had a little illness	7.8	8.4	6.5	2.6	5.8	2.8	7.6	3.9	6.5
Didn't know where it's	---	0.5	5.2	12.2	4.9	14.1	1.9	9.7	5.0
Services were bad	17.1	5.9	4.7	---	---	---	9.8	---	5.9
High travel price	0.7	0.5	---	---	4.9	---	0.4	2.6	1.3
No cousin carried	---	0.5	---	1.7	2.5	2.8	0.2	1.6	0.7

Note : 1. Bangrak 2. Sathorn 3. Klongteuy 4. Phrakanong 5. Suanluang 6. Pravej

Comments from the group concerning the improvement of services at the Lerdsin Hospital had been the following:-

1. The services should be provided faster (46.2%).
2. The hospital should have branches in Prakanong , Suanluang and Pravej District in order to reduce the traffic problem in the area of the Lerdsin Hospital (17.2%).
3. There should be more parking lots (11.2%).

4. The manner and attitude of the health personnel should improve (7.2%).
5. The hospital should employ more doctors so that waiting time before being examined could be reduced (4.7%).
6. The hospital should made people more aware about the reputation of the hospital, where it was located, convenient routes for reaching the hospital and the eligibility to use the gold card 30 Baht (4.2%).
7. The number of special rooms should be increased according to the requirements of the patients (3%).
8. The health personnel should give advice about the service procedure to the patient at every service spot (2.3%).
9. Patients holding gold cards with 30 Baht payment should get the same medicine for a given disease than patients being covered by other health insurance schemes (2.1%).
10. Patients should be allowed to choose by themselves the hospital for health services, especially in cases where particular hospitals did treat the patient already and keeps his or her illness record (1.9%).

CHAPTER V

DISCUSSION

The source of data, data collection and the results of the study were discussed in this chapter.

5.1 The source of data-data collection

The data in this study was derived from the medical record of the patients who came to receive the services at Lerdsin Hospital in 2003. Additional information was collected from a sampled group of patients, who answered a questionnaire. The information collected from the patient's record by staff from medical record and statistics division of Lerdsin Hospital was inefficient due to 1. Lack of information which might be important for the hospital management for planning, for instance number of years for formal education of the patients, income, occupation, the real expenses the patients paid for the treatment etc. 2. The accuracy of the data, because the same kind of data was recorded at several service spots, but turned out to be different for one and the same patient. 3. The personal data of the patients were not updated, when they changed, for instance in case a women married, or a patient moved to another residence, which was not yet registered in her or his identification card. The faulty information resulted in an inaccurate of data analysis. Therefore, the information mainly used for this study was taken from the group of patients being sampled even this was associated with an increase of expenses and waste of time.

The information was obtained by using the questionnaires. Those being questioned had been patients at out-and inpatient departments, hospital management staff and health personnel. Also people living in an area under the responsible of Lerdsin Hospital, but refused to receive the services at the hospital, had been questioned. Patients answered the questionnaire at the pharmaceutical room. They cooperated even the place were crowded and the patients were in the hurry, but it was possible to complete the questionnaires and used the information for the analysis.

5.2 The discussion of the study result

The results of the study, divided into four parts, was discussed as follows:-

Part 1 The health receiver at out-and inpatient departments

The Universal Health Coverage scheme was applied at Lerdsin Hospital since 1st January 2002. The eligibility for health services was divided into five groups :-

1. Universal health coverage with 30 Baht payment
2. Universal health coverage without 30 Baht payment
3. Social security scheme
4. Civil servant medical benefit scheme
5. Out of pocket payment

The service records of patients being treated in 2003 indicated, that those patients who paid for the treatment from their own pocket had the highest proportion of the service utilization at out-and inpatient departments. A substantial proportion of health receiver from the sample group did not make use of their eligibility for health services under the Universal Health Coverage scheme and paid for the treatment from their own pocket. It turned out that they could not use the gold card at Lerdsin Hospital because they were registered at an other hospitals however wanted to be treated at Lerdsin Hospital because they were registered at an other hospitals however wanted to be treated at Lerdsin Hospital further on, since their sickness records were kept there. If the people could choose the health provider they want, instead that the Ministry of Public Health appoints them to a certain hospital, it might help them to approach the services they want to use and it might improve the health service system of the service providers, because the different hospitals would compete with each other. In case the services of hospitals outside the capital were improved, fewer patients would frequent the big hospital in Bangkok and the workload there would be reduced.

5.2.1 Outpatient department

The patients of the sample group, who answered the questionnaire, visited the outpatient department in average 7.7 times per year. Factors related to the number of outpatient's visits were the medical costs in the past, age, present residence, travel

time, type of illness, time spent for services in Lerdsin Hospital, marital status, number of years for formal education and occupation respectively to the importance of the factors. These findings could explain as follows:-

5.2.1.1 Medical costs :- In the past medical costs was the most important factor related to the number of outpatient's visits of Lerdsin Hospital. The patients with some sort of eligibility for health services were those with the highest number of visits, followed by the patients who paid for the treatment from their own pocket. But from this fraction of patients only those who considered the medical costs as reasonable often came for treatment. While the patients who considered the medical costs to be expensive and who paid for the treatment from their pocket as well, had the lowest number of outpatient's visits. According to the study of Mueller (1998: 598-604), insured persons were twice as likely to use the services of physicians in comparison to the non-insured persons. Considering the patients with eligibility for health services, the patients with gold card without 30 Baht payment had the highest number of outpatient's visits with 11.8 times/year. 16.2% of the patients were in the age of ≤ 12 years. This was the most vulnerable group with low resistance against diseases and high risk to get sick. 83.8% were patients in the age of > 60 years. Also this was a highly vulnerable group with declining physical strength and a high risk to suffer from chronic diseases compared to any other group of patients. Patients holding a gold card with 30 Baht payment visited the hospital in average 8.6 times/year, civil servants and employees of governmental enterprises had an average outpatient's visits of 6.8 times/year and patients covered by the social security scheme in average outpatient's visits for 6.7 times/year, while patients who paid for the treatment from their own pockets had the lowest number of outpatient's visits with 4.7 times/year, due to the fact that medical costs was felt by them at most. According to the demand theory of Clewer and Perkins (1998: 44), the medical costs reversely relate to the demand for health services. In accordance with the utility-maximizing rule (Santerre and Neun, 1998: 44-45), each consumer chose the bundle of goods and services that maximizes utility. The largest proportion, 41.9% from all patients buying medicine from the drug store when suffering from mild symptoms were those, who had to pay for the medicine out of their own pocket. The patients with a kind of eligibility for health services differed in number of outpatient's visits according to their eligibility. Patients holding

gold cards and being registered as gold card holders with the Lerdsin Hospital and therefore could use the services, did have to pay out of their own pocket, if they didn't want to use services in Lerdsin Hospital. The number of outpatient's increased due to the government's campaign that the people should hurry to go to the hospital when feeling sick. According to the study of Sermsri et al., (2003: 67), patients with gold card preferred to go to the state health providers for their health services instead of buying medicine from the drug store or didn't do anything. Civil servants and employees of the governmental enterprises ranked third, when considering the number of outpatient's visits. This group of patients could change the doctors and governmental health providers for their treatment according to their demands. For instance when they need a specialist in orthopedic for their bone and joint problems, they came to Lerdsin Hospital. They paid for the treatment first and could reimburse the bill within 1 or 2 weeks. For this group prepayment was a financial problem when they belong to the low rank civil servant group, the patients receiving pension and their families. The 29.4% of civil servants and employees of the governmental enterprises preferred to buy medicine from the drug store when they had mild and moderate illness. Therefore, their number of outpatient's visits was less in comparison with patients holding gold cards. Patients covered with the social security scheme had the lowest number of outpatient's visits. About 60% of patients from this group were in comparably good health. They were doing better than any other group of patients in this respect, because they were in the working age with a low rate of sickness. They could conveniently use the services at the 8 hospitals network and 34 clinics network of Lerdsin Hospital. This group of people usually did not want to be on sick leave because it would affect their income.

5.2.1.2 Age :- The age of the patients were positively related with the number of outpatient's visits. Patients in the age of ≤ 12 years had an average number of outpatient's visits of 8 times/year, due to their greater vulnerability to suffering from acute illnesses and a not yet fully developed immune system. When they got sick, parents hurried to bring them to the hospital, while patients in the age 13 to 20 years had the lowest number of outpatient's visits because they were in the working age and had the highest opportunity costs. When age increased also the number of outpatient's visits increased. The patients in the age of > 60 years had the highest number of

outpatient's visits. They were more susceptible to illnesses than any other group. Very often they suffer from chronic diseases and need continuous treatment. In Bangkok, the proportion of the population aged > 60 years increased from 5% in 1980 to 9.4% in 2004 (The National Statistical Office 2004: 6), it could be predicted that the demand for health services would increase in the future. According to Nguanboonmak (2003: 99), elderly in Nakornpathom province visited health providers six times more than any other group of people.

5.2.2.3 The present residence:- The majority of the patients when questioned said, that their present residence were in Bangkok. This also was confirmed by their house registration given on their identification card. But quite a number of patients did not register their residence in Bangkok when they migrated from the provinces to work in Bangkok. According to their house registration they still lived in the provinces. So their present were not according to the house registration and their identification cards. If the health provider was located near the patient's residence, the convenience to visit the service increased because of better accessibility to the hospital. Therefore the number of outpatient's visits increased, particularly for patients living in zone 9 near the hospital. Patients living in the provinces had more difficulties to receive services from the medical specialist within the morning shift because of the heavy traffic during rush hours in Bangkok. If the distance from the patient's residence to the hospital was more than 15 kilometers, the number of outpatient's visits would be less in comparison to patients living near the hospital, according to the study of Slack et al (2002: 22).

5.2.2.4 Travel time:- In order to reduce the travel time for a round trip from home to the hospital and back home, the Ministry of Public Health intended to provide medical services to the people near their homes, so that they had not to travel more than 30 minutes. In case of Lerdsin Hospital this goal could not be achieved because the hospital was located within the business center and educational area between Silom and Sathorn road. The traffic was very heavy there during 6.30 to 8.30 a.m. (Nuemman, 2004: 9). Therefore 93.2% of patients spent more time than 30 minutes on the road for coming to the hospital and going back. If the travel time was longer the number of outpatient's visits would decrease but if the patients had to spend less time for traveling, the number of outpatient's visits would increased (Slack et al.,

2002: 22). Travel time to the hospital was an important factor for elderly, disabled person, children and pregnant woman. If they lived near the hospital, the number of outpatient's visits would be higher than for patients living far from the health provider. According to Edward et al., (1996: 616) the threshold for travel time was 30 minutes. This time was still considered from patients as convenient. Therefore also the Thai Health Insurance Office put 30 minutes travel time as a standard (except for emergency cases). If the travel time went above this threshold, the number of outpatient's visits would decreased.

5.2.2.5 Type of disease:- In the last decades the type of illnesses and the disease pattern changed from acute illnesses to chronic diseases which need continuous treatment such as diabetes mellitus, heart disease, hypertension, cancer. Patients suffering from chronic diseases had more visits at outpatient department than patients with acute diseases. Patients with acute diseases rushed to the hospital even they were suffering only from mild symptoms (Polperm 1993: 72). Patients with chronic diseases visit the outpatient departments of private hospitals in Bangkok more than patients with acute diseases. While the persons who came for health promotion or prenatal care had the lowest number of outpatient's visits. Even though pregnancy woman needed care from the obstetrician for the whole pregnancy period, but mostly of them went to ANC after 3 months of pregnant and didn't come according the appointment of the obstetrician.

5.2.2.6 The time spent for services in Lerdsin Hospital:-The waiting time at the governmental hospital before receiving services was spent in front of the diagnosis - and pharmaceutical rooms. The management of the hospital improved the service system with the intention to provide faster services and reduce the waiting time. The standard for the waiting time should be not more than 60 minutes according to the Ministry of Public Health (Department of Health Policy and Planning, 1983: 32). With an average waiting time in front of the diagnosis room of 78 minutes Lerdsin Hospital still exceeds this limit. In 1999 the committee of TQM (1999: 16) assessed the waiting time at the outpatient department of Lerdsin Hospital. It was found that 5.8% of patients hand in the hospital card to the staff of the registration counter at 5.00 to 6.00 a.m., 38.2% of them hand in the hospital card at 6.00 to 8.00 a.m. and 32.3% at 8.00 to 9.00 a.m. while the doctors started working at 8.30 hrs. The waiting time

accumulated for those being registered not as early as 6.00 a.m. and exceeded the earmarked standard waiting time. In the past the waiting time affected the number of outpatient's visits. Patients who considered that the waiting time was long had the lowest number of visits, while patients who thought that the waiting time was not so long had the highest number of visits. Swiftness of services and waiting time no longer were factors to be considered by patients while deciding to use or not to use the services at the outpatient department (Neumpand, 2001: 112). In the absence of out of pocket prices, time was no longer an important factor for the use or not use of medical services (Janssen, 1992: 725). In case the travel time to the hospital or the waiting time before receiving the services increased the demand for health services decreased.

5.2.2.7 Marital status:- Widowed, divorced and separated patients had the highest number of outpatient's visits and less so patients being married and living together with their spouses, while patients being single had the lowest number of outpatient's visits (Chareonkul et al.,1991: 4). That single patients had the lowest number of outpatient's visits was due to the fact, that the medical costs for the treatment was a burden for them. In addition the risk to fall sick was lower for single than for married patients, because single individuals exercise more often than married persons. Singles were more susceptible for health promotion and disease prevention (The hygienic and welfare survey, 2002: 20-22). Widowed, divorced and separated patients visited the outpatient department in higher numbers than the married and single patients, because very often no one care for them or gave them advice how to remain healthy. This group of people was especially at risk from stress and mental health problems.

5.2.2.8 Education:- The number of years for formal education inversely affected the number of outpatient's visits. A relatively uneducated patient was more at risk to acquire a disease due to lack of knowledge and perception related to issues of health care. They had the highest number of outpatient's visits. The highly educated patients did know more about how to maintain health, had better access to health education, and were more efficient in taking care for their health. All that attributes to the fact, that they didn't make use of health services as much as less well educated persons. Highly educated persons were more skilful in combining medical inputs to maintain health. This explained the negative correlation between education and

demand for health services. Good education lowers the depreciation rate of health and therefore had a negative effect on the demand for health services (Grossman, 1972: 729). The study of Neumpand (2001: 97) undertaken in the Bangkok District, Nonthaburi province found that the patients holding gold cards with a primary level of education and lower had the highest number of outpatient's visits while the patients with a secondary level of education and more had the lowest number of outpatient's visits. In Russia it was found, that people with higher education had a longer life spans in comparison with those of a lower education level (Shkolikov and Andreev, 2001: 144). People with primary or high school education had more illness spells in the long run than those with a university degree (Khakwani and Phoned, 1999:12). Supposed the policy of the government would supported the people to have higher education, and would provide them with more knowledge about health care, then they could care for themselves more efficiently, and this would help to decrease the number of outpatient's visits.

5.2.2.9 Occupation:- Housewives and jobless persons had the highest number of outpatient's visits. In declining rank order the second group were those patients on pension followed by pupil/student, worker, civil servants and the employee of the governmental enterprise as well as merchant. Employees of companies had the lowest number of outpatient's visits. The housewives and jobless persons had the lowest of opportunity cost and could go to receive the services without worrying about missing opportunities to gain money or loose money. The workers and merchants had lower number of outpatient's visits than housewives and jobless persons due to the fact that they had to worry about their daily income when they did not work, while the civil servants and the employees of the governmental enterprise and the company's staff had a good working environment and higher income than the workers. Also the health status of civil servants and employees in general was better compared with other groups so that they were less in need for health services. Working persons in China used the medical services to a lower extend than housewives and jobless persons because they had higher opportunity costs than the former groups (Mocan et al., 2001: 22). Housewives and jobless person had the highest number of visits at the health providers which were hospitals included into the Universal Health Coverage scheme,

but they also visited in large number hospitals which were not yet included in the scheme (Neumpand, 2001: 120).

The factors such as sex, severity of illness, income, satisfaction and travel expenses did not affect the number of outpatient's visits (P -value > 0.05). A female took good care for her health when she got sick, she hurried to go to the hospital particularly when she was in the reproductive age, she would go to receive the services for the prenatal and postnatal care. In Bangkok, a male preferred modern medicine than the others type of curative when he got sick. Both attitudes contribute to the fact, that there was no difference in sex for the number of outpatient's visits. Chantaklang (1997: 16) found, while investigating the demand for health services in Lamphun province, that there was no difference in the demand for health services from males and females, due to a similar average number of visits of female and male patients at the outpatient department of governmental- and private hospitals. The average number of visits was 6 times/year. From the record of the National Statistical Office for the year 2001 it was known, that people with mild to moderate symptoms, went to buy medicine from the drug stores. But after the Universal Health Coverage scheme was introduced, the number of people buying medicine from the drug stores decreased. They approached the health services without the consideration of the severity of illness because it was now more convenient and less costly to go to the hospital. They went to visit the hospital even with mild symptoms, which formerly they did not do. So the severity of illness did not affected the number of outpatient's visits. While patients having eligibility for health services the economic barrier decreased as well as the role of income while travel expenses now play a more important role (Henderson, 2002: 151). For this study however it was found, that travel expenses did not affect the number of outpatient's visits. For traveling from home to the hospital and back was less than 100 Baht. This was not considered to be expensive, thus the travel expenses did not affect the number of outpatient's visits. It contrasts to the situation in an urban setting Nguanboonmak (2003: 104) found in a rural area, that the patients had to pay for travel expenses more than for the treatment because of the inconvenient to travel to the hospital. There was no public transportation, and patients had to rent a vehicle to travel to the hospital. It was the special characteristic of the governmental health

services in the past that the service did not care much about the satisfaction of the people. So in the past people had to visit the hospital when they got sick regardless whether they were satisfied with the services or not. That was why in the past variables such as sex, severity of illness, income, travel expenses and satisfaction in the past did not seriously affect the number of outpatient's visits. When considering different eligibility for health services, factors affecting the numbers of outpatient's visits were as follows:-

1. **Occupation, marital status, age and the number of years for formal education were factors affecting the number of outpatient's visits of patients holding gold cards with 30 Baht payment.** From all gold card holders 46.8% were housewives and jobless persons with low opportunity costs, and 12.1% of them were widowed, divorced and separated who were lacking someone to care for them and giving them advice when getting sick. 57.4% of this group was in the age of > 40 years that meant this age range had a higher risk to get sick. 48.8% of them had only less than 6 years of formal education, which also increase the risk falling sick as elaborated above. Thus, the number of outpatient's visits of housewives and jobless persons, widowed, divorced, separated individuals and the patients above the age of 40 years had a high number of outpatient's visits. While the number of years for formal education of people increased the number of outpatient's visits decreased.

2. **Age, type of illness, marital status, travel time and time spent for services in the past were the factors affecting the number of outpatient's visits of the patients held gold card without 30 Baht payment.** This was explained by the fact that 83.8% of patients of this group were in the age of 60 years and above. They were more susceptibility to acquire chronic diseases that need continuous treatment. They tended to go to see the doctor every month to get medicine due to the regulation of the hospital, that the doctor could not provide medicine to the patients for more than one month. 25.5% of the patients were widowed, divorced and separated. This was quite a high proportion of this category in this group of eligibility in comparison to other groups. In an urban setting it was common that families only consisted out of parents and children they had to care for, so elderly persons often stayed alone and had no one to take care for them when she/he got sick. Even patients living in zone 9 in

3 districts, namely Prakanong, Suanluang and Pravej located 15 to 40 kilometers far from Lerdsin Hospital. 52.5% of patients particularly the elderly persons and the children had to travel by public transportation and spent more than 60 minutes for traveling to the hospital due to heavy traffic in the morning. The time spent for services in the past was very long for the patients at the primary care unit when they wanted to see the medical specialists. This was due to the fact that more time had to spend for verification of the eligibility for health services. Elderly patients suffering from bone and joint diseases spent more time at each unit than other groups of patients due to their handicap to move. Thus an increasing number of outpatient's visits were influenced by patients in the age of > 60 years, chronic diseased patients, and the marital status of widowed, divorced and separated persons. A decrease in the number of outpatient's visits was due to long travel time and time spent for services in the past.

3. The variables occupation, marital status and present residence affected the number of outpatient's visits of the patients covered by the social security scheme. They had the lowest number of outpatient's visits. They were in a comparable good health status and 71.3% of them did not have a chronic disease. They had to pay the fee every month for the social security fund. 7.5% of them went to receive the health promotion and prenatal care. Actually there was no real need for them to go to the hospital but they felt that since they paid their monthly fee to the social security fund so at least they should make use of it. Housewives could use the eligibility for health services of the spouse for prenatal care and delivery services. They received 6,000 Baht per one delivery (not more than 2 deliveries). After laid off their job and so losing security scheme for another 6 months. The housewives and jobless persons had low opportunity costs. Most of the patients covered by the social security scheme were married and lived with the spouse. 82.5% of them were in the reproductive age and had higher number of outpatient's visits than the single patients. The patients chose the health provider which was located near their houses, or near their working place, while for some of them the health provider was chosen by the employer. 71.9% of patients living outside zone 9. It was more convenient for them to get the hospital services, when they lived within zone 9. Therefore, the number of outpatient's visits increased for those patients, who were housewives and jobless, were married and lived with the spouse and the patients lived in zone 9.

4. Travel time, present residence and occupation were factors affecting the number of outpatient's visits of civil servants and employees of governmental enterprises. Opportunity costs played a greater role for the civil servants and employees of the governmental enterprises, who could choose the doctors and state health provider for treatment. The average travel time for them was 138 minutes. That was higher than for any other groups of patients. 75% of them were living outside zone 9 but still use the services of Lerdsin Hospital because of the high quality of services there especially of the Department of Orthopedic. If patients had the residence in zone 9 near the hospital the convenient for the service accessible increased. 16.9% of them were on pension and had low opportunity costs as well as the physical deteriorate. Traveling time had a negative effect on the number of outpatient's visits and living in zone 9 had a positive effect.

5. Marital status, present residence, occupation and age were factors affecting the number of outpatient's visits of patients who paid for the treatment from their own pocket. 16.8% of patients being widowed, divorced and separated visited the outpatient department in higher numbers than single and married patients. 21.9% of patients lived in zone 9 near the hospital and it was convenient for them to receive the services. 26.9% of them were housewives and jobless persons, who had low opportunity costs and could obtain the services more often than the other groups of patients. The age of 40.5% of patients were over 40 year, which was an age in which the risk to get sick increases so the number of outpatient's visits increased due to the factors of marital status, widowed/divorced/separated, residence in zone 9, housewives and jobless persons and increasing of age.

The variables were ranked before selected for the equation of the multivariate regression by using the Stepwise method. Some variables could not be forced into the equation and had no significant relationship with the number of outpatient's visits (P-Value >0.05). For equation 1 to equation 6, the independent variables could explain the variation of the dependent variable from 20.9% to 41.3%. There were still some factors besides the factors studied that might have an influence on the dependent variable, for instance family size. Large families with many family members might have a higher risk to fall sick because of disease contamination between the family

members so they had a high opportunity to make use of the services at outpatient department or their visits at outpatient department might decrease. Because members of large families could take care for each other when getting sick with mild symptoms or minor illness such as flu. They could console each other in cases of stress situation. So the number of outpatient's visits might decrease. Patients who were children, disabled and elderly persons needed someone to accompany them to the hospital. If they didn't have an escort to travel with them to the hospital, then this would affect the number of outpatient's visits. Another factors of importance might be the kind and number of health providers in an area. If there were many government and private hospitals, the health receivers had a choice to choose the health provider for services. The patients conveniently travel to see the doctors according to the appointments with him. This particularly had to be considered in view of the high number of chronic diseases that need continuous treatment, such as heart diseases, hypertension, G6PD, anemia, hemophilia, diabetes and cancer. Nevertheless the result of this study provided an information about quite a number of important factors related to the number of outpatient's visits of Lerdsin Hospital. The information was useful for an appropriate health service planning by the hospital management.

From the service records of the outpatient department of the Lerdsin Hospital in 2003 it was known, that during a given time spans the Orthopedic department had the highest number of patients in comparison to the other departments due to the good reputation of the hospital for this medical specialization. After the implementation of the Universal Health Coverage scheme, the hospital management improved the services at outpatient department, in that it was necessary for instance to verify the eligibility for health services of patients before receiving the services. An extra room was provided for screening patients covered by social security scheme and patients holding a gold card. Medical prescriptions followed the medical directory. For each kind of eligibility a separate service counter was set up for distributing the medicine according to the doctor's prescription. These measures resulted in an improvement of the satisfaction of the health receivers. The evaluation of the satisfaction of the patients towards the services at outpatient department showed that the respondents were more satisfied with the services in comparison with the forgoing visits. Competence and manners of doctors were mentioned most frequently in a positive way while the

lacking of swiftness and complicated service procedures contributed very much to a low satisfaction score.

The respondents were most satisfied with the good services of the staff working at the outpatient department, mentioning that the doctors provided good treatment, that it was convenient to receive the services, that the medical costs were reasonable and the medicine was a good quality. The respondents were less satisfied with the long waiting time, impoliteness of some staff, insufficient number of parking lots, that the waiting room was too confined and that doctors diagnosis the disease with just an average time of 8.41 minutes. The standard time for diagnosis set by the Ministry of Public Health was 5 minutes. The patients were most satisfied with the medical specialists, and that the service of the medical specialists was the main reason why they came to the Lerdsin Hospital in the first place. The manners of the staff working at the outpatient department were still a problem for governmental hospitals. Since 1994, the management of Lerdsin Hospital provided training courses to improve the manner and behavior of the health personnel working at the outpatient department. But while the number of patients increased, the number of health personnel decreased resulting in a high working pressure and swiftness of services which sometimes did go along with an inappropriate conduct which might upset the patients.

Lerdsin Hospital is a tertiary hospital under the Department of Medical Service of the Ministry of Public Health. Besides providing treatment for patients with complicated diseases, the hospital also served as a training centre for health personnel and in particular for medical specialists. The investigation in the relationship between the number of doctors in the staff level and the number of outpatients during October to December 2003 showed that the number of outpatients being cared for by a generalist increased for 24 persons. According to the findings of Hulka and Wheat (1985:449) and Manga et al., (1987:667), an increase in the number of doctors also increased the demand for health services at the hospital as well as the study of Fuchs and Kramer (1981: 178-180) calculated a model implied that an increase in surgeons of 10% in health services, facilities would increase surgery conducted for 3%, an increase in the number of medical doctor by 10% would increase the number of outpatients by 5.1% persons and an increase of specialists by 10% would increase the number of patients coming to consult the specialist by 11.9%. An analysis of the

relationship between the number of doctors and the number of outpatients under the responsibility of the Bangkok metropolitan administration by using the secondary data showed that each additional doctor added to the service increased the number of outpatients of the health provider by 1,561 persons/year (Saengthon, 1999: 89). In the statistical model the service of a generalist could only explain to 44.5% (R^2) the variations of the number of outpatient's visits. Therefore, there might be more factors involved in determining the number of outpatients. But this was beyond the scope of this study and needed further investigations in future. Factors which might be relevant could be the kind of medical specialization who provided the services to the patients and the number of service days. In a network of the health providers with a high number of patients, a specialist's service for only 1 day per week must be insufficient. The services should be provided according to the requirements and the necessity of patients, so for instance cardiac patients needed to be treated by heart specialists. Other factors as those being mentioned might be related to the health receiver or season of the year. In rainy season a high number of patients suffering from hemorrhagic fever and respiratory disease could be expected. However, the hospital management could use the information from this study for planning health resource allocation according to the increasing number of patients each year.

5.2.2 Inpatient department

The respondents had an average length of stay in the hospital for 9 days/year. The factors which were related to the length of stay were ranked according to their importance, that were severity of illness, sex, type of illness, occupation, travel time, medical costs in the past, present residence and age. How these factors influence the length of stay would be discussed as follows:-

5.2.2.1 **Severity of illness**:- Patients with severe symptoms and diseases with complications in average stayed longer in the hospital than patients with moderate symptoms. Patients with mild symptoms recovered faster, so their average length of stay was the lowest. According to the study of Wilder (1996: 42), it could be stated, that if the severity of activity limitations increased, the length of stay also increased.

5.2.2.2 **Sex**:- The average length of stay of females was shorter than of male patients. Females stayed in the hospital for delivery with an average length of

stay of 3 to 4 days. Male patients went to the hospital with more severe diseases and complications that required more time for treatment than female patients. It was also the study of Chooprapawan (2004: 15), male needed more time for treatment than females due to lack of chromosomes to prevent some diseases as well as males were less efficient in preventing because of risky behavior such as smoking, drinking alcohol, promiscuity. If males got sick it took longer for them to recover. The mortality rate of males were higher than for female.

5.2.2.3 Type of illness:- Chronic illness became a more important determinant of the need of medical care (Feidstein,1966: 80). The patients with chronic diseases stayed longer in the hospital than patients with acute diseases. Patients coming for delivery had the shortest stay in hospital. The results were obtained when the average length of stay of patients in the different departments of Lerdsin Hospital had been assessed in 2003. The medical department had a high number of patients suffering from chronic diseases with an average length of stay of 9 days which contrasted with the Department of Obstetrics with an average of length of stay of only 4 days. These findings went along with the statement of Kennedy (1999: 19) that persons with chronic diseases saw physicians more often and were more likely to be hospitalized.

5.2.2.4 Occupation:- The patients who were on pension did stay the longest in the hospital due to their age, which in general were > 60 years, and over. They had a health insurance and low opportunity costs. In declining rank order those on pension were followed by civil servants and state enterprises staff, workers, housewives and jobless persons, pupils and students, and merchants. Employees of companies had the shortest length of stay. Patients who were company's employees and merchant had high opportunity costs. If they did not work this would affect their income. Some private companies had regulations concerning the length of stay in the hospital, that is, if the length of stay was longer than programmed by the company's regulation, then this would have an affect on the bonus payment. Therefore, when this group of patients got better, they tried to go back to work as soon as possible. These findings were confirmed by a study of the demand for inpatient services at Khon Kaen Hospital (Suksiriserekul 1987: 117). Public workers stayed the longest in the hospital followed by workers, housewives and jobless persons and finally businessmen. In a

similar survey Tangcharoensathien et al., (1999: 25-34) found that the length of stay in Regional Hospitals and general hospital in year 1997 of patients being on pension lasted in average 16.5 days/year and was the longest from all groups of patients, while patients being civil servants had an average length of stay in hospital of 9.1 days/year.

5.2.2.5 Travel time for a round trip from home to the hospital and back home:- The respondents had an average travel time of 125 minutes that was higher than the standard travel time as set by the Health Insurance Office. The travel time was positively related with the average length of stay in Lerdsin Hospital. The stay in hospital positively correlated with the travel time to the hospital. If it was inconvenient to come to the hospital, and that in particular was true for patients with a low income and those coming from the provinces, then they also would have high opportunity costs for going to the hospital. So in case of sickness they prolonged the time going to see a doctor. In case the symptoms getting worse they finally had to go to hospital, but then they were really sick and it took a comparably long time to cure them.

5.2.2.6 Medical costs at Lerdsin Hospital in the past:- Patients with the eligibility for health services had the highest length of stay in the hospital compared with patients, who considered medical costs to be too expensive. Persons covered by health insurance used hospital services more often and stay longer there than persons without health insurance, whose medical costs increased according to the length of stay (Roemer, 1991: 45-47), Hahn (1994: 231). When grouped according to the eligibility for health services, the civil servants and employees of governmental enterprises had the longest average stay in the hospital (12.15 days/year). They got higher benefits than the other groups of patients and had good opportunities to ask the doctor for more days of rehabilitation. The next group that staid relatively long as well, was the group of patients holding gold cards without 30 Baht payment (10.80 days/year). The list was followed in declining order by the patients holding gold cards with 30 Baht payment (8.89 days/year) and patients covered by the social security scheme (7.14 days/year). Patients who paid for the treatment from their own pocket had the shortest average length of stay (6.12 days/year). This could be explained by the fact, that for them the medical costs was a financial burden. Also Tangcharoensathien et al., (1993: 20-21), found that civil servants had a longer length

of stay in the hospital than any other groups of patients, and the survey of Naranong (2004: 161), by investigating the length of stay of patients in big hospitals for the fiscal year 2002, found that the civil servants had the longest average length of stay in hospital with 11.9 days/year followed by patients holding a gold card without 30 Baht payment with 10.2 days/year, patients holding a gold card with 30 Baht payment with 9.9 days/year. Patients covered by the social security scheme had the shortest average length of stay in hospital with 8.5 days/year. The information derived from this survey about the average length of stay might be incorrect. This was because the information from the patients were obtained by asking them about their stay at the hospital the last time they were admitted, which was one year ago. Since the patients might not remember their length of stay correctly, so they might either over or under estimate the duration of stay. An other aspect was, that terminal illness of the patients holding gold cards, were taken by the relatives to die in the hospital. If there was a substantial number terminally ill patients being cared in the hospital, the average of length of stay would be longer as estimated here.

5.2.2.7 Present residence:- The patients living in the provinces had the longest length of stay in the hospital while the patients living in zone 9 had the shortest length of stay. It was easy for the patients living in zone9 to come to the hospital especially with eligibility for health services. They already came to the hospital when they were not very sick so that they didn't have to be treated very long, which consequently resulted in a low average length of stay. However in contrast to that, the number of outpatient's visits was rather high for this group. Patients living in the provinces had high opportunity costs due to expensive travel fees and medical costs. They could only use a gold card at the hospital where they were registered at. If they wanted to be treated at the Lerdsin Hospital where they were not registered with, they had to pay for the treatment by themselves on top of the high travel expenses. So they might delay to go to the hospital despite severe disease symptoms. When they finally would go, because then it was unavoidable, their treatment was quite expensive and it would take a rather long time before they recovered.

5.2.2.8 Age:- Age positively correlated with average length of stay in the hospital. Patients aged ≤ 12 years stayed in hospital with 8 days/year. Those with the shortest stay were patients in the age range of 13 to 20 years. After that the

average length of stay increased with increasing age of the patients. The patients ages > 60 years stayed the longest time in the hospital, due to their higher risk for ailing health, decreasing work efficiency, and vulnerability to infections. When they got sick of chronic diseases they very often needed continuous treatment. It could be stated that the patients aged 65 years and older had greater demand for medical services (Love and Lindquist, 1995: 629-648). Persons aged 85 years and older stayed about 10 times more days in hospital than any other age group below 65 years old, while the 70 years old stayed in hospital 3 times more days. The increase of the elderly population caused an absolute increase in the numbers of disabled persons. An increase in age simultaneously reduced the general health situation and increased medical expenditures.

The demand for health services of inpatients increased due to the factors which affected the average length of stay at Lerdsin Hospital. Those were the severity of illness with more complication, the change of illness pattern to more chronic diseases, and the increase of the proportion of elderly among the total population. The patients living near the hospital made use of services at inpatient department less often than the patients living in the provinces, but they had a higher number of outpatient's visits than the patients upcountry. The average medical costs at inpatient department was 8,192 Baht/time, that was 34 times higher in comparison to the average medical costs at outpatient department, which was only 240 Baht/visit. Therefore, service time should be extended and the amount of services provided to the patients at the outpatient department should be increased. If the health receiver could approach the services more easily, their symptom of illness didn't get worse, they didn't have to use the service of inpatient department, then this would help to decrease the medical cost for the hospital. The patients with gold card paid less for the treatment in comparison with the real expenses for treatment. To change the mode of payment to some sort of co-payment, which would be more than 30 Baht, and then this would help to decrease the burden of the government to provide the budget to the health providers and decrease the unnecessary visits of patients making use of the Universal Health Coverage scheme. It would help to sustain the scheme for a longer period.

This study found, that the factors related to the marital status, number of years for formal education, satisfaction with the hospital services in the past, income, travel

expenses and time spent for services in the past did not affect the average length of stay in the hospital (P-Value >0.05). Because the majority of the health receivers were covered by some sort of health insurance, the role of income decreased, but at the same time travel expenses played a greater role. But in the case of Lerdsin Hospital this factor did not evolve since the majority of patients travel by taxi from home to the hospital and back with an average expense of 135 Baht, which turned out not to be too high and had no effect on the income. In addition, the patients were admitted by the doctor according to the type and the severity of illness and the bed vacancy, which was a supply factors. Due to the fact that the doctor knew more about illnesses and therapy the patients left it to the doctor to make the decision how to treat them and whether they would be admitted to the inpatient wards or not. It was called asymmetry of information. Therefore, marital status, number of years for formal education, satisfaction with the services of the hospital in the past and time spent for services in the past did not really affect the length of stay in the hospital. Grouping the patients according to their eligibility for health services the following factors were important:-

1. Sex, occupation, type of illness, severity of illness and travel times were the factors affected the length of stay in the hospital of patients holding gold cards with 30 Baht payment. Female patients did stay shorter in the hospital than male patients, because the latter were more severely ill and had more complications. 45% of the inpatients holding gold cards were workers who stayed the longest time in the hospital, because their risk to get sick due to their work was greater than for other groups of patients (This did not include civil servants and employees of governmental enterprises). 62.1% of gold card holders suffered from chronic diseases, and needed treatment for the long period of time. 83.6% of this group displayed moderate symptoms and their length of stay in the hospital was longer than that of patients with mild symptoms. Patients holding gold cards with 30 Baht payment mainly lived in zone 9, but still they had problems to come to the hospital since 3 districts in zone 9 were far from Lerdsin Hospital (approximately 15 to 40 kilometers) and because of the heavy traffic in the morning. 59.3% of them had to spend more than 60 minutes for traveling to the hospital. In some cases this might harm the patients and in an acute state of disease, her or his condition might become worse on the way. In summary, the fact that the patients were workers, suffering from chronic illness, moderate symptoms

and travel time were the factors affected the length of stay in the hospital increased while the length of stay in the hospital of female patients decreased.

2. Sex, severity of illness, type of illness and occupation were the factors affected the length of stay in the hospital of patients holding gold cards without 30 Baht payment. 31.4% of this groups were patients in age ≤ 12 years, and 68.6% were in the age above 60 years. In childhood, boys were more vulnerable to accidents than girls due to riskier behavior. They had greater opportunities to get hurt and getting sick than girls. In the age above 60 years, female took better care of themselves than males and they seek earlier treatment when they felt not well than males. In contrast males did not pay too much attention to their health due to their working load and their behavior often was dangerous for their health in that they tended to smoke and drink alcohol. When males got older their chances to fall sick of chronic diseases was higher than for females. The result was that female patients had a shorter length of stay in the hospital than males. Patients holding gold card without 30 Baht payment made up the patients with the highest proportion of severe symptoms in comparison to all other groups of patients investigated. 73.6% of them had moderate symptoms. Patients with severe and moderate symptoms needed more time for treatment than patients with mild symptoms. 73.6% of patients were sick of chronic diseases which needed more time for treatment than acute diseases. 45% of this group were housewives and jobless persons with an age above 60 years. They had low opportunity costs, when falling sick so they could stay longer in the hospital without worrying about the work and income. Therefore, the length of stay in the hospital of patients holding gold cards without 30 Baht payment increased due to the factors of severe and moderate symptoms, chronic illnesses, being housewives and jobless persons. Being a male had a positive, being a female had a negative influence of the length of stay in hospital.

3. Sex, type of illness, travel time and the severity of illness were factors affecting the length of stay in the hospital of patients covered by the social security scheme. 75.7% of these patients were in the reproductive age, and females who came to the hospital for prenatal care and delivery, with an average length of stay in the hospital of 4 days. Male patients came to the hospital with diseases more complicated than female patients. 40% of patients covered by the social security scheme suffered from chronic diseases and required considerable time for treatment.

The travel time of 52.8% of patients was above 60 minutes. Extended travel time would prevent people to go to see the doctor. In the mean time their condition turns from bad to worse. Finally admitted to the hospital they had to stay longer there before being cured. 85% of this group had moderate symptoms and their stay in hospital was longer than for the patients with mild symptoms. In conclusion, the length of stay in the hospital for this group was influenced by the fact that the patient was suffering from chronic diseases and needed considerable time to reach the hospital. The length of stay increased if the patient suffered from chronic diseases, had a long travel time to the hospital and moderate symptoms. The average length of stay in the hospital of females was less than for males.

4. Occupation, type of illness and the severity of illness were factors related to the length of stay in the hospital of patients being civil servants and employees of the governmental enterprises. 17.9% of this group was on pension within the age above 60 years. They had low opportunity costs and had the highest benefit from their eligibility. Their stay in hospital therefore was the longest compared with other groups of patients. 66.4% of this group of eligibility was suffering from chronic diseases and 47.1% of them were suffering from more severe illness of chronic diseases needing more time for treatment, 80.7% of this group displayed moderate symptoms, 18.6% of them had severe symptoms and required more time for treatment, therefore their length of stay in the hospital was longer than for patients with mild symptoms. It could be concluded, that the length of stay in the hospital of this group of patients did depend on they were on pension, chronic illness and moderate and severe symptoms.

5. The type of illness, travel time, sex, present residence and age were factors related to the length of stay in the hospital of patients who paid for the treatment out for their own pockets. 53.6% of them had chronic illness and in need of treatment for a long time. 55.7% spent above 60 minutes for traveling to the hospital. As explained several times before extended travel time indirectly related to a longer stay in hospital. 61.4% of this group were female. 22.1% of them came to the hospital for delivery. This contributed to the fact that females stayed in hospital shorter than males. 37.9% of this group lived in zone 9 near the hospital with relative convenience to reach the place. Also with less severe diseases they came to be treated in the hospital. 11.5% were in the age above 60 years with a higher risk to fall sick in

comparison to other age groups. Consequently, the length of stay in the hospital for the group of those paying out of their pocket were related to the fact that the majority of them suffered from chronic diseases, had a prolonged time to spend on the road to come to the hospital, being female or male, were in the age above 60 year and lived in zone 9.

The variables were ranked before selected according to the important of the variables for the equation of the multivariate regression by using the stepwise method. Some variables could not be forced into the equation and had no significant relationship with the length of stay in the hospital (P-Value >0.05). For equation 7 to 12, 33.2% to 52% of independent variables could explain the variation of the dependent variables. This implied that a number of additional factors were related to the dependent variables, which could not be investigated in this study. Factors not considered the supply side:- vacancy of beds, availability of medical instruments and medical specialists and on the health receiver side :-the investment in good health, the willingness of the patients to stay longer in hospital or not and their preferences for either the inpatient wards or the outpatient departments. Anyway, the results of this study provided some useful information about factors related to the length of stay in the Lerdsin Hospital of patients with different eligibility for health services which could be used for health services planing.

From the service records of inpatient department in the year 2003, it was known, that the obstetric department had the highest number of patients and the surgical unit came second, followed by the orthopedic unit while ENT had the lowest number of patients. The Lerdsin Hospital had a very good reputation especially for bone and joint treatment which explained that the average length of stay at the orthopedic ward was 13.6 days/year while the average length of stay of patients in the obstetrics ward was only 4 days/year. The number of beds in each ward did depend not on the requirement for health services in the area. It effected the bed occupancy rate in some wards was less 50%. After the implementation of the Universal Health Coverage scheme, the hospital management improved the management of the inpatient departments. The patients with the eligibility did not pay for the treatment. The hospital staff reimbursed the money for their treatment after discharging the patients. In case patients requires special services, which could not be paid for from their

working units, since these services were out of the framework set by the Ministry of Public Health, it was up to the patient to pay for these extra costs out of their own pocket. Patients paying for services by themselves had to pay for the services for every three days. Doctors were now stricter in prescribing medicine by following the medicine directory particularly for patients holding a gold card and patients covered by the social security scheme. Patients were now only admitted in case they were fully agreeable to receive treatment in the inpatient ward. This decreased the overall length of stay of patients in the hospital. The patients now could be discharged quickly because they did not have to wait for their relatives to pay for the bills. The improvement of the management system of inpatient department had an impact on the satisfaction of the health receivers. That could be shown for this study since the satisfaction level of patients was higher this time in comparison with their last visit. The competence and friendliness of the doctors was acknowledged with a high satisfaction score while meals and the lack of swiftness of services resulted in lowest satisfaction scores.

The respondents were most satisfied with the good services of the staff working at the inpatient departments, with doctors providing good and successful treatment, with the convenience to make use of the services, with the reasonable medical costs and the medicine with a good quality. They were most unsatisfied with the meals, the confined space for parking and the rather high temperature in the inpatient wards. It was not easy to respond to the dissatisfaction with meals (TQM committee, 1998: 24-25). The ingredients of the meals and the cooking followed the recommendation of nutritionist but patients found the food not tasty. The hospital considered the food provided as appropriate and healthy. In fact it was assessed every month by interviewing the patients. The staff of the wards advised the patients about the proper food for their illness and tried to convince them, that what was given to them was best for their health. Nutritional education was also provided. 70.9% of patients at out-and inpatient departments made the decision themselves that they wanted to receive the services at the Lerdsin Hospital. If they were satisfied with the services, they would come back to obtain the services again. In fact the multiple uses of services at the same hospital could be an indicator about the satisfaction and the service quality (Caroline K. et al. 1995: 395). Those patients, who could make up their

mind, whether they wanted to use the services at Lerdsin Hospital again or not, said to 94.9% that they would do so. The reasons given were that the hospital had a good reputation for treatment, that they were impressed with the good services, that the hospital was near their house and that it was convenient to travel there, that they were eligible for using the services there, and that medical costs were reasonable. Other studies were in accordance with the findings of this study, in that the distance from home to the hospital and the competence of doctors were important factors for the health receivers when it came to use the governmental health services (Siriwong Na Ayuthaya, 2000: 67). The reasons of the 5.1% of patients saying that they would not use the services of Lerdsin Hospital again was, that the hospital was located far from their houses, it was inconvenient to travel there, the waiting time was too long, service procedures were too complicated, that they could not use the gold card at the hospital and that they were not impressed with the services and preferred other hospital. The factors listed here were in accordance with others. Inconvenient, distance and travel time were the factors related to the discontinuation of services at health station (Theerathieb, 1998: 47). An other study found, that, if services were provided slowly, patients tended not to select that service provider again (Preechajarn, 1994: 42).

The different eligibility for health services affected the medical costs, length of stay in the hospital and the result of the treatment of ten diseases of inpatients of Lerdsin Hospital in the year 2003. Those 10 diseases without complication were normal delivery, cesarean section, delivery by forcep extraction, delivery by vacuum extraction, myoma uteri, appendicitis, cataract, ovarian cyst, hemorrhoids and ectopic pregnancy. The information gathered from those ten diseases was complete even some of diseases did not occur in all groups of patients of the 5 groups of eligibility for health services. For instance not all the ten diseases occurred in the group of patients holding a gold card without 30 Baht payment, therefore, in this study comparison could be made only between patients who were eligible for health services and suffered from the same diseases. Due to the limited time available for follow up, the result of the treatment of patients with the same disease but different eligibility could not be assessed. Instead the treatment summary of the doctors before discharging the patients was used. The Health Insurance Office set the standard of length of stay in the hospital for different diseases in the year 2000. This was used as an indicator for

this service utilization in that the length of stay in Lerdsin Hospital was compared with this standard.

One important result of the study was that the civil servants and employee of the governmental enterprises had higher medical costs than other groups of patients due to the fact, that they could reimburse their expenses according to their eligibility. They could stay in the special rooms, could have special meal (not over 600 Baht/day) and could get imported medicine easier, than other groups of patients. This group was charged with the highest rate for their medical cost. For instance if the cost of dressing wound about 100-300 Baht, nurses would charged the highest rate 300 Baht, followed by the patients covered by the social security scheme. The hospital management staff was eager to provide special services to patients from this group, so that they would choose Lerdsin Hospital for health services again next year. For instance they could stay in special common rooms, got special meals (not over 400 Baht/day) and could get some of the imported medicine without paying for these benefits. Physicians allowed to prescribe high quality medicine for patients being the civil servants and employees of the governmental enterprises. Restrictions to get imported medicine were fewer for civil servants and employees of the governmental enterprise than the other groups of patients. Patients holding a gold card with and without 30 Baht payment had lower medical costs than those two groups mentioned above, because they were treated and got medicine strictly according to the Ministry of Public Health. Patients who paid for treatment out of their own pocket had the lowest medical costs. This was because among this group there were also a high proportion of patients who were actually quite poor, for instance they might be gold card holders not registered at Lerdsin Hospital. In this case, they were charged with the smallest possible fees for services according to their ability to pay. Also Visitporn (2003: 94) explained that the medical costs of the civil servants and employees of the governmental enterprises, and for patients covered by the social security scheme could be collected from their working units according to the real expenses for their treatment. The income from this group of patients was an important contribution to the hospitals budget and so it was no wonder, that the medical costs for this group was higher than the other groups of patients.

The civil servants and employees of the governmental enterprises had a longer average length of stay in the hospital than other groups of patients because medical costs were not a burden for them. As civil servants and employees of the governmental enterprises they had the privilege to ask for special rooms to stay in, and require rehabilitation. A high bed vacancy supports the trend to keep the patients longer in the hospital. Patients who paid for the treatments from their own pocket in average had shorter length of stay than the other groups of patients because medical cost for them were a burden. The length of stay of patients admitted because they were suffering from the nine diseases (except normal delivery) was shorter than the standard of length of stay set by the Health Insurance Office in 2000 and 10 diseases did not readmission during 28 days after discharge. According to the study of Tangcharoensathien et al.,(1999: 34-39), who derived the information from the Comptroller General's Department, in 1991, the average length of stay in the hospital of the patients who were civil servants and employees of the governmental enterprises and suffered from appendicitis was 8.1 days, from cataract was 7.8 days and normal delivery was 4.75 days. Compared with Lerdsin Hospital the average length of stay of civil servants and employees of the governmental enterprises was 4.39 days for treatment of appendicitis, 2.11 days for treatment of cataract and 2.83 days for a normal delivery. This indicated the efficiency of resource utilization within Lerdsin Hospital. Treatment quality also improved, in that the clinical practice guideline or protocol were followed. Patients received treatment solely adjusted to their illness. Fast services to patients diminishes the length of stay in the hospital because the patient was discharged as soon as her or his condition allows. She or he just might come back to the hospital for minor treatments such as stick off. While doctors performed surgeries using high technology and modern medical tools. The complication rate was low and the healing fast so that the patients did not have to stay long in the hospital. Procedures to discharge the patients were not delayed as well. All this would contribute to a faster bed rotation and a decrease in the length of stay. The length of stay of patients in the delivery ward of Lerdsin Hospital did exceed the standard set by the Health Insurance Office. The reason for this was that nursing students were trained at this ward in matters of postnatal and child care such as bathing a new born correctly and proper breast feeding. This was confirmed by the study of

Kong-Kyun Ro (1989: 299), who found, that patients in hospitals with medical training programs stayed longer, received more special services and paid more than those treated in hospitals without these programs.

The different eligibility for health services didn't affect the result of the treatment. What ever the eligibility for health services the patients used, they received the same quality of services. This was termed horizontal equity. All patients suffering from the same disease would receive the same treatment (see protocol for treat in Appendix).

The inefficiency of resource management was indicated by the fact, that the different eligibility for health services affected the medical cost and length of stay in the hospital. The civil servants and employees of the governmental enterprises had the higher medical cost than the other groups of patients, but there was no different in the result of treatment. Also Srisupan and et al., (2004: 39-45), pointed towards the fact that the civil servants and employees of the governmental enterprises used expensive imported medicine more often, but that the medicine was of the same quality as the medicine listed in the national medicine directory. The medical costs for this group rapidly increased, but the Comptroller General's Department was not in the position to inspect the medicine prescription. It seems not to be worthwhile to spend such a high budget for this group of patients. The magnitude of the problem was indicated by the fact, that doctors of the hospital under the Department of Medical Service used 41.6% of imported medicine for the patients (Sripairot and et al., 2000: 20-40).

Part 2 Hospital management

The satisfaction of the hospital management staff about the service provided to the patients at the out-and inpatient departments during 3 months before answering the questionnaire got in average a score of 7.35. Their satisfaction could be classified as fair. Their satisfaction with the Universal Health Coverage scheme in the period of 3 months before answering the questionnaire was rather low with an average score of 5.25. The reasons were that the change of the public health policy occurred very fast due to the political situation within the Ministry of Public Health. The new policy for the management of the health delivery system was formulated without consultation

and participation of the health providers. For instance there was a change of the payment mode to the health providers which increased the workload while the services faced a limitation in the use of resources. The policy considered only the interests of the health receives and disregarded those of the health providers. For instance the motivation of the working staff declined sharply when they were punished because of complained from the patients. Basic factors related to the satisfaction of the working staff were honor, praise, admiring, acceptance, freedom in making decision, security and professional career opportunities (Hongnan,1995: 129). If all this was largely neglected by the powers to be, the motivation of the working staff would decline considerably. The opinion of the hospital management staff about the hospital services after the implementation of the Universal Health Coverage scheme was, that the activity of the hospital changed from treatment of complicated diseases by medical specialists requiring high technology of medical tools to the treatment of general common diseases which were now being treated by the medical specialists, which was a waste of human resources and experiences. The hospital no longer focuses on appropriate medical research and professional training for physician and health personnel. The service system now was hampered by complicated administrative processes, such as the identification of the eligibility for health services of the patients. Without economic barrier, the ability of people to approach the services increased while an increasing number of working staff handed in their resignation and left the hospital. The hospital management staff tried to maintain the quality and the efficiency of the services by setting up a treatment standard for individual diseases. The real medical costs of the services provided to the patients of Lerdsin Hospital was higher than for other hospitals, when compared with the medical costs of the same disease. This was an indication, that Lerdsin Hospital was less efficient in health service management than other hospitals. Because hospital expenses had to be controlled strictly, the budget for the professional development of the working personnel decreased. The number of working staff at the after office hour clinics also had to be reduced and the use of medical supplies had to be strictly controlled. This all added to the decline of motivation of the working staff. The budge allocation for the health providers by capitation for all areas of the country seems not to be an adequate method for fund distribution. Financing through capitation among others

disregard to a large extent important factors such as population structure, common type of illness, risk to get sick, and type of the hospitals. Those patients who could afford to contribute to the expenses for treatment should be asked to do so. That would decrease the number of unnecessary visits at the hospital. It was according to Jindawatana and Pipatrojanakamol (2004: 84), that within a short period of time the big hospitals had high investment costs for health services but the funds received decreased considerably. Quality of services also decreased. In the long run the funds provided to the health providers, which were derived from tax money only, would not be enough and this would cause a problem for the Universal Health Coverage scheme. Investment for the governmental health services would keep increasing because of the progress in scientific and medical technology. An overall improvement of health delivery was a complicated issue. The government tried to improve the welfare system and the health services for the people. But the perception of the people was such that they tended to exploit the services and didn't use them according to their real necessity.

Part 3 The working staff at out-and inpatient departments

The working staff at out-and inpatient departments were fairly satisfied with the services provided to the patients during 3 months before answering the questionnaire with an average of 6.81. Also for them the level of the satisfaction with the Universal Health Coverage scheme was low with an average score of 5.91. After the implementation of the Universal Health Coverage scheme on 1st of January 2002, the number of visits of the patients at Lerdsin Hospital increased in that the number of visits accounted to 535, 444 in the year 2001 and increased to 596,454, that was by 11.39%, in year 2003. When comparing the number of outpatients of the big hospitals in the year 2001 with the year 2002, the number of outpatients was 17.40 million in 2001 and 35.14 million that was an increase of 50.5% in 2002 (Naranong et al.,2004: 154). There was no doubt that the workload for the hospital staff increased considerably. A survey in connection with the Universal Health Coverage scheme, undertaken in 13 provinces, pointed towards what were the main effects on the hospital (Abac poll Research Office,2003: 3-6): 1.the workload increased, 2. service procedures increased for instance the identification of the eligibility for health services required

extensive administrative processes and 3.the complaints from the health receiver increased as well indicated by the fact that their satisfaction score towards the Universal Health Coverage scheme was only 4.96 out of 10 scores. There were quite a number of pitfalls going along with the new scheme (Raktham, 1991: 247). Under the Universal Health Coverage scheme, the working load increased while the working staff were lacking of job security. The comparably low salary did not motivate them take over the increasing work load. Their professional career opportunities decreased. Their satisfaction with the working environment was low and this negatively affected the working process of the hospital and finally the service provided to the health receivers.

After the implementation of the Universal Health Coverage scheme some aspect of the scheme turned out to be difficult to implement. The scheme required to improve health promotion and disease prevention. In particular physicians were more familiar with the treatment of diseases than health promotion and disease prevention. The resignation of 10 doctors from Lerdsin Hospital between the years 2002 to 2003 was due to the fact, that after the implementation of Universal Health Coverage scheme they had to work twice as much in comparison to the time before the implementation. Before the implementation of the Universal Health Coverage scheme the average number of resignations of doctors was 200 persons/year but within 2 years under the Universal Health Coverage scheme the resignation of the doctor became as high as 950 persons/year (Office of the National Economic and Social Development Commission, 2003: 40-42). The main reasons quoted were insufficient salary, being afraid of being sued by the patient in case of an error occur incidentally during treatment, lack of professional career opportunities, and lack of working motivation. While the number of working staff decreased, the number of patients increased, with the result of longer waiting times. More and more patients holding gold cards wanted to be admitted in the hospital, in particular those with chronic diseases. Patients, whose relatives did not want to care for them, brought those patients to the hospital and the hospital had to spend large sums of money for their expenses. The medicine listed on the medical directory since 1999 was not according to necessity (Srisupan and et al., 2004: 48). In some hospitals doctors treated the patients regardless whether the medical prescribed was mentioned in the medical directory or not. Some doctors of

Lerdsin Hospital used medicine of the best quality for the patients without paying attention to the eligibility for health services of the patients. The patients holding a gold card sometimes paid the surplus in case they used imported medicine which was not listed on the medical directory. They were dissatisfied with it, because of the governmental propaganda they were of the impression that by paying 30 Baht everything was covered what was needed for their treatment. Patients covered by the social security scheme and civil servants and employees of the governmental enterprises had more benefits than the other groups of patients. They could use imported medicine, because the medical committee certified their medicine prescription. Consequently, there was a difference in the use of medicine according to the individual eligibility for health services. The review of essential and often used medicine which was listed on the medical directory every 2 years was an appropriate method and considered progress in the medical development. In case a new drug was developed and proved to be efficient, for instance for the treatment of chronic diseases, this drug was added to the list. That helped to solve the problem of inequity by using medicine according to the individual eligibility for health services. The working staff were not satisfied with the Universal Health Coverage scheme. The society and the health receivers did not appreciate the hard working health personnel but were very critical when finding working errors and easily complaint. The relationship between doctors and patients changed from respect and trust to a situation in which the patients was demanding more and more from the doctors and the whole health services. Patients didn't consider the limitation faced in term of resources and competences. Highly qualified health personnel who resigned from the governmental service changed to work in the private sector where they got a higher salary (Somprasong, 1995: 109). The dissatisfaction of the working staff with the working situation resulted in a decrease in motivation, work performance and high numbers of resignation of highly qualified staff. The number of patients increased every year, the waiting time at the outpatient department increased as well, while health resources were limited. Doctors were in a hurry to provide services to the patients within the schedule time. This affected the quality and efficiency of the services. To maintain the quality of treatment, doctors follow the standard of clinical practice guideline or protocol. Whatever eligibility for health services the patients were in, she or he would

received the same treatment for the same disease. The majority of working staff were of the opinion, that the hospital management faces financial problems, because it could not directly cover the medical costs from the patients, although some of the patients had the ability to pay for it. A situation analysis of the Universal Health Coverage scheme within one to two years showed that the budget for big hospitals decreased but the hospitals still could continue provide services by using the additional funds derived from the enumeration of medical costs of patients being civil servants and employees of the governmental enterprises and patients covered by the social security scheme (Suphachutikul and Wongkanaratanakul, 2004: 23). The hospital income decreased with the effect that the professional career opportunity became worse, training course were no longer arranged, maintenance of material, equipment could not be assured, building and places started to deteriorate but nevertheless the hospital management tried hard to improve the services to be efficient even under the limitation of resources.

Part 4 The people residing in an area under the responsibility of the Lerdsin Hospital but never used the service of the hospital.

Sex distribution, age and marital status of people living in the zone 9 under the responsibility of the Lerdsin Hospital, who never used the services of the hospital, were compared with the sex distribution, age and marital of the patients, that was with persons, who made use of services of Lerdsin Hospital. While the number of years for formal education of the patients were lower in comparison with the persons who never used the services of the hospital, the health status of those not using the services tended to be higher than for the patients. The income of the non-user was higher, so they had a better chance to select the health provider of their own choice. When grouped according to the area the non-users were staying those who stayed in Bangrak District had the highest monthly income followed by those staying in the Sathorn, Suanluang, Klongteuy and Prakanong district. These districts were located in the business area. Non-users living in the Pravaj district had the lowest monthly income, since this district was located at the outskirts of Bangkok. However, the respondents had a higher income than the average income of the population in Bangkok and the 3 provinces around Bangkok which was estimated for the year 2002 to be 6,354 Baht/person (The National Statistical Office, 2003: 18). The majority of

non-user were actually living where they were registered. Only about 15.4% had no correct house registration because they migrated to Bangkok for working, studying or following their parents and spouses. According to their identification cards they were still registered in their home town in the provinces. This showed that the population surveyed by the National Statistical Office was biased and underestimated migration. Most of the non-user were living in a single house. All of them had some kind of health insurance according to the policy of the Ministry of Public Health. They had the opportunity to make use of the health services without facing an economic barrier. They preferred to buy medicine from the drug store when suffering from mild to moderate symptoms because of convenience, and they had not to waste time and it was not expensive. When they suffered from severe symptoms, they chose to go to the governmental hospital because they were confident with the treatment of the governmental hospital and they considered that the medical costs were reasonable. The behavior was similar to poor people in the rural areas. When they felt sick, they bought medicine from the drug store and when they were suffering from severe symptoms they went to the governmental hospitals (Sermsri et al., 2003: 51). Only 4.4% of respondents chose to go to the health station when they got sick, even when the station was located near their houses. There were 61 of health stations all over Bangkok, but people preferred to go to the big hospitals, where there were medical specialists and medical equipments with high technology. It was in the believe of the people, that their sickness could be treated better and more efficiently at those big hospitals, even some diseases could be treated at the health station. This was an example of inefficient use of public health resources. The finding was confirmed by a study from Brahma (2000: 60). People in Potharam district, Rachaburi province preferred to be treated at the bigger than the small health centre even for common diseases.

The reasons mentioned from the non-users, why they didn't make use of the services of the Lerdsin Hospital were as follows: 1. far from home and working place, inconvenient to travel to the hospital, 2. wish to continue the treatment at the other hospital with the same doctor there, 3. long waiting time and complicated administrative service procedures. The respondents living near the hospital mentioned 1. long waiting time and complicated service procedure, 2. the wish to continue the

treatment at the other hospital with the same doctor, 3. that the once went with a relative to the hospital and were not satisfied with the hospital services, as reasons not to use the Lerdsin hospital services. The problem related to long waiting time was one of the main reasons for non-users to avoid services at Lerdsin Hospital. Other governmental hospitals had similar problems. Also there patients had to wait for a long time before receiving services. In particular waiting time in front of the diagnosis room and pharmaceutical room was long. The hospital management tried to improve the service system by decreasing the waiting time but since the number of patients increased, for what the management could not be made responsible for, the doctors increased their working speed. As a result both, the health receivers and the health providers were now under stress and the quality of services decreased.

The non-users living far from the hospital said that 1. the hospital was far from their house and it was inconvenient to travel there, 2. they wanted to continue the treatment with the same doctor at other hospitals, 3. they didn't know the location of the Lerdsin Hospital. The distance and travel time, particularly in Bangkok with the heavy traffic was one of the first reasons for non-users not to come to Lerdsin hospital. From a study of the health seeking behavior of the people holding a gold card at Bangkok district, Nonthaburi province, it was known also, that the number of visits of people of holding a gold card depended on the convenience to travel to the health provider conveniently (Neumpand, 2001: 123).

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

This final chapter was divided into 2 major parts. The conclusions of major findings were drawn on the basis of the findings as well as recommendations.

6.1 Conclusions

This quantitative research in the field of social sciences studied socio-demographic factors as well as the health status and the economic situation of those eligible for health services and their demand for the services at the Lerdsin Hospital. The opinion of the management staff and the staff working at out-and inpatient departments after implementation of the Universal Health Coverage scheme was also taken into account. One major objective of the study was to examine the reasons, why residents within the catchment's areas of the Lerdsin Hospital were reluctant to use the services of the hospital. The information concerning the utilization of out-and inpatient was collected at Lerdsin Hospital in 2003 as well as from the sample group during October to December 2003 in order to see the overview of the demand and supply for health services at Lerdsin Hospital. The data were analyzed using Multiple regression, One-way ANOVA and Kruskal wallist test.

Part 1 Health receiver at out-and inpatient departments of Lerdsin Hospital

A. Outpatient department

From the medical records belonging to the 5 different categories for eligibility for health services at outpatient department of Lerdsin Hospital in 2003 by the department of technical services. They were 429,188 outpatients with an average of 1,866 person per day. The largest proportion of outpatients was the patients who paid for the treatment from their pocket while civil servants and state enterprise staff had the lowest proportion of outpatients. The majority of the patients were female, single, lived in Bangkok according to the house registration, and the average age was 46 years. From all the patients visiting the outpatient department, those in the age of 60

years and older was the largest group with 22.5% while the group of patients younger than 12 years old accounted only for 4.9%, and was the age group with the fewest number of all patients. More detailed analyzed revealed however, that the information obtained from the regular records were inaccurate and could not be used. Therefore this study had to rely on the information gathered from the group of 800 persons selected by random systematic sampling.

The sample group was subdivided group into 5 groups according to the eligibility for health services. The 160 persons from each particular group of eligibility were interviewed while waiting for the medicine in front of the pharmaceutical room. The reliability of the questionnaire had been calculated to be = 0.91. The result obtained from the questionnaires, according to the socio-demographic, health status and economic factors of the patient were as follows:-

Socio-demographic factors:- Patients of the outpatient department included 57.2% females, with an average age of 44.4 years, 26.7% were in the age range of > 60 years while 4.4% were age \leq 12 years. The patients holding a gold card without 30 Baht payment had the highest average age of 58.5 years while the patients covered by the social security scheme had the lowest average age of 30.9 years. The marital status according to the marriage certificate showed that the majority of the patients were married and lived with the spouse, within a present residence in zone 9. The average years of formal education was 8 years, civil servants and state enterprise staff had the highest average years of formal education of 11 years, while the patients with gold card without 30 Baht payment had the lowest average year of formal education of 3.4 years. The satisfaction score with the services at Lerdsin Hospital services in the past was fair, civil servants and state enterprise staff had the highest satisfaction score towards the services and the patients who paid for the treatment from their pockets had the lowest satisfaction score towards the services. The highest satisfaction score was given to the competence and friendliness of the doctors and the quality of medicine while the promptness of services and the service process were the factors that had the lowest satisfaction score.

Health status:- The respondents from the outpatient department were sick of chronic diseases except the patients who paid for treatment by themselves were mostly sick of acute diseases. 51.4% of 800 patients had the moderate symptoms.

Economic factors:- From the patients at the outpatient department 39.9% of patients were housewives or jobless, patients covered by the social security scheme and patients who paid for the treatment from their pockets were mainly worker while the majority of patients under the civil servant-employee governmental enterprise medical benefit scheme were civil servants. The average incomes was 10,257 Baht, while the civil servants and state enterprise staff had the highest average monthly income of 15,627 Baht, and patients covered by the social security scheme had the lowest average monthly income of 7,892 Baht. They traveled to the hospital by the public transportation except the civil servants and state enterprise staff usually traveled by private car. The average travel time for a round trip from home to the hospital and back home was 115 minutes. Civil servants and state enterprise staff had the longest travel time of 138 minutes while the patients held gold card without 30 Baht payment had the lowest travel time of 102 minutes. The average travel expenses from home to the hospital was 122 Baht. Civil servants and state enterprise staff had the highest travel expenses with 214 Baht, while the patients covered by social security scheme had the lowest travel expenses of 77 Baht. 56.1% of the patients considered the time spent for services at the hospital as fair. 80% of the patients were patients with the eligibility for health services who could use the eligibilities to receive services at Lerdsin Hospital and paid for only the surplus of the treatment or medicine in case for their treatment high technology medical tools or imported medicine were used, which was not listed in the regulation of the Ministry of Public Health. 95.6% of the patients who paid for the treatment from their own pocket considered the medical costs as reasonable.

Indicators for the demand for health services at outpatient department by using the number of outpatient's visits at Lerdsin Hospital per year. It had been assessed following the objectives of the study as laid down for the objectives no.1.3.1 and the hypothesis no 1.4.1 to 1.4.4 :-

1. *The demand for health services from patient's at the outpatient department* was related medical costs in the past, age, place of residence, travelling time, type of illness, time spent for services in hospital in the past, marital status, number of years for education, occupation. When divided according to the eligibility for health services as follows:-

1.1 *The demand for health services from outpatients holding with 30 Baht payment* was related to occupation, marital status, age and number of years for education.

1.2 *The demand for health services from outpatients holding without 30 Baht payment* was related to age, type of illness, marital status, travel time and time spent for services in hospital in the past.

1.3 *The demand for health services from outpatients covered by the social security scheme* was related to occupation, marital status and place of residence.

1.4 *The demand for health services from outpatients covered by the civil servants - state enterprise staff scheme* was related to travel time, place of residence and occupation.

1.5 *The demand for health services from outpatients who paid for treatment by their pockets* was related to marital status, place of residence, occupation and age

2. The different eligibility for health services significantly affected the number of outpatient's visits. The highest average number of outpatient's visits, 11.8 times/year, were paid by the patients who held gold cards without 30 Baht payment, patients who held gold cards with 30 Baht payment came second with 8.6 times/year, followed by decreasing rank order by civil servants and state enterprise staff with 6.8 times/year and patients covered by the social security scheme with 6.7 times/year while patients who paid for the treatment from their own pocket had the lowest number of outpatient's visits with 4.7 times/year.

3. The socio-demographic status:- age, marital status, present residence, number of years for formal education were the factors which affected the number of outpatient's visits of Lerdsin Hospital.

4. The health status:- the type of illness was the factor, which affected the number of outpatient's visits of Lerdsin Hospital.

5. The economic status:- occupation, travel time for a round trip from home to the hospital and back home, time spent for services in the hospital and the medical costs in the past were the factors affecting the number of outpatient's visits of Lerdsin Hospital.

B. Inpatient department

The utilization of inpatient services of Lerdsin Hospital in 2003 from the department of technical services, 12,579 patients were admitted. The largest proportion of inpatients was the patients who paid for the treatment from their pockets while civil servants and state enterprise staff had the lowest proportion of inpatients. The majority of the patients were female, single, lived in Bangkok according to the house registration and with the average age of 35 years. The patient age 21-30 years had the highest rate of inpatient's utilization of 34.1% while the patient age ≤ 12 years had the lowest rate of inpatient's utilization of 8.0%. The error was found due to the information was not updated the same as outpatient's data.

The information was systematically collected from 700 persons who were the sample group with 5 eligibility for health services, 140 persons from the individual eligibility, they were interviewed one day before he or she was discharged. The reliability of the questionnaire had been calculated to be = 0.93. The result of the information collection found that the socio-demographic, health status and economic factors of the patient were as follows:-

Socio-demographic factors:-57.2% were female, an average age was 39 years, 24.3% were age 21-30 years while 8.0% were age ≤ 12 years. The patients held gold card without 30 Baht payment had the highest average age of 57.9 years while the patients who paid for treatment by their pockets had the lowest average age of 33.6 years. The actual marital status were married and lived with the spouse, the present residence in zone 9. The average year for formal education was 8 years, civil servants and state enterprise staff had the highest average year for formal education of 10.6 years, while the patients with gold card without 30 baht payment had the lowest average year for formal education of 4.1 years. The satisfaction towards Lerdsin Hospital services in the past was fair, civil servants and state enterprise staff had the highest satisfaction towards services and the patients who paid for the treatment from their pockets had the lowest satisfaction towards services. The highest satisfaction was about the competence and friendliness of the doctors and the quality of medicine while the quickness and the service process were the factors that had the lowest satisfaction.

Health status:- The respondents from the inpatient department were sick of chronic disease except the patients covered by social security scheme were mostly sick of acute disease. 82.6% of 700 patients had moderate symptoms.

Economic factors:- 31.3% of patients were housewife or jobless, patients held 30 baht payment and patients covered by the social security scheme and patients who paid for the treatment from their pockets were mostly worker while the patients under the civil servant-employee governmental enterprise medical benefit scheme were civil servants. The average incomes of the respondents were 9,080 Baht, civil servant and state enterprise staff had the highest average monthly income of 11,574 Baht, while patients covered by the social security scheme had the lowest average monthly income of 7,712 Baht. They traveled to the hospital by taxi, an average travel time for a round trip from home to the hospital and back home was 125 minutes. Civil servants and state enterprise staff had the highest travel time of 155 minutes while the patients covered by the social security scheme had the lowest travel time of 100.4 minutes. The average travel expenses from home to the hospital was 164 Baht. Civil servants and state enterprise staff had the highest travel expenses of 187 Baht, while the patients covered by social security scheme had the lowest travel expenses of 118 Baht. The 58% of the patients considered the time spent for services at the hospital was too long. 80% of the patients were patients with the eligibility for health services who could use the eligibilities to receive the services at Lerdsin Hospital by paying the surplus for the medical costs or medicine while 93.6% of the patients who paid for the treatment from their pockets considered the medical costs as reasonable.

The analysis of the factors that affected the demand for health services at inpatient department by using the length of stay in Lerdsin Hospital per year. The result of the analysis was according to the objectives no.1.3.1 and the hypothesis no 1.4.1 to 1.4.4 as follows:-

1. *The demand for health services from patient's at the inpatient department* was related severity of illness, sex, type of illness, occupation, travelling time, medical costs in the past, place of residence and age. When divided according to the eligibility for health services as follows:-

1.1 *The demand for health services from inpatients holding with 30 Baht payment* was related to sex, occupation, type and severity of illness, and travel time.

1.2 *The demand for health services from inpatients holding without 30 Baht payment* was related to sex, severity of illness, type of illness and occupation.

1.3 *The demand for health services from inpatients covered by the social security scheme* was related to sex, type of illness, travel time and severity of illness.

1.4 *The demand for health services from inpatients covered by the civil servants and state enterprise staff scheme* was related to occupation, type of illness and severity of illness.

1.5 *The demand for health services from inpatients who paid for treatment by their pockets* was related to type of illness, travel time, sex, place of residence and age.

2. The different eligibility for health services significantly affected the length of stay in the hospital. Civil servants and employee of governmental enterprise had the highest average length of stay with 12.2 days/year, followed by the patients who held gold cards without 30 Baht payment with 10.8 days/year, the patients who held gold cards with 30 Baht payment with 8.9 days/year and patients covered by the social security scheme with 7.1 days/year while the patients who paid for the treatment from their own pocket had the lowest average of length of stay in the hospital with 6.1 days/year.

3. The socio-demographic status:- sex, age and present residence were the factors affected the length of stay in Lerdsin Hospital.

4. The health status:- the type and severity of illness were the factor affected the length of stay in Lerdsin Hospital.

5. The economic status:- occupation, travel time for a round trip from home to the hospital and back home and the medical costs in the past were the factors affected the length of stay in Lerdsin Hospital.

According to the objective no. 1.3.2 and the hypothesis no. 1.4.5 to 1.4.7 ten Diseases without complications were analyzed which patients in the inpatient department suffered from during the year 2003. The different eligibility for health services did not affect the result of the treatment but had an effect on the medical costs for 6 different diseases (Normal delivery, caesarian section, cataract, appendicitis, ectopic pregnancy and myoma uteri). The length of stay in the hospital was related to 4 different diseases (Forceps extraction, ovarian cyst, appendicitis and ectopic

pregnancy). The patient being civil servants and state enterprise staff created the highest of medical costs and did stay the longest time in the hospital due to they got higher benefit than other groups of patients while the patients who paid for the treatment from their own pocket had the lowest medical costs and did stay in the hospital for a comparable short time due to the medical costs was the burden for them.

Part 2 Hospital management staff

The opinion survey of 18 persons who had been the head of departments or units were assessed by questionnaires. When they were asked about their satisfaction towards the service provided to the patients at out-and inpatient departments during the last 3 months their answer was that their satisfaction was fair with a score of 7.35 marks. Their satisfaction with the Universal Health Coverage scheme during 3 months before answering the questionnaire were quite low with an average score of 5.25 (Total scores=10). The opinion of the hospital management staff after the implementation of the Universal Health Coverage was as follows:-

Management:- Formerly complicated diseases and conditions had been treated by specialized doctors at Lerdsin Hospital. But after the change in health policy those specialists now treat common diseases. This resulted in a decrease of the scientific medical development.

Hospital services:- The working system related to services became more complicated. The number of patients increased due to the fact that patients now could conveniently make use of the services, but the hospital management staff had difficulties to allocate the hospital resources to match the demand for health services. The working staff was overloaded and depressed. To improve health promotion and disease prevention, the primary care unit (PCU) was established, but the health personnel and particularly the doctors were more familiar with the treatment of patients, thus the doctors did not emphasize health promotion and disease prevention. The doctor provided treatment to the patients that follows the clinical practice guidelines or protocols regardless of the eligibility of the patient for health services.

Health personnel:- The health personnel were discouraged to work, the rather low salary did not motivate them to work in the situation where they had to cope with a heavy workload. The number of doctors who resigned increased.

Quality and efficiency:- The investment of Lerdsin Hospital in treatment was higher than for other hospital for particular diseases. After the policy changed the efficiency of treatment decreased. The number of patients increased, so the time allocated by the doctors for the diagnosis of the individual patient decreased, which had an effect on the quality of the quality of the services. The hospital management staff tried to set up standard for the diagnosis of individual diseases in order to maintain the service quality.

Financial of Lerdsin Hospital:- The hospital management followed a more strict expenses control policy, which affected the development of the academic standing of the health personnel and the quality of the services. In addition, the investment into public health services kept increasing due to the development of science and medical technology. By using only tax money for the budget to support the Universal Health Coverage scheme might create the problem that under the Universal Health Coverage scheme the funds allocated to health provider might fluctuate from year to year due to the fact that also tax money derived from the income of the people fluctuate over the years. The Universal Health Coverage scheme might therefore not sustain over a long period.

Part 3 The staff working at out-and inpatient departments

The specific sampling procedure was used to select 160 persons from the staff, working at the out-and inpatient departments, who graduated with the bachelor degree, to answer a questionnaire concerning the service at out- and inpatient departments. When they were asked about their satisfaction towards the service provided to the patients at the out- and inpatient departments during the last 3 months their answer was that their satisfaction was fair with a score of 6.8 marks. Their satisfaction with the Universal Health Coverage scheme during 3 months before answering the questionnaire were quite low with an average score of 5.9 (Total scores=10). The opinion of the staff after the implementation of the Universal Health Coverage was follows:-

Management:- The improvement of the service system faced the difficulty that due to the limitation of the hospital resources, the advanced service policy

concentrated on health promotion and disease prevention, but the health personnel of the Lerdsin Hospital, which is a tertiary hospital, is familiar with the treatment policy mainly. However, under the Universal Health Coverage scheme, the management of the hospital was more efficient in the control of expenses and in the attempt to decrease the unnecessary length of stay in the hospital.

Hospital services:- The working load increased, the time spent for services at outpatient department increased, the number of patients who held gold cards and wanted to stay in the hospital increased, and that in particular was true for patients, who suffered from chronic diseases. The problem was aggravated by the fact, that relatives of chronic diseased patients were reluctant to care for them because it was a burden for them. The medicine the patients often used and which was necessary for them, was not listed on the medicine directory. That caused inequity for the patients since it increased the financial burden to the poor and was against the policy stipulated by the government.

Health personnel:- Most of the health personnel were not satisfied with the Universal Health Coverage scheme due to the increasing of workload and the risk to make mistakes. Depression increased, while they received the same salary as before, but working conditions deteriorated. The relationship between doctors and patients became less friendly. The motivation of the working staff decreased, because the patients expected to get more services and was much more willing to complain.

Quality and efficiency:- The demand for health services increased but hospital resources were limited. This effected the quality and efficiency of the health services but the doctors tried to maintain the quality of services by following the service standards of clinical practice guideline or protocol for treatment so that the patients of all eligibility received the services of the same quality.

Financial of Lerdsin Hospital:- The hospital management staff followed a more strict expenses control policy, by decreasing the number of health personnel and decreasing the opportunities for educational leave for the working staff and the number of training courses for the health personnel.

Part 4 The people lived in an area under the responsible of Lerdsin Hospital but never used the services of the hospital

One objective of this study was to assess the reasons why this group did not make use of the services of Lerdsin Hospital despite the fact, that they were residents in the area under the responsibility of Lerdsin Hospital. In order to improve the services according to the demand for health services of the people in the area, on the first of January 2002. The area in zone 9 was divided into 6 districts, namely Bangrak, Sathorn and Klongteuy, which were 3 districts located near the hospital within a distance of 10-15 Kilometers. The districts of Prakanong, Suanluang and Pravej were another 3 districts located far from the hospital within a distance of 15-40 kilometers. The data base for this group was derived from the National Statistic Office in the year 2002, the respondents comprised out of 400 persons. Most of them were females with an average age of 40 years, were married and still lived with their spouse and were worker. The average number of years for formal education was 10 years. The average monthly income was 10,938 Baht and most of them were covered by a health insurance. 55.6% were persons holding a gold cards, and when they had mild and moderate symptoms, they preferred to buy medicine from the drug store, because that was convenient and not expensive. In case of severe symptoms, they firstly went to the governmental hospital.

The reasons why the people didn't use the services of Lerdsin Hospital was according to the objective no 1.3.4. The three main reasons due to:- 1. Far from home and the working place, inconvenient to travel to the hospital, 2. To continue the treatment with the same doctor at the other hospital, 3. Long waiting time and complicated service procedure. The people lived near the Lerdsin Hospital didn't use the services due to 1. Long waiting time and complicated service procedure 2. To continue the treatment with the same doctor at the other hospitals 3. Accompany the relatives to the hospital and not satisfied with the services. While the people lived far from the Lerdsin Hospital who didn't use the services of the hospital due to 1. Far from home, inconvenient to travel to the hospital 2. To continue the treatment with the same doctor at the other hospital 3. They didn't know the location of the Lerdsin Hospital.

6.2 Recommendations

6.2.1 Recommendations to the Ministry of Public Health

6.2.1.1 The demand for health services increased due to the fact that the number of elderly people increased, the disease pattern changed in that more chronic diseases were prevalent with severe symptoms. Health insurance helped to decrease the economic barrier of patients to visit health providers located near the house of health receiver, which in turn helped to decrease the travel time and increased the convenient to approach the services, particularly for patients with low opportunity costs such as housewives or jobless, and persons being on pension. While the number of years for formal education increased, the demand for health services decreased. Therefore, the government should emphasize a policy to increase the people's education, support the awareness and the perception of the people to maintain their health so that in the end the demand for health services from the hospital decrease.

6.2.1.2 The different eligibility for health services did not affect the result of the treatment. This was explained by the fact, that the hospitals introduced treatment standards for individual diseases. Gold card holders should be assured that they would receive the same quality of treatment and medicine as other patients.

6.2.1.3 The different eligibility for health services had an effect on medical costs and length of stay in the hospital. The patients being civil servants and state enterprise staff created higher medical costs and stay longer in hospital than other groups of patients with the same disease. Patients with the higher privilege used the services more than necessary. Consequently, the payment mode for medical costs should be changed from fee for service to capitation mode, in order to control the expenses and helped to make use of the health resources with more efficiency.

6.2.1.4 The government should provide hospices for the chronic diseased patients and the patients who were terminal sick since it was not necessary that they stayed in the tertiary hospital. This would decrease the medical cost of the hospital. The tertiary hospital could admit patients with complicated diseases and conditions who needed urgent treatment with high technology medical tools and this also would increase the efficiency of the health resources utilization of the hospital.

6.2.1.5 The government supported the Universal Health Coverage scheme by providing the budget, which came only from the government funds given to the health providers. Supposed there was an economic crisis again, that this would have an impact on the budget used to support the Universal Health Coverage scheme. The income of the patients holding gold cards was higher than the income of the patients covered by the social security scheme, who had to pay monthly to the social security fund. The average medical costs of outpatient were 240 Baht/visit, which could be charged from the gold card holder, since it was not too expensive. The average medical costs for inpatients was assessed to be 8,192 Baht/case. The patients holding gold cards with 30 Baht payment should pay a certain percentage of these costs, at least more than 30 Baht. That seemed to be a more reasonable contribution to the services obtained and would help to bear the costs for patients holding a gold cards with very severe and expensive diseases.

6.2.1.6 The establishment of the primary care unit (PCU) outside the tertiary hospital created units similar to the outpatient department in the hospital. To serve these units the specialized doctors had to rotate between the units and the hospital. The doctor would concentrate on the treatment of diseases and not on health promotion and disease prevention. On the other hand the health stations under the Ministry of Interior were scattered within the Bangkok metropolitan area. The Ministry of Public Health therefore should cooperate with the Ministry of Interior and establish a health service network, by that decreased duplication of work. The health stations under the Ministry of Interior could provide advanced services emphasizing on health promotion and disease prevention, while the tertiary hospital should provide treatment to the patients who suffered from the complicated diseases. The duty of a tertiary hospital also was to care for patients, who were referred to the hospital from other less well equipped and staffed health providers. These set up would increase efficiency and would make a better use of the limited resources.

6.2.2 Recommendation to the management of Lerdsin Hospital

6.2.2.1 The factors determining the demand for health services at out- and inpatient departments also had an effect on the planning of the hospital services. An increasing in demand in future, for instance caused by an increase in age of patients,

would affect the number of visits at out- and inpatient departments. In the future the proportion of elderly within the population would increase. The kind of services and the hospital environment must respond to this change, for instance in that slope of sidewalks had to be installed instead of stairs, handrails should be fixed along the sidewalks, the number of wheel chairs had to be increased, patient wards for elderly should be established, beds for elderly with limited height should be provided, and with bars to prevent the patients to fell out of the bed, handrails should be installed in the toilets, so to decrease the number of accident from collapsing etc. Home visit and treatment to the elderly and disabled persons should be provided according to their needs and health status, so that the patients and their relatives didn't have to travel to the hospital, which usually was a burden for them. Those measures also could decrease the number of patients receiving medicine at the pharmaceutical room. The Lerdsin Hospital management should should provide health education to improve the perception of the people about health matters. In case of illness they should be advised to behave appropriately and could care for themselves as much as possible. Unnecessary visits to the medical services should be reduced. The proportion of chronic diseased patients increased the length of stay in hospital. Family members of the patient should be supported and encouraged to participate in the care of the patients so that she or he could be cared for appropriately at home, which also would increase the mental condition of the patient and he or she would be in a much better situation at home than staying in the hospital.

6.2.2.2 After the implementation of the Universal Health Coverage scheme, patients living near the hospital had the highest number of outpatient's visits and had the lowest number of admissions at inpatient departments and had the lowest number of admissions at inpatient departments, because the approach to the hospital was more convenient. According to the information from the National Health Insurance Office, the utilization of hospital services from 2002 to 2003, increased for outpatient departments by 11.7% while the length of stay in the hospital decreased by 2.48%. The medical costs of Lerdsin Hospital for the inpatient departments were 34 times higher than the medical costs for the outpatient department. Consequently, Lerdsin Hospital should extend the service time, the number of service days, type of services at the outpatient department, and increased the activities aimed at health promotion for

the health receivers, particularly for the elderly. If those group of patients was in good health they would not come to the hospital that often and made use of the services, that would decrease the expenses of the hospital.

6.2.2.3 The information system was of major importance for the hospital management. Information should be collected and kept in a database. If the information could not be used by the management, it was a waste of time and money to collect the information in the first instance. The hospital management should improve and update the information system to be more accurate and perfect, in particularly those information needed for decision making.

6.2.2.4 Patients came to receive the services at the hospital already at 5.00 hrs., while doctors started working at 8.30 hrs. That means they had to wait a long time before they could see a doctor. To decrease unnecessary waiting time an appointment system should be established. This would increase the satisfaction of the patients and reduce stress. The system could be applied for the patient with uncomplicated diseases. Especially in front of the following outpatient rooms usually long queues of patients accumulate. Those were the diagnostic rooms of the Obstetrics and Eye unit. It would be a good example for the working staff of other diagnostic rooms to also apply an appointment system for their patients.

6.2.2.5 The achievements of the Universal Health Coverage, that the health receivers had a more convenient approach to the services, and that the satisfaction of the health receiver towards the services increased, but the working load of the health personnel increased. In order to have a better working atmosphere under the Universal Health Coverage scheme, the hospital management should also consider the working staff of all level of all levels looks in to their career opportunities, their working security, and also should consider adjusting the salary to the increasing work load. The management also should further support the professional development of the health personnel in terms of higher qualification and also should encourage team work etc.

6.2.2.6 The hospital management surveyed the satisfaction of patients towards the hospital services annually. The information obtained from the survey could be used for the analysis of the demand for health services. It was a meaningful database for an efficient hospital service planning.

6.2.3 Recommendations for further research

6.2.3.1 The selection of a reliable data source obtained from hospital records for a study was an important factor, in particularly as far as age, marital status, residence, income, occupation and so on was concerned. If this information in the records was not regularly updated, the study was inaccurate and data interpretation difficult. To collect information from a sampled group was the most appropriate method for this study, since the sample group answered the questions of the questionnaire in detail and the investigator had not to rely on secondary data. Thus, the investigator had to spend more time and expenses, but the information obtained was more accurate in comparison to the information collected from hospital records.

6.2.3.2 This study used a quantitative research method and therefore not all issues might have been covered in detail. Qualitative research should thus be undertaken to obtain more details, including the explanation of subjective phenomenon, and patient's in-depth opinions.

6.2.3.3 Also other factors concerning the demand for and supply of health services should be studied as well as the factors related to the policy of the Ministry of Public Health, that influence the demand for health services of Lerdsin Hospital and which were not covered by this study.

6.2.3.4 The evaluation of the treatment's result used the diagnosis of the doctor before discharging the patients. The period covered for this evaluation was rather short. For the evaluation of the actual service quality, the home health care staff should follow up the illness of the patients after being discharged within 1 to 2 months, or should follow up the course of disease by telephone.

6.2.3.5 Patients with the eligibility for health services had higher demand for health services of the hospital than the patients who paid for the treatment from their own pocket. There should be more investigation into the necessity and use of health services, so that the management of the services could plan for further improvement in order to reduce inequity and diminish the moral hazards created by a health system, which favors the rich and disregard the disadvantaged poor.

BIBLIOGRAPHY

- Adrian Slack, Jackie Cumming, Dave Mare and Jason Timmins. (2002). Variations in secondary care utilization and Geographic access. Health Services Research Center. Victoria University of Wellington : 22.
- Aday, Lu Ann and Andersen, Ronald. (1981). Equity of access to medical care : a conceptual and empirical overview. Medical Care. No. 19 : 4 - 27.
- Andersen, R and Anderson , O. W. (1967). A Decade of Health Services. Chicago University of Chicago Press : 107 - 112.
- Ann Clewer, David Perkins. (1998). Economics for Health care management. Prentice Hall Europe. University of Kent at Canterbury : 6 - 7, 44 - 49.
- Avi Dor and Jac Ques van der Gaag. (1988). The demand for medical care in development country : quantity rationing in rural Cote d' Ivories. [Online]. The World Bank. Available:[http://www.wds.worldbank.org/servlet/WDS_IBank_Servlet?pcot=details & eid=000178830_98101902171242](http://www.wds.worldbank.org/servlet/WDS_IBank_Servlet?pcot=details&eid=000178830_98101902171242). 09/1/ 2003 : 16 - 17.
- Barbara S. Hulka and John R. Wheat. (1985). Patterns of Utilization the patient perspective. Medical Care. Vol . 23 , No. 5 : 438 - 457.
- Beck .R.G.and Horne.J.M. (1980). Utilization of publicly insured health services in Saskatchewan before, during and after copayment. Medical Care. Vol.18, No. 8 : 787 - 801.
- Bernard S. Bloom. and A. Mark Fendrick. (1987). Mark Fendrick Waiting for care ...Queuing and resource allocation. Medical Care. Vol. 25, No.2: 131 - 139.
- Beth Hahn. (1994). Health care utilization : the effect of extending insurance to adults on Medicaid or uninsured. Medical Care. Vol. 32 , No. 3 : 227 - 239.
- Biggs. J. (1996). Quality improvement. In C.E. Loveridge & S.H.Cummings (Eds.). Nursing management in the new paradigm. Maryland : 305.

- Boonkert Nguanboonmak. (2003). Equity in health and health care in Universal health coverage program: a case study of Nakhon Pathom province. Thesis submitted to University of Mahidol in fulfilment of the requirements of the degree of master of art in the Faculty of Graduate studies : 99 - 101.
- CCHSA. (1996). A guide to the development and use of performance indicators. Canadian Council on Health Service Accreditation : 72 - 78.
- Caroline K. Ross, et al. (1995). A Comparative Study of Seven Measures of Patient Satisfaction. Medical Care. Vol.33, No.4 : 392 - 406.
- Charoenkul , C. et al . (1982). Users and Nonusers of Health facilities. Thailand. Journal of Public Health. Vol. 12 , No. 2 : 137 - 160.
- JAMA. (1986). Quality of Care. Council on Medical Service, American Medical Association : 1032 - 1034.
- Culyer, A. and others. (1993). Equity and Equality in Health and Health care. Journal of Health Economics. Vol. 12 : 431 - 457.
- Daniels N. (1997). Ethics and Health care reforms : a global view. In Ethics Equity and health for All, ed. Bankowski Z et al, CIOMS, Geneva : 80 - 85.
- Davis K., Anderson G., Rowland D.,et al. (1990). Health Care Cost Containment. Baltimore, MD : Johns Hopkins University Press : 143 - 145.
- Department of Planning, Ministry of Health Data for Decision Making, Harvard School of Public Health. (1998). Health Care utilization and expenditures in the Arab Republic of Egypt 1994 – 1995 : 29 - 56.
- Douglas Love and Peter Lindquist. (1995). The geographical accessibility of hospitals to the Aged : A geographic information systems analysis within Illinois. Health Services Research. Vol.29 , No. 6 : 629 - 648.
- Edward M. Bosanac , Rosalind C. Parkinson and David S.Hall. (1996). Geographic Access to Hospital Care : A 30-Minute Travel Time Standard. Medical Care. Vol. 14 , No.7 : 616 - 618.
- Enterline PE, Salter V, McDonald AD, et al. (1973). The distribution of medical services before and after “ free ” Medical Care: the Quebec experience. N Eng Journal Medicine. Vol. 289: 1174 - 1178.

- Fabrica, Horacio. (1973). Toward a model of illness behavior. Medical Care. Vol. 11, No.6. December : 470 - 484.
- Feldstein, P.J., and Cerman, J.J. (1965). Predicting hospital utilization : An evaluation of three approaches. Inquiry 2 : 13.
- Fuches and Kramers. (1981). Health ,Economics, and Health Economics. Jacques Van der Gaag and M. Periman (editors). North-Holland Publishing Company : 178 - 180, 192.
- Geralds Rosenthal. (1970). Price elasticity of demand for short-term general hospital service. Empirical Studies in Health Economics. The John Hopkins Press : 101 - 117.
- Geralds Rosenthal. (1976). The demand for General hospital facilities. Chicago, American Hospital Association. Hospital Monograph Series No. 14 : 146.
- Gould Horold A. (1987). The implication of technological change for folk and scientific medicine. American Anthropologist. Vol. 59. (June) : 507 - 516.
- James G.Anderson. (1973). Demographic Factors Affecting Health Services utilization : A Causal Model. Medical Care . Vol 11, No 2 : 104 - 119.
- James R. Jeffers, Mario F. Bognanno and John C. Bartlett. (1971). The demand versus need for medical services and the concept of shortage. American Journal of Public Health. Vol. 61, No.1 : 61 - 64.
- James W. Henderson. (2002). Health Economics and Policy . Baylor University South -Western Thomson learning 2 nd edition USA : 142 - 163.
- John Best, W. (1977). Research in education. (Third Edition). Engle Wood Ciffes, N.J. : Prentice-Hall : 174.
- John C. Hershey , Harold S. Luft and Joan M. Gianaris. (1975). Making Sense Out of Utilization Data . Medical care. Vol. 13, No. 10 : 838 - 852.
- Joseph. P. Newhouse (1981). Health , Economics , and Health Economics. Jacques Van der Gaag and M. Periman (editors). North-Holland Publishing Company : 93.
- Keith J. Mueller , Kashinath Patil and Eugene Boilesen. (1998). The role of uninsurance and race in healthcare utilization by rural minorities. Health Service Research . Vol. 33, No. 3. Part 1 : 598 - 604.

- Kennedy, V.C. (1999). Rural access to a regular source of medical care. Journal of Community Health. Vol. 4, No.3 : 199 - 203.
- Kong-Kyun Ro. (1989). Patient Characteristics, Hospital Characteristics and Hospital Use. Medical Care. Vol. 7 , No.4 : 295 - 311.
- Krejcie, R.V, and Morgan, D.W. (1970). Determining Sample Size for Research activities. Educational and Psychological Measurement : 607 - 610.
- Kuoming Lin.(1994). Health status of the population: Medical care model V.S.Social – Structural model. Yale University : 7 - 12.
- Martin Gulliford et al. (2001). Access to Health Care. Report of a Scoping Exercise for the National Co-ordinating Centre for NHS Service Delivery and Organization R & D (NCCSDO) : 10 , 70.
- Masako Ii. (1973). The demand for medical care evidence from Urban areas in Bolivia. [Online]. The World Bank. LSMS Working Paper No. 123. Available:http://www.wds.worldbank.org/servlet/WDS_IBank_Servlet?pcot=details&eid=000009265_3961214182415. 09/1/ 2003 : 16 - 38.
- Michael Grossman. (1972). The Demand for Health : a theoretical and Empirical investigation. National Bureau of Economic research. Columbia University press: 6 - 17 , 729.
- _____ (1972). On the concept of health capital and the demand for health. Journal of Political Economy. Vol. 80, No. 2 : 15 , 223 - 255.
- Ministry of Health Kingdom of Cambodia (1998). The demand for Health care in Cambodia concepts for future research. WHO : 7.
- Morris A. Cohen and Hau L. Lee. (1985). The determinants of Spatial Distribution of hospital utilization in a region. Medical care . Vol. 23, No. 1 : 27 - 37.
- Munro BH. (1997). Statistic Methods for health care research. 3th Philadelphia : Lippincott-Raven Publishers : 247 - 248.
- Naci H. Mocanet al. (2001). The demand for medical care in urban China. University of Colorado at Denver and NBER : 22 .
- Neter,J., Wasserman,W. and Kutner, M.H. (1990). Applied linear statistics models : regression, analysis of variance, and experimental designs. 3rd ed. Illinois : 435.

- Nicole Lurie. (1997). Studying Access to Care in Managed Care Environments. Health Services Research . Vol. 32, No. 5 : 691 - 695.
- Parasuraman A, Zeithaml RD, Berry LL. (1985). A Conceptual Model of Service Quality and its implications for Future Research. Journal of Marketing : 41.
- Paul J. Feldstein. (1966). Health care economics. A Wiley Medical Publication : 80 - 83, 128 - 130.
- Pran Manga , Robert W. Broyles and Douglas E. Angus. (1987). The determinants of hospital utilization under a Universal Public Insurance Program in Canada. Medical Care. Vol. 25, No.7 : 658 - 669.
- Pramoth Prasartkul, et al. (1988). The country study report on the morbidity and mortality different in Thailand. Institute for Population Research. Mahidol University : 51.
- Porntep Siriwanarangsun. (1996). The response of the private sector to competitive contracting : a case study of a private health provider network in Thailand. Thesis submitted to University of London in fulfilment of the requirements of the degree of doctor of Philosophy in the Faculty of Medicine : 69 - 71.
- Raul Mendoza - Sassi , Dr. Jorge U. Beria and Dr. Jaypee Sevilla. (2000). Factors associated with health services utilization a population-based study assessing the characteristics of people that visit doctors in Southern Brazil : 14.
- Rexford E.Santerre and Stephen P. Neun.(1998). Health economics : theories insights and industry studies: IRWIN : 54 - 75.
- Ricardo A. Bitran and D. Keith Mc Inner. (1993). The demand of Health care in Latin America. The World Bank. EDI Seminar Paper No. 46 : 26 - 44.
- Ricardo A. Bitran. (1994). A supply -demand model of health care financing with an application to Zaire. [Online]. The World Bank. Available:[http:// www.wds.worldbank.org/servlet /WDS_IBank_Servlet?pcot=details&eid=000009265_3970128105942](http://www.wds.worldbank.org/servlet/WDS_IBank_Servlet?pcot=details&eid=000009265_3970128105942). 10/8/ 2003 : 1 - 11.
- Richard Janssen. (1992). Time prices and the demand for GP services. Social Science Medical. Vol. 34, No. 7 : 725 - 733.
- Richardson, William C.(1969). Poverty, illness, and use of health services in the United States. Hospitals. No.43 : 34.

- Robin A. Cohen, et al. (2001). Access to Health care Part 3 : Older Adults. Series 10, No. 198 : 1 - 14.
- Roemer Milton I. (1991). National Health Systems of the world. Volume I. Oxford, France : Oxford University Press : 45 - 47.
- Rosanna M. Coffey. (1983). The effect of time price on the demand for medical care services. The Journal of Human Resources . Vol. 18 : 407 - 422.
- Roy Penchansky , D.B.A. , and J. William Thomas. (1981). The Concept of Access definition and relationship to consumer satisfaction. Medical Care. Vol. 19, No. 2 : 128 - 130.
- Shkolnikov, M., Field, G. & Andreev, M. (2001). Russia: Socioeconomic Dimesions of the Gender Gap in Mortality. In Evan, T., Whitehead, M., Diderichsen, F., Bhuiya, A. & Wirth, M. (Ed.), Challenging Inequities in health. New York: Oxford University Press, Inc : 138 - 156.
- Somchai Suksiriserekul. (1987). The demand for hospital services in Thailand : a case study of Khonkaen provincial hospital. Thesis submitted to Thammasat University in fulfilment of the requirements for the degree of master of economics : 117.
- Stanhope, M. & Lancaster, J. (1996). Community health nursing promoting health of aggregates, families and individual. (4th ed).St.Louis, MO : Mosby-Year Book : 419.
- Supasit Pannarunothai. (1992). Equity in health : The need for and use of public and private health services in Phitsanulok municipality. Naresuan University : 85-90.
- Suwaporn Naewchampa. (2002). Satisfaction in health care delivery at Sappasitthiprasong Hospital under the Universal Coverage Scheme. Thesis submitted to University of Mahidol in fulfilment of the requirements of the degree of master of science (Public health). Faculty of Graduate studies:150.
- Tapan Kumar Brahma. (2000). Factors affecting utilization of health center in Photharam district of Ratchaburi province, Thailand. Thesis submitted to University of Mahidol in fulfilment of the requirements of the degree of master of primary health care management. Faculty of Graduate studies : 60.

- Wagstaff, Adam. (2002). Poverty and health sector inequalities. [Online]. Bulletin of the World Health Organization. Available: [http://www.who.int/bulletin/pdf2002/but-2-E-2002/80\(2\).11/07/2003](http://www.who.int/bulletin/pdf2002/but-2-E-2002/80(2).11/07/2003) : 99.
- Wilder, C.S. (1996). Health Characteristics of Persons with Chronic Activity Limitation, United States, 1994. Washington, D.C. : National Center for Health Statistics. Series 10. No.112 : 42.
- William Jack. (1999). Principles of health economics for developing countries. The World bank Institute, Washington , DC : 31 , 55 - 86.
- World Bank. (1998). World Development Indicator. Washington , DC : 20 - 36.
- World Health Organization. (1996). Equity in health and health care : a WHO/SIDA initiative. WHO/ARA. Geneva. Available:[http:// www.who.int/whr/previous/en: 1](http://www.who.int/whr/previous/en:1).
- _____ (1999). The World Health Report 1999. Making a difference. Geneva : WHO. Available:[http:// www.who.int/whr/previous/en: 32 - 33](http://www.who.int/whr/previous/en:32-33).
- _____ (2000). The World Health Report 2000. Health Systems : Improving Performance. Geneva : WHO. Available:[http://www.who.int/whr/previous/en: 48 - 50](http://www.who.int/whr/previous/en:48-50).
- Zeithaml, V.A. & Bitner, M.J. (2000). Services marketing. New York : Mc. Graw – Hill : 25 - 28.

- กระทรวงสาธารณสุข , สำนักงานประกันสุขภาพ. (2543). คู่มือการจัดกลุ่มโรคและค่าน้ำหนักสัมพัทธ์กลุ่มวินิจฉัยโรคร่วม ฉบับที่ 2 พ.ศ.2543 : 407 - 412.
- กระทรวงสาธารณสุข , สำนักงานประกันสุขภาพ. (2544). แนวทางการสร้างหลักประกันสุขภาพถ้วนหน้าในระยะเปลี่ยนผ่าน : 88.
- กระทรวงสาธารณสุข , สำนักนโยบายและแผนสาธารณสุข. (2539). คู่มือวัดระดับความสามารถของ ร.พ.ศูนย์ : 32.
- _____. (2540). สรุปสถิติสาธารณสุขที่สำคัญ พ.ศ. 2539 - 2540 : 21 - 22.
- _____. (2544). สรุปสถิติสาธารณสุขที่สำคัญ พ.ศ. 2543 - 2544 : 19 - 21.
- กระทรวงสาธารณสุข , กรมการแพทย์. (2539). คู่มือการบันทึกข้อมูล. โรงพิมพ์ทหารผ่านศึก : 47 - 50.
- กระทรวงสาธารณสุข , กรมการแพทย์ , โรงพยาบาลเลิดสิน. (2538). รายงานประจำปี พ.ศ. 2537. โรงพิมพ์ทหารผ่านศึก : 19 - 20.
- _____. (2539). รายงานประจำปี พ.ศ.2538. โรงพิมพ์ทหารผ่านศึก : 19 - 20.
- _____. (2540). รายงานประจำปี พ.ศ.2539. โรงพิมพ์ทหารผ่านศึก : 19 - 20.
- _____. (2541). รายงานประจำปี พ.ศ.2540. โรงพิมพ์ทหารผ่านศึก : 19 - 20.
- _____. (2542). รายงานประจำปี พ.ศ. 2541. โรงพิมพ์ทหารผ่านศึก : 19 - 20.
- _____. (2543). รายงานประจำปี พ.ศ.2542. โรงพิมพ์ทหารผ่านศึก : 19 - 20.
- _____. (2544). รายงานประจำปี พ.ศ.2543. โรงพิมพ์ทหารผ่านศึก : 19 - 20.
- _____. (2545). รายงานประจำปี พ.ศ.2544. โรงพิมพ์ทหารผ่านศึก : 19 - 21.
- _____. (2546). รายงานประจำปี พ.ศ.2545. บริษัทปาปิรุส พับลิเคชั่น จำกัด : 19 - 24.

- กอบแก้ว คุณตวัศ. (2527). ปัจจัยที่มีผลกระทบต่อความสม่ำเสมอในการมารับบริการรักษาของผู้ป่วยวัณโรคปอด. วิทยานิพนธ์มหาบัณฑิต สาขาสังคมศาสตร์การแพทย์และสาธารณสุข มหาวิทยาลัยมหิดล : ก.
- กุศล สุนทรธาดา และ วรชัย ทองไทย. (2539). ลักษณะผู้ใช้บริการและปัจจัยกำหนดการบริการรักษาพยาบาลในภาคเอกชน. สถาบันวิจัยประชากรและสังคม มหาวิทยาลัยมหิดล: 40 - 50.
- เกศินี หงส์นันท์. (2538). การบริหารบุคคลในวงราชการไทย. กรุงเทพมหานคร : สถาบันบัณฑิตพัฒนบริหารศาสตร์ : 129.
- คณะกรรมการพัฒนาคุณภาพงาน TQM. (2541). การประเมินคุณภาพการให้บริการโรงพยาบาล เลิศสิน ประจำปี 2540-2541. ศูนย์พัฒนาคุณภาพงานบริการ โรงพยาบาลเลิศสิน : 2 - 20.
- คณะทำงานพัฒนานโยบายหลักประกันสุขภาพ. (2544). ข้อเสนอหลักประกันสุขภาพถ้วนหน้า มีนาคม 2544. สถาบันวิจัยระบบสาธารณสุข : iii-iv.
- จงกล เลิศเชียรดำรง และ วิโรจน์ ตั้งเจริญเสถียร. (2542). คำรักษาพยาบาลผู้ป่วยนอกและในภายใต้สวัสดิการรักษายาบาลข้าราชการ พ.ศ.2540. สถาบันวิจัยระบบสาธารณสุข : 25 , 34.
- จันทร์เพ็ญ ชูประภาวรรณ. (2543). ชุดสุขภาพคนไทย ปี พ.ศ. 2543 สถานะสุขภาพคนไทย. สถาบันวิจัยระบบสาธารณสุข : 18 - 26.
- จิระพันธ์ กัลลประวิทย์ และ คณะ. (2541). การปรับการคาดประมาณประชากรของประเทศไทย พ.ศ. 2533 - 2563. สำนักงานคณะกรรมการพัฒนาเศรษฐกิจและสังคมแห่งชาติ : 21 - 23.
- จิรุตม์ ศรีรัตนบัลล์. (2543). ประสิทธิภาพในระบบสุขภาพ. กรุงเทพมหานคร: บริษัทดีไซร์ จำกัด : 16 - 17.
- _____ (2545). หน่วยที่ 11 การประกันสุขภาพ. หลักเศรษฐศาสตร์ และเศรษฐศาสตร์สาธารณสุข. มหาวิทยาลัยสุโขทัยธรรมาธิราช. พิมพ์ครั้งที่ 1 : 121 - 128.
- จำนง สมประสงค์. (2538). การเป็นผู้บังคับบัญชาที่ดีในราชการและธุรกิจ. กรุงเทพมหานคร. โรงพิมพ์คุรุสภาลาดพร้าว : 109.
- ชื่นชม เจริญยุทธ. (2522). ปัจจัยที่กำหนดการเลือกใช้บริการด้านสาธารณสุขประเภทต่าง ๆ ของประชาชนในชนบท. วิทยานิพนธ์ปริญญาสังคมศาสตรมหาบัณฑิต สาขาสังคมศาสตร์การแพทย์และสาธารณสุข. บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล : 76.
- ชุตินา วระวิบูล. (2535). การเลือกใช้บริการสุขภาพอนามัยของผู้สูงอายุไทย. วิทยานิพนธ์ปริญญาสังคมวิทยามหาบัณฑิต ภาควิชาสังคมวิทยาและมนุษยวิทยา จุฬาลงกรณ์มหาวิทยาลัย : 18 , 123.
- ชุตินา นุ่มมัน. (27 พฤษภาคม 2547). ศึกษารดดิหน้าโรงเรียน. หนังสือพิมพ์มติชนรายวัน : 9.

- ชูศรี ผลเพิ่ม. (2536). ปัจจัยกำหนดการใช้บริการเพื่อรักษาการเจ็บป่วยในสถานพยาบาลเอกชน กรุงเทพมหานคร. วิทยานิพนธ์ปริญญาสังคมศาสตรมหาบัณฑิต สาขาวิชาวิจัยประชากรและสังคม บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล : 41.
- ชนินทร์ เจริญกุล และคณะ. (2534). พฤติกรรมการใช้และไม่ใช้บริการอนามัย. ศูนย์ฝึกอบรมและวิจัยอนามัยชนบท. คณะสาธารณสุขศาสตร์ มหาวิทยาลัยมหิดล : 4.
- ธวัชชัย วรพงศธร. (2530). การวิเคราะห์การถดถอย. เอกสารประกอบการสอนวิชา สัมมนาวิธีการทางสถิติ. ภาควิชาชีวสถิติ คณะสาธารณสุขศาสตร์ มหาวิทยาลัยมหิดล : 73 - 74.
- นพวรรณ จงวัฒนา, เกื้อ วงศ์บุญสิน และ รุ่งรัตน์ โกววรรณะกุล. (2541). ภาวะการเจ็บป่วยของประชากรสูงอายุในประเทศไทย. การประชุมวิชาการประชากรศาสตร์แห่งชาติ สถาบันประชากรศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย : 36 , 112.
- นุชรพี ทุนกุล. (2537). ปัจจัยทางเศรษฐศาสตร์ที่กำหนดอุปสงค์การใช้บริการผู้ป่วยนอกสูงอายุในโรงพยาบาลเอกชนเชิงธุรกิจในจังหวัดเชียงใหม่. วิทยานิพนธ์ปริญญาสังคมศาสตรมหาบัณฑิต สาขาสังคมศาสตร์การแพทย์และสาธารณสุข. บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล : 92 - 95.
- นิตยา เพ็ญศิริรักษา , สงวน นิตยารัมภ์พงศ์ , นิวัต เทพมณี และไพจิตร ปวะบุตร. (2540). หน่วยที่ 1 ทางเลือกสำหรับผู้บริโภคทางสาธารณสุข. ทางเลือกในการเข้าถึงบริการสุขภาพ. มหาวิทยาลัยสุโขทัยธรรมมาธิราช. พิมพ์ครั้งที่ 2 : 318.
- น่านัก คักวานี และ เจริญจิตร โพธิ์ทอง. (2542). สถานะสุขภาพและภาวะโภชนาการของคนไทย เครื่องชี้วัดความอยู่ดีมีสุขและการวิเคราะห์เชิงนโยบาย. ปีที่ 3 , เล่ม 3 (กรกฎาคม) : 1 - 23.
- เบญจวรรณ กำธรวัชระ. (2537). สังคมวิทยาสุขภาพ. คณะสังคมศาสตร์และมนุษยศาสตร์ มหาวิทยาลัยมหิดล : 61 - 62.
- ประภัสสร เลี้ยวไพโรจน์. (2523). อุปสงค์ต่อบริการทางการแพทย์. รายงานผลการวิจัย คณะเศรษฐศาสตร์ มหาวิทยาลัยธรรมศาสตร์ : 42.
- ประภัสสร แสงทน. (2542). การวิเคราะห์อุปสงค์และอุปทานของบริการรักษาพยาบาลในกรุงเทพมหานคร. วิทยานิพนธ์ปริญญาเศรษฐศาสตรมหาบัณฑิต มหาวิทยาลัยเกษตรศาสตร์ : 89, 100 - 101.
- ประสิทธิ์ จันทกลาง. (2540). การศึกษาอุปสงค์ต่อการบริการทางการแพทย์ในจังหวัดลำพูน. วิทยานิพนธ์ปริญญาเศรษฐศาสตรมหาบัณฑิต มหาวิทยาลัยเชียงใหม่ : 16.

- ปรุง โภมารทัต และ คณะ. (2536). ความพึงพอใจของผู้รับบริการที่มีต่อพยาบาลในเขตกรุงเทพมหานคร ซึ่งสำเร็จการศึกษาจากวิทยาลัยพยาบาลในสังกัดกองงานวิทยาลัยพยาบาล. กองวิทยาลัยพยาบาล สำนักงานกระทรวงสาธารณสุข : 7.
- พงษ์พิสุทธ์ จงอุดมสุข. (2539). แนวคิดเรื่องการปฏิรูประบบบริการสาธารณสุข. เอกสารการดำเนินการจัดสรรงบประมาณในความร่วมมือในการปฏิรูประบบบริการสาธารณสุขของชาติ. สำนักงานปลัดกระทรวงสาธารณสุข. อัดสำเนา : 1.
- เฟรดเดอริก เอ เคย์ และ บุญเลิศ เลี้ยวประไพ. (2525). แบบแผนการใช้บริการสาธารณสุขในชนบทของประเทศไทย. กรุงเทพฯ . สถาบันวิจัยประชากรและสังคม : 37 , 54 - 56 , 89.
- ภูมิิต ประคองสาย. (2545). หน่วยที่ 14 การปฏิรูประบบบริการสุขภาพ. หลักเศรษฐศาสตร์และเศรษฐศาสตร์สาธารณสุข. มหาวิทยาลัยสุโขทัยธรรมมาธิราช. พิมพ์ครั้งที่ 1 : 278 - 279.
- เรณู สุขารมณ. (2545). หน่วยที่ 8 พฤติกรรมผู้บริโภค. หลักเศรษฐศาสตร์และเศรษฐศาสตร์สาธารณสุข. มหาวิทยาลัยสุโขทัยธรรมมาธิราช. พิมพ์ครั้งที่ 1 : 126 - 127.
- วรรณดดา ศรีสุพรรณ และ คณะ (2547). แนวโน้มการใช้ยาตามนโยบายบัญชียาหลักแห่งชาติของโรงพยาบาลในปัจจุบัน. วารสารวิชาการสาธารณสุข. ปีที่ 13 ฉบับที่ 1 : 39 - 45.
- วรรณดดา ศรีสุพรรณ , อารยา ศรีไพโรจน์ และ วิโรจน์ ตั้งเจริญเสถียร. (2547). การดำเนินงานของโรงพยาบาลต่อการบัญชียาหลักแห่งชาติ. วารสารวิชาการสาธารณสุข. ปีที่ 13 ฉบับที่ 1 : 48.
- วิภา ครุรงค์พิศิษฐ์กุล. (2525). ความพึงพอใจของผู้ป่วยนอกต่อบริการของโรงพยาบาลรามธิบดี. ปรินญญามหาบัณฑิต สาขาสังคมศาสตร์การแพทย์และสาธารณสุข บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล : 42.
- วิโรจน์ ณ ระนอง และ อัญชานา ณ ระนอง. (2545). การติดตามประเมินผลการดำเนินโครงการ 30 บาทรักษาทุกโรคของกระทรวงสาธารณสุข. สถาบันวิจัยระบบสาธารณสุข : 29 , 40.
- วิโรจน์ ณ ระนอง และ คณะ. (2547). หนึ่งปีแรกของการจัดหลักประกันสุขภาพถ้วนหน้าโครงการติดตามประเมินผลการจัดหลักประกันสุขภาพถ้วนหน้าระยะที่สอง 2546-2547. สถาบันวิจัยระบบสาธารณสุข : 161, 170.
- วิโรจน์ ตั้งเจริญเสถียร และ คณะ. (2536). การรักษาพยาบาลผู้ป่วยในภายใต้สวัสดิการรักษายาพยาบาลของข้าราชการ. กองแผนงานสาธารณสุข : 20 - 21, 34 - 39.
- วิโรจน์ ตั้งเจริญเสถียร และ คณะ. (2539). คุณภาพบริการโรงพยาบาลในสายตาผู้ป่วย. วารสารการวิจัยระบบสาธารณสุข. ปีที่ 4 ฉบับที่ 3 : 158 -168.

- วาทินี บุญชะลิกย์. (2530). รูปแบบการเลือกใช้แหล่งบริการรักษาของผู้ป่วยด้วยโรคเรื้อรังในประเทศไทย. วิทยานิพนธ์ปริญญาโทมหาบัณฑิต สาขาวิจัยประชากรและสังคม มหาวิทยาลัยมหิดล : ข , 71 - 90.
- _____ (2534). รูปแบบการเลือกใช้แหล่งบริการรักษาของผู้ป่วยด้วยโรคเรื้อรังในประเทศไทย. การประชุมวิชาการประชากรศาสตร์แห่งชาติ 2534. สถาบันวิจัยประชากรและสังคม มหาวิทยาลัยมหิดล : 278.
- วสันต์ ศิลปสุวรรณ. (2532). พฤติกรรมสุขภาพ : พฤติกรรมการใช้บริการสุขภาพ. เอกสารประกอบการประชุมวิชาการสุศึกษาแห่งชาติ ครั้งที่ 4 : 37.
- วันทนี วัฒนะ. (2537). การใช้บริการอนามัยของประชาชนในชุมชนแออัดในเขตรับผิดชอบของศูนย์บริการสาธารณสุข 11. วิทยานิพนธ์วิทยาศาสตรมหาบัณฑิต ภาควิชาเวชศาสตร์ป้องกันและสังคม บัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย. กรุงเทพมหานคร : 71 - 79.
- ศิริพร ปรางประสิทธิ์. (2536). ปัจจัยที่มีอิทธิพลต่อการใช้บริการทางการแพทย์ของผู้ประกันตน ณ ร.พ.พระนครศรีอยุธยาตามพระราชบัญญัติประกันสังคม พ.ศ.2533. วิทยานิพนธ์ปริญญาวิทยาศาสตรมหาบัณฑิต (สาธารณสุข) สาขาเอกบริหารสาธารณสุข บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล : 118.
- ศุภสิทธิ์ พรรณารุโณทัย. (2544). เศรษฐศาสตร์สาธารณสุขในยุคปฏิรูประบบสุขภาพ. พิมพ์ครั้งที่ 2. พิษณุโลก : ศูนย์วิจัยและติดตามความเป็นธรรมทางสุขภาพ คณะแพทยศาสตร์ มหาวิทยาลัยนเรศวร : 95 - 96.
- สมชาย สุขศิริเสรีกุล. (2545). ความเป็นธรรมในการจัดระบบบริการสุขภาพ. ประมวลสาระชุดวิชาเศรษฐศาสตร์สาธารณสุขสำหรับผู้บริหารสาธารณสุข. พิมพ์ครั้งที่ 2 มหาวิทยาลัยสุโขทัยธรรมาธิราช: 282.
- สมคิด แก้วสนธิ. (2524). เศรษฐศาสตร์สาธารณสุข : หลักทฤษฎีและปฏิบัติ. การบริการสาธารณสุขในประเทศไทย. คณะเศรษฐศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย : 70 - 78.
- สมชาติ ไตรรักษา. (2546). เอกสารประกอบการบรรยายเรื่องการสร้างและพัฒนาดัชนีชี้วัดสำหรับโรงพยาบาลคุณภาพ. ภาควิชาบริหารงานสาธารณสุข. สาขาการบริหารโรงพยาบาล. คณะสาธารณสุขศาสตร์ มหาวิทยาลัยมหิดล : 3.
- สมเดช สิทธิพงศ์พิทยา. (2538). หน่วยที่ 2 เศรษฐศาสตร์ว่าด้วยพฤติกรรมผู้บริโภค. เศรษฐศาสตร์สำหรับธุรกิจอาหาร. มหาวิทยาลัยสุโขทัยธรรมาธิราช. พิมพ์ครั้งที่ 1 : 71.
- สถิติแห่งชาติ, สำนักงาน. สำนักนายกรัฐมนตรี. (2524). สำมะโนประชากรและเคหะ พ.ศ. 2523 ที่ว่าราชอาณาจักร. กรุงเทพฯ ฯ : 2.

- สถิติแห่งชาติ, สำนักงาน. สำนักนายกรัฐมนตรี. (2534). สำมะโนประชากรและเคหะ พ.ศ. 2533
ทั่วราชอาณาจักร. กรุงเทพฯ : 2, 21.
- _____ (2540). รายงานการสำรวจเกี่ยวกับสวัสดิการอนามัย และ
สวัสดิการ 2539. กรุงเทพฯ : 2, 21.
- _____ (2541). รายงานการสำรวจเกี่ยวกับสวัสดิการอนามัย และ
สวัสดิการ 2540. กรุงเทพฯ : 2, 28.
- _____ (2542). สำมะโนประชากร และ เคหะ ปี พ.ศ. 2541 : 2 - 3.
- _____ (2543). สำมะโนประชากรและเคหะ พ.ศ. 2542 ทั่วราชอาณาจักร. กรุงเทพฯ : 2.
- _____ (2544). สำมะโนประชากรและเคหะ พ.ศ. 2543 ทั่วราชอาณาจักร. กรุงเทพฯ : 2.
- _____ (2545). สำมะโนประชากร และ เคหะ ปี พ.ศ. 2544 : 3.
- _____ (2546). สำมะโนประชากรและเคหะ พ.ศ. 2545 ทั่วราชอาณาจักร. กรุงเทพฯ : 2, 18.
- _____ (2547). สำมะโนประชากรและเคหะ พ.ศ. 2546 ทั่วราชอาณาจักร. กรุงเทพฯ : 6.
- _____ (2547). สรุปผลเบื้องต้นการสำรวจเกี่ยวกับอนามัย และ
สวัสดิการ 2546. กรุงเทพฯ : 25 - 26.
- สินีนากู ปรีชาจารย์. (2537). การประเมินผลการใช้พระราชบัญญัติประกันสังคม พ.ศ. 2533 ใน
สถานประกอบการขนาดกลาง จังหวัดเชียงใหม่. มหาวิทยาลัยเชียงใหม่ : 42.
- สันทัต เสริมศรี และ คณะ. (2546). รายงานการวิจัยการใช้สถานพยาบาลของรัฐของคนจนในชนบท.
โรงพิมพ์บริษัทสามเจริญพาณิชย์ (กรุงเทพฯ) จำกัด : 51, 67.
- สำนักงานคณะกรรมการพัฒนาการเศรษฐกิจและสังคมแห่งชาติ. (2542). รายงานสภาพเศรษฐกิจ
ของครัวเรือน ปี 2541 : 17.
- _____ (2544). รายงานสภาพเศรษฐกิจ
ของครัวเรือน ปี 2543 : 17.
- สำนักบริหารการทะเบียน กรมการปกครอง กระทรวงมหาดไทย. (2545). สถิติกรุงเทพมหานคร
ปี 2545. สำนักนโยบายและแผนกรุงเทพมหานคร : 3, 100.

- สำนักวิจัยเอแบค-เคเอสซีอินเทอร์เน็ตโพลล์ มหาวิทยาลัยอัสสัมชัญ. (2546). รายงานผลการวิจัยเรื่องความคิดเห็นของผู้ให้บริการที่มีต่อโครงการหลักประกันสุขภาพถ้วนหน้า : กรณีศึกษาตัวอย่างบุคลากรผู้ให้บริการในสถานพยาบาลที่เข้าร่วมโครงการหลักประกันสุขภาพถ้วนหน้า จาก 13 จังหวัดทั่วประเทศไทย. สถาบันวิจัยระบบสาธารณสุข : 3 - 6.
- สัมฤทธิ์ ศรีธำรงค์สวัสดิ์ และ ศุภสิทธิ์ พรรณารุโณทัย. (2543). รายงานผลการศึกษา ชุดเครื่องมือวัดความเป็นธรรมเพื่อประเมินผลการปฏิรูประบบสุขภาพไทย. สถาบันวิจัยระบบสาธารณสุข : 7.
- สุธีรา สุนทรระกูล. (2529). ปัญหาการใช้บริการทางการแพทย์และสาธารณสุขของไทย. การอนามัยและสิ่งแวดล้อม : 46 - 51.
- สุนีย์ ชีระทีป. (2541). ปัจจัยที่มีผลต่อการใช้บริการรักษาพยาบาลที่สถานีอนามัยในชนบท จังหวัดชลบุรี. มหาวิทยาลัยมหิดล : 47 - 49.
- สุวิทย์ วิบุลผลประเสริฐ และ คณะ , บรรณาธิการ. (2543). การสาธารณสุขไทย พ.ศ. 2542 -2543. กระทรวงสาธารณสุข : 48 , 169.
- สุรศักดิ์ เนียมปาน. (2544). พฤติกรรมการใช้บริการสุขภาพของประชาชนในโครงการหลักประกันสุขภาพถ้วนหน้า กรณีศึกษาอำเภอบางกรวย จังหวัดนนทบุรี. วิทยานิพนธ์ปริญญาวิทยาศาสตรมหาบัณฑิต สาขาวิชาเวชศาสตร์ชุมชน คณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย : 111 - 120.
- เสาวคนธ์ รัตนวิจิตรศิลป์. (2544). ระบบหลักประกันสุขภาพ : ประสบการณ์จาก 10 ประเทศ. สถาบันวิจัยระบบสาธารณสุข กระทรวงสาธารณสุข : 13 - 31 , 76 - 88.
- องอาจ วิบุรศิริ , จิรุตม์ ศรีรัตนบัลล์ และ มยุรี จิรวินิชย์. (2539). การสถาปนา TOM ในโรงพยาบาลรัฐ ตอน : จุดเริ่มและภาพรวม. วารสารการวิจัยระบบสาธารณสุข : 143 - 157.
- อนงค์ โรจน์วณิชย์. (2531). โครงการฝึกอบรมเศรษฐศาสตร์สาธารณสุขสำหรับเจ้าหน้าที่วิเคราะห์นโยบายและแผนงบประมาณ. คณะเศรษฐศาสตร์ มหาวิทยาลัยธรรมศาสตร์ : 8 - 11.
- อนวัตน ศุภชติกุล. (2536). การพัฒนาคุณภาพบริการเพื่อความอยู่รอดของการบริการสุขภาพในภาครัฐ. เอกสารโรเนียวประกอบคำบรรยายแก่ผู้อำนวยการโรงพยาบาลศูนย์ หรือโรงพยาบาลทั่วไป. กองโรงพยาบาลภูมิภาค. กระทรวงสาธารณสุข. อัดสำเนา : 4.
- อนวัตน ศุภชติกุล และ ประดิษฐ์ วงษ์คนารัตนกุล. (2547). เอกสารวิชาการ เพื่อนำสู่การแลกเปลี่ยนข้อคิดเห็นในการประชุมวิชาการ “พลังปัญญา : สู่การพัฒนาหลักประกันสุขภาพถ้วนหน้า เล่ม 4 การบริหารระบบ”. สถาบันวิจัยระบบสาธารณสุข : 23.

- อรทัย รวยอาจิณ และ อรพินท์ สิงห์เดช. (2542). หน่วยที่ 8 ภาวะประชากรกับสุขภาพ. ประชากรกับการสาธารณสุข. มหาวิทยาลัยสุโขทัยธรรมมาธิราช. พิมพ์ครั้งที่ 11 : 467 - 469.
- อรุณ รักธรรม. (2534). หลักมนุษยสัมพันธ์กับการบริหาร. กรุงเทพฯ : บริษัทสำนักพิมพ์ไทยวัฒนาพานิช จำกัด : 247.
- อรุณี วิศิษฐ์พร. (2546). ประเมินผลการจัดบริการสาธารณสุขระดับปฐมภูมิในโครงการหลักประกันสุขภาพถ้วนหน้าของเจ้าหน้าที่สถานีอนามัย จังหวัดพระนครศรีอยุธยา. วิทยานิพนธ์ วิทยาศาสตร์มหาบัณฑิต สาขาวิชาการวิจัยและพัฒนาระบบสาธารณสุข. มหาวิทยาลัยสงขลานครินทร์ : 94.
- อาภา ศิริวงษ์ ณ อยุธยา. (2543). พฤติกรรมสุขภาพเมื่อเจ็บป่วยในภาวะวิกฤตเศรษฐกิจ. สถาบันวิจัยสังคม จุฬาลงกรณ์มหาวิทยาลัย : 67, 108 - 109.
- อารยา ศรีไพโรจน์, ศรีเพ็ญ ตันติเวส และ วิโรจน์ ตั้งเจริญเสถียร. (2543). ผลกระทบของบัญชียาหลักแห่งชาติ พ.ศ. 2542 ต่อโรงพยาบาลภาครัฐ. วารสารนโยบายและแผนสาธารณสุข. ปีที่ 3 : 20 - 40.
- อำพล จินดาวัฒนะ และ สุรณี พิพัฒน์โรจนกมล. (2547). มองทะลุ 30 บาทรักษาทุกโรคหลักประกันสุขภาพถ้วนหน้า. กรุงเทพฯ : สถาบันพระบรมราชชนก : 84.

Appendix



No. 174/2003

Documentary Proof of Ethical Clearance
The Committee on Human Rights Related to
Human Experimentation
Mahidol University, Bangkok

.....

Title of Project: A Demand of Health Care Services at Lerdsin Hospital

Principal Investigator: Miss Nualpund Eamtrakul

Name of Institution: Faculty of Social Science and Humanities

Approved by the Committee on Human Rights Related to Human Experimentation

Signature of Chairman: _____

Handwritten signature of Srisin Khusmith.

(Professor Dr. Srisin Khusmith)

Signature of Head of Institute: _____

Handwritten signature of Pornchai Matangkasombut.

F06 (Professor Dr. Pornchai Matangkasombut)

Date of Approval: _____

25 SEP 2003

Table 48 Reliability in satisfaction of inpatients of Lerdsin Hospital

Statement	Mean	Std. Dev	Alpha if item deleted
1. Welcome in the past	4.0000	.4549	.9275
2. Procedures to provide services in the past	3.9333	.4498	.9266
3. Time consumed in providing services in the past	3.6667	.6065	.9271
4. Co-operation between units in the past	3.7667	.5040	.9252
5. Medical equipment in the past	3.9667	.6149	.9267
6. Competence of doctor in the past	4.4667	.5074	.9288
7. Friendliness of doctor in the past	4.2000	.4068	.9270
8. Friendliness of nurse in the past	4.1000	.4807	.9251
9. Friendliness of nurse aid in the past	3.9667	.4901	.9260
10. Friendliness of pharmaceutical staff in the past	3.9333	.5833	.9242
11. Caring of health staff in the past	4.0333	.6149	.9259
12. Quality of medicine in the past	4.0667	.4498	.9281
13. Information or advice given in the past	3.9000	.5477	.9255
14. The result of treatment in the past	3.9667	.6149	.9256
15. Overall service quality in the past	4.1333	.4342	.9277
16. Welcome in present	4.1667	.5921	.9254
17. Procedures to provide services in present	4.0667	.5208	.9239
18. Time consumed in providing services in present	3.9333	.6397	.9239
19. Medical equipment in present	4.0000	.5252	.9928
20. Cleanliness of ward	3.8667	.7303	.9254
21. Meals for patients	3.5667	.8172	.9241
22. Competence of doctor in present	4.3333	.5467	.9245
23. Friendliness of doctor in present	4.2000	.4842	.9254
24. Friendliness of nurse in present	4.0667	.5208	.9248
25. Friendliness of nurse aid in present	4.0333	.5561	.9245
26. Caring of health staff in present	4.0667	.5833	.9233
27. Quality of medicine in present	4.0333	.6149	.9259
28. The result of treatment	4.2000	.5509	.9248
29. Information or advice given in present	4.1333	.5074	.9246
30. Overall service quality in present	4.2000	.5509	.9236

Alpha = .9279	Standardized item alpha = .9276	Number of cases = 30
Statistics for scale	Mean = 120.9667	Variance = 90.2402
	Std Dev = 9.4995	Variables = 30
Item Means	Mean = 4.0322	Min = 3.5667
	Max = 4.4667	Range = .9000
	Max / Min = 1.2523	Variance = .0328
Item Variance	Mean = .3098	Min = .1655
	Max = .6678	Range = .5023
	Max / Min = 4.0347	Variance = .0108
Inter-item Covariances	Mean = .0930	Min = -.0851
	Max = .3885	Range = .4736
	Max / Min = -4.5676	Variance = .0052
Inter-item Correlations	Mean = .2992	Min = -.2950
	Max = .9446	Range = 1.2396
	Max / Min = -3.2024	Variance = .0465

The information used for the outpatients investigated in this study

1. **Study Title:** A demand for health services at Lerdsin Hospital after implementation of the Universal Health Coverage scheme.
2. **Objectives:** To study the factors which affect the services of Lerdsin Hospital.
3. **Reasons to question the patients:** To know the general features of the patients and their health and economic status as well as asking their opinion about outpatient department and to make use of the information in order to improve the services of Lerdsin Hospital.
4. **Time used for the interview:** Approximately 15 minutes while the patients were waiting in front of the counter of the pharmaceutical department in order to receive their medicine.
5. **Expectations:**
 - a) to collect information for the planning and improvement of the services of Lerdsin Hospital.
 - b) to improve the services according to the need of the patients.
 - c) to increase the satisfaction of the of the patients.
6. **Risk for patients to participate in this study:** None; In case the patient requires more information before answering the questionnaire, he or she can ask for it.
7. **Confidentiality:** The information will be gathered without taking for the name and family name of those being questioned. The information just will be collected as one study case taken from the general services of the hospital.
8. The patient can withdraw from the study at any time and without any discrimination.

Name of researcher: Miss Nualpund Eamtrakul

Address: Lerdsin Hospital

190 Silom road Bangkok 10500 Tel. 02-3539799.

Form to ask consent from outpatients to questioned them and getting permission to use the information for the study.

Study title: A demand for health services at Lerdsin Hospital after implementation of the Universal Health Coverage scheme.

Date: Months: Year:

Before signing this form, the objective of this study was explained to me, and the method of data collection as well as the benefits gained by this study. I am willing to answer the interviewer or fill out the questionnaire by myself clearly. I understand, that I can revoke my permission and co-operation any time and that by no means will affect the services I receive from the hospital presently or in future.

The information I provide will be held strictly confidential and only will appear as a study case making use of the general services of the hospital without giving my name and family name.

The investigator will take full responsibility for any damage or medical costs which will be related to my participation in this study.

I read the above statements and fully understand them. I sign this form by my own will.

Signature (Respondent)

Signature (Witness) Signature (Witness)

I cannot read and write. The investigator did read to me the content of this form which I understand well. In order to document my willingness to respond to the interviewer I stamp with my right thumb this form.

Signature (Respondent)

Signature (Witness) Signature (Witness)

In case of children under 14 years old, permission was asked from the parents of the child or an authorized person.

Signature (Parents, authorized person)

Signature (Witness) Signature (Witness)

Questionnaire for Outpatients of Lerdsin Hospital

Interviewer Date HN.....Consultation roomNo.....

Please mark or fill into the blank space.

Part 1: General information about the patient

1. Sex () male () female
2. Age.....years.
3. Marital status: () single () married () widowed () divorced/separated
4. Educational level.....years.
5. Present address:province.....
 Residence: House register no.province.....
 Why present address does not the same as register address because
6. Satisfaction with the services provided in the past by Lerdsin Hospital.

Services	Grade of satisfaction					Reason why dissatisfied
	Most satisfied 5	Satisfied 4	Fair 3	Dissatisfied 2	Most dissatisfied 1	
1. Welcome						
2. Procedures to provide services						
3. Time consumed in providing services						
4. Co-operation between units						
5. Medical equipment						
6. Competence of doctor						
7. Friendliness of doctor						
8. Friendliness of nurse						
9. Friendliness of nurses aid						
10. Friendliness of pharmaceutical staff						
11. Caring of health staff						
12. Quality of medicine						
13. Information or advice given						
14. The result of treatment						
15. Overall service quality						

Part 2: Health status

1. Your health in general:

- very good good fair bad very bad

2. Have you ever been seriously sick by a severe disease?

- No.
- Yes; if yes, what did you do first?
- did not do anything consulted friends or relatives
- bought medicine at the drug store used Thai traditional medicine
- used local remedy used Chinese traditional medicine
- went to see monk/ nun went to private clinic
- went to governmental hospital went to private hospital
- went to health center in Bangkok Metropolis others.....

The reason that you chose it.....

3. In case you were not severe sick, what did you do first?

- did not do anything consulted friends or relatives
- bought medicine at the drug store used Thai traditional medicine
- used local remedy used Chinese traditional medicine
- went to see monk/ nun went to private clinic
- went to governmental hospital went to private hospital
- went to health center in Bangkok Metropolis others.....

The reason that you chose it.....

4. Do you have a chronic disease?

- no don't know
- yes (please name the disease).....

Part 3: Economic status

1. Occupation.....

2. Average income per months..... Baht (if you don't have any income, please answer question no. 3).

3. Average income per month of the head of the family.....Baht.

4. Your eligibility for the use of the health services:

- Gold card with 30 Baht payment Gold card without 30 Baht payment
 Social security Out of pocket
 Civil servant or employee of governmental enterprise

5. Approximate travelling time from house to Lerdsin Hospital.....hours.....min.

6. Approximate expenses for travelling from house to Lerdsin Hospital.....Baht.

7. Means for travelling (Choose only one).

- walking private car private motorcycle taxi tricycle
 rental motorcycle skyline train bus / minibus train
 boat two side bus van others.....

Part 4: Hospital services

1. How much time did you have to wait when receiving services at Lerdsin Hospital in the past?

- waiting time not too long waiting time fair waiting time too long

2. What is your opinion about the medical costs in the past?

- reasonable expensive have health insurance

3. The main reason why you came to use the services at Lerdsin Hospital (Choose only one).

- near the house near the working place
 convenient for travelling good reputation for treatment
 good service and hospitality services provided fast
 high technology of medical equipment good quality of medicine
 followed the appointment with the doctor familiar with the hospital/ staff
 to continue the treatment with the same doctor, who treated me previously
 my sickness records are at the Lerdsin Hospital
 patient transferred from an other hospital to Lerdsin Hospital
 following advice of relative/friend
 reasonable medical costs satisfied with the previous services
 the hospital was indicated on the card of the eligibility
 can use the eligibility for health care services others.....

4. Who made the decision for you to make use of the service of the Lerdsin Hospital?
 yourself spouse son/daughter parent, relatives
 friends/acquaintance others.....
5. The expenses for the treatment is a burden for the family.
 much burden because.....
 moderate burden. no burden
6. Who cover the expenses?
 yourself spouse, parent, relatives son/daughter
 friend reimbursement according to the eligibility employer
7. Satisfaction with the outpatient services provided in this time by Lerdsin Hospital.

Services	Grade of satisfaction					Reason why dissatisfied
	Most satisfied 5	Satisfied 4	Fair 3	dissatisfied 2	Most dissatisfied 1	
1. Welcome						
2. Procedures to provide services						
3. Time consumed in providing services						
4. Co-operation between units						
5. Medical equipment						
6. Competence of doctor						
7. Friendliness of doctor						
8. Friendliness of nurse						
9. Friendliness of nurses aid						
10. Friendliness of pharmaceutical staff						
11. Caring of health staff						
12. Satisfaction of medicine						
13. Information or advice given						
14. Overall service quality						

8. In future, if you are sick, will you come to the Lerdsin Hospital again for treatment?
 yes, because..... (Answer only one).
 no, because..... (Answer only one).
9. The most satisfaction with the health services provided is.....
10. The most dissatisfaction with the health services provided is.....
11. The services should be improved by

Thank you for your cooperation

Part 5: For the staff of the research team to complete (collect the information from the patient's records, interviews and observations)

1.No.of the outpatient visits at Lerdsin hospital during the past year including this timevisits.

2.Arrival time of the patient at the consultation room.....hrs.

 Consult the doctor at.....hrs. Come out from the consultation room at.....hrs.

3.Prescription of the medicine was placed at the counterhrs.

 Medicine received at.....hrs.

4.Diagnosis of the doctor.....

5.The type of illness:

 () no symptoms, come for health promotion

 () prenatal care () vaccination () others.....

 () acute disease () chronic disease

6.The severity of illness: () mild () moderate () severe

7.Total expenses of the treatment Baht.

8.Mode for payment:

 () paid for by health insurance according to the eligibility,

 without the additional payment.

 () paid for by the health insurance according to the eligibility

 with additional payment of.....Baht.

 () paid out of pocket because

The information used for the inpatients investigated in this study

1. **Study Title:** A demand for health services at Lerdsin Hospital after implementation of the Universal Health Coverage scheme.
2. **Objectives:** To study the factors which affect the services of Lerdsin Hospital.
3. **Reasons to question the patients:** To know the general features of the patients and their health and economic status as well as asking their opinion about inpatient department and to make use of the information in order to improve the services of Lerdsin Hospital.
4. **Time used for the interview:** Approximately 15 minutes while the patients were staying in the inpatient wards, one day before their discharge.
5. **Expectations:**
 - a) to collect information for the planning and improvement of the services of Lerdsin Hospital.
 - b) to improve the services according to the need of the patients.
 - c) to increase the satisfaction of the of the patients.
6. **Risk for patients to participate in this study:** None; In case the patient requires more information before answering the questionnaire, he or she can ask for it.
7. **Confidentiality:** The information will be gathered without taking for the name and family name of those being questioned. The information just will be collected as one study case taken from the general services of the hospital.
8. The patient can withdraw from the study at any time and without any discrimination.

Name of researcher: Miss Nualpund Eamtrakul

Address: Lerdsin Hospital

190 Silom road Bangkok 10500 Tel. 02-3539799.

Form to ask consent from inpatients to questioned them and getting permission to use the information for the study.

Study title: A demand for health services at Lerdsin Hospital after implementation of the Universal Health Coverage scheme.

Date: Months: Year:

Before signing this form, the objective of this study was explained to me, and the method of data collection as well as the benefits gained by this study. I am willing to answer the interviewer or fill out the questionnaire by myself clearly. I understand, that I can revoke my permission and co-operation any time and that by no means will affect the services I receive from the hospital presently or in future.

The information I provide will be held strictly confidential and only will appear as a study case making use of the general services of the hospital without giving my name and family name.

The investigator will take full responsibility for any damage or medical costs which will be related to my participation in this study.

I read the above statements and fully understand them. I sign this form by my own will.

Signature (Respondent)

Signature (Witness) Signature (Witness)

I cannot read and write. The investigator did read to me the content of this form which I understand well. In order to document my willingness to respond to the interviewer I stamp with my right thumb this form.

Signature (Respondent)

Signature (Witness) Signature (Witness)

In case of children under 14 years old, permission was asked from the parents of the child or an authorized person.

Signature (Parents, authorized person)

Signature (Witness) Signature (Witness)

Questionnaire for Inpatients of Lerdsin Hospital

InterviewerDate..... HN.....AN Ward..... No.....

Please mark or fill into the blank space.

Part 1: General information about the patient:

1. Sex () male () female
2. Age.....years.
3. Marital status: () single () married () widowed () divorced/separated
4. Educational level.....years.
5. Present address:province.....
 Residence: House register no.province.....
 Why present address does not the same as register address because
6. Satisfaction with the services provided in the past by Lerdsin Hospital.

Services	Grade of satisfaction					Reason why dissatisfied
	Most satisfied 5	Satisfied 4	Fair 3	Dissatisfied 2	Most dissatisfied 1	
1. Welcome						
2. Procedures to provide services						
3. Time consumed in providing services						
4. Co-operation between units						
5. Medical equipment						
6. Competence of doctor						
7. Friendliness of doctor						
8. Friendliness of nurse						
9. Friendliness of nurses aid						
10. Friendliness of pharmaceutical staff						
11. Caring of health staff						
12. Quality of medicine						
13. Information or advice given						
14. The result of treatment						
15. Overall service quality						

Part 2: Health status

1. Your health in general:

- very good good fair bad very bad

2. Have you ever been seriously sick by a severe disease?

- No.
- Yes; if yes, what did you do first?
 - did not do anything consulted friends or relatives
 - bought medicine at the drug store used Thai traditional medicine
 - used local remedy used Chinese traditional medicine
 - went to see monk/ nun went to private clinic
 - went to governmental hospital went to private hospital
 - went to health center in Bangkok Metropolis others.....

The reason that you chose it.....
.....

3. In case you were not severe sick, what did you do first?

- did not do anything consulted friends or relatives
- bought medicine at the drug store used Thai traditional medicine
- used local remedy used Chinese traditional medicine
- went to see monk/ nun went to private clinic
- went to governmental hospital went to private hospital
- went to health center in Bangkok Metropolis others.....

The reason that you chose it.....
.....

4. Do you have a chronic disease?

- no don't know
- yes (please name the disease).....

Part 3: Economic status

- 1. Occupation.....
- 2. Average income per months..... Baht (if you don't have any income, please answer question no. 3).
- 3. Average income per months of the head of the family.....Baht.

4. Your eligibility for the use of the health services:

- Gold card with 30 Baht payment Gold card without 30 Baht payment
 Social security Out of pocket
 Civil servant or employee of governmental enterprise

5. Approximate travelling time from house to Lerdsin Hospital.....hours.....min.

6. Approximate expenses for travelling from house to Lerdsin Hospital.....Baht.

7. Means for travelling (Choose only one).

- walking private car private motorcycle taxi tricycle
 rental motorcycle skyline train bus / minibus train
 boat two side bus van others.....

Part 4: Hospital services

1. How much time did you have to wait when receiving services at Lerdsin Hospital in the past?

- waiting time not too long waiting time fair waiting time too long

2. What is your opinion about the medical costs?

- reasonable expensive have health insurance

3. The main reason why you came to use the services at Lerdsin Hospital (Choose only one).

- near the house near the working place
 convenient for travelling good reputation for treatment
 good service and hospitality services provided fast
 high technology of medical equipment good quality of medicine
 followed the appointment with the doctor familiar with the hospital/ staff
 to continue the treatment with the same doctor, who treated me previously
 my sickness records are at the Lerdsin Hospital
 patient transferred from an other hospital to Lerdsin Hospital
 following advice of relative/friend
 reasonable medical costs satisfied with the previous services
 the hospital was indicated on the card of the eligibility
 can use the eligibility for health care services others.....

4. Who made the decision for you to make use of the service of the Lerdsin Hospital?
 yourself spouse son/daughter parent, relatives
 friends/acquaintance others.....
5. The expenses for the treatment is a burden for the family.
 much burden because.....
 moderate burden. no burden
6. Who cover the expenses?
 yourself spouse, parent, relatives son/daughter
 friend reimbursement according to the eligibility employer
7. Satisfaction with the inpatient services provided in this time by Lerdsin Hospital.

Services	Grade of satisfaction					Reason why dissatisfied
	Most satisfied 5	Satisfied 4	Fair 3	Dissatisfied 2	Most dissatisfied 1	
1. Welcome						
2. Procedures to provide services						
3. Time consumed in providing services						
4. Medical equipment						
5. Cleanliness of ward						
6. Meals for patients						
7. Competence of doctor						
8. Friendliness of doctor						
9. Friendliness of nurse						
10. Friendliness of nurses aid						
11. Caring of health staff						
12. Quality of medicine						
13. The result of treatment						
14. Information or advice given						
15. Overall service quality						

8. In future, if you are sick, will you come to the Lerdsin Hospital again for treatment?
 yes, because.....(Answer only one).
 no, because..... (Answer only one).
9. The most satisfaction with the health services provided is.....
10. The most dissatisfaction with the health services provided is.....
11. The services should be improved by

Thank you for your cooperation

Part 5 : For the staff of the research team to complete (collect the information from the patient's records, interviews and observations).

1.The number of the inpatient visits at Lerdsin Hospital during the past year including this admissionvisits.

2.The length of stay in the hospital during the past year including this admissiondays.

3.Admit on.....at.....hrs. Discharged on.....at.....hrs.

4.Diagnosis of the doctor.....

5.The type of illness: () delivery () acute disease () chronic disease

6.The severity of illness: () mild () moderate () severe

7.The result of the treatment:

() Complete recovery () Improved () Not recovery

8.Expenses of the treatment:

Medicine/medical tool..... Baht

Room/meal..... Baht

Laboratory test, x-ray etc..... Baht

Surgery..... Baht

Service of cleaning the surgery wound, injection etc..... Baht

Others..... Baht

Total Baht

9.Mode for payment:

() paid for by health insurance according to the eligibility,
without the additional payment.

() paid for by the health insurance according to the eligibility
with additional payment of.....Baht.

() paid out of pocket because

The information used for the management staff

1. **Study Title:** A demand for health services at Lerdsin Hospital after implementation of the Universal Health Coverage scheme.
2. **Objectives:** To study the impact of the universal health coverage scheme on the hospital management, health services, health personnel, the quality and efficiency of the services, and the financial situation of the hospital after the introduction of the scheme.
3. **Reasons to question the management staff of the hospital:** To know about his or her opinion of the Universal Health Coverage scheme after implementation of this scheme at the Lerdsin Hospital.
4. **Time used for the interview:** Approximately 15 minutes according to the convenience of those being questioned. The questionnaire was collected after it was completed.
5. **Expectations:**
 - a) To know from the management staff of the hospital about their opinion of and satisfaction with the Universal Health Coverage scheme.
 - b) To use the information collected to improve the health services.
 - c) To know about the problems of the hospital in relation to the Universal Health Coverage scheme and how they can be solved in time by the authorized person.
6. **Risk for the interviewee to participate in this study:** None; In case the interviewee requires more information before answering the questionnaire, he or she can ask for it.
7. **Confidentiality:** The information will be gathered without taking for the name and family name of those being questioned. The information just will be collected as one study case taken from the general services of the hospital.
8. The interviewee can withdraw from the study at any time and without any discrimination.

Name of researcher: Miss Nualpund Eamtrakul

Address: Lerdsin Hospital
190 Silom road Bangkok 10500
Tel. 02-3539799

Form to ask consent from management staff to questioned them and getting permission to use the information for the study.

Study title: A demand for health services at Lerdsin Hospital after implementation of the Universal Health Coverage scheme.

Date: Months: Year:

Before signing this form, the objective of this study was explained to me, and the method of data collection as well as the benefits gained by this study. I am willing to answer the interviewer or fill out the questionnaire by myself clearly. I understand, that I can revoke my permission and co-operation any time and that by no means will affect to my duty presently or in future.

The information I provide will be held strictly confidential and only will appear as a study case making use of the general services of the hospital without giving my name and family name.

The investigator will take full responsibility for any damage which will be related to my participation in this study.

I read the above statements and fully understand them. I sign this form by my own will.

Signature (Respondent)

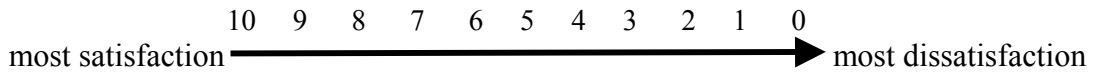
Signature (Witness)

Signature (Witness)

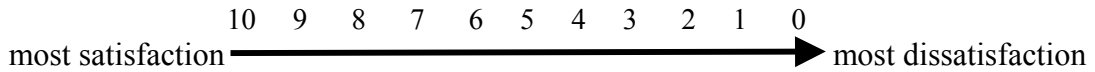
Questionnaire for the management staff of the hospital

Please mark the score with an X which identifies best your grade of satisfaction.

1. Your satisfaction with the result of services provided at out- and inpatient departments during the past three months.



2. Your satisfaction with the universal health coverage 30 Baht scheme provided to the patients at Lerdsin Hospital during the past three months.



3. Please express your opinion about the impact of the Universal Health Coverage 30 Baht scheme on Lerdsin Hospital in respect to the following issues.

3.1 Management.....

.....

3.2 Hospital services

.....

3.3 Health personnel.....

.....

3.4 Quality and efficiency.....

.....

3.5 Financial matters.....

.....

4. Please express your opinion towards an improvement of the hospital services.....

.....

Thank you for your cooperation

The information used for the staff working at out- and inpatient departments

1. **Study Title:** A demand for health services at Lerdsin Hospital after implementation of the Universal Health Coverage scheme.
2. **Objectives:** To study the impact of the universal health coverage scheme on the hospital management, health services, health personnel, the quality and efficiency of the services, and the financial situation of the hospital after the introduction of the scheme.
3. **Reasons to question the staff of the hospital:** To know about his or her opinion of the Universal Health Coverage scheme after implementation of this scheme at the Lerdsin Hospital.
4. **Time used for the interview:** Approximately 15 minutes according to the convenience of those being questioned. The questionnaire was collected after it was completed.
5. **Expectations:**
 - a) To know from the management staff of the hospital about their opinion of and satisfaction with the Universal Health Coverage scheme.
 - b) To use the information collected to improve the health services.
 - c) To know about the problems of the hospital in relation to the Universal Health Coverage scheme and how they can be solved in time by the authorized person.
6. **Risk for the interviewee to participate in this study:** None; In case the interviewee requires more information before answering the questionnaire, he or she can ask for it.
7. **Confidentiality:** The information will be gathered without taking for the name and family name of those being questioned. The information just will be collected as one study case taken from the general services of the hospital.
8. The interviewee can withdraw from the study at any time and without any discrimination.

Name of researcher: Miss Nualpund Eamtrakul

Address: Lerdsin Hospital

190 Silom road Bangkok 10500 Tel. 02-3539799

Form to ask consent from staff working at out-and inpatient departments to questioned them and getting permission to use the information for the study.

Study title: A demand for health services at Lerdsin Hospital after implementation of the Universal Health Coverage scheme.

Date: Months: Year:

Before signing this form, the objective of this study was explained to me, and the method of data collection as well as the benefits gained by this study. I am willing to answer the interviewer or fill out the questionnaire by myself clearly. I understand, that I can revoke my permission and co-operation any time and that by no means will affect to my duty presently or in future.

The information I provide will be held strictly confidential and only will appear as a study case making use of the general services of the hospital without giving my name and family name.

The investigator will take full responsibility for any damage which will be related to my participation in this study.

I read the above statements and fully understand them. I sign this form by my own will.

Signature (Respondent)

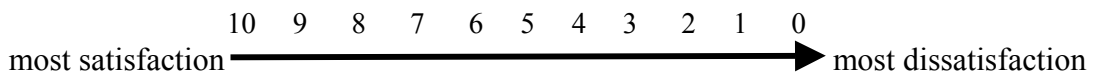
Signature (Witness)

Signature (Witness)

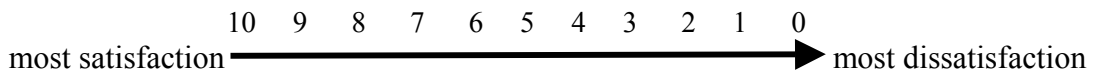
**Questionnaire for the hospital staff working
in the out-and inpatient departments**

Please mark the score with an X which identifies best your grade of satisfaction.

1. Your satisfaction with services provided to the patients during the past three months.



2. Your satisfaction with the universal health coverage 30 Baht scheme provided to the patients at Lerdsin Hospital during the past three months.



3. Please express your opinion about the impact of the Universal Health Coverage 30 Baht scheme on Lerdsin Hospital in respect to the following issues.

3.1 Management.....

.....

3.2 Hospital services

.....

3.3 Health personnel.....

.....

3.4 Quality and efficiency.....

.....

3.5 Financial matters.....

.....

4. Please express your opinion towards an improvement of the hospital services.....

.....

.....

Thank you for your cooperation

The information used for the people living in the area under the responsibility of Lerdsin Hospital but never used the service of the hospital

1. **Study Title:** A demand for health services at Lerdsin Hospital after implementation of the Universal Health Coverage scheme
2. **Objective:** To identify the reasons why the member of this group reject to make use of the service of Lerdsin Hospital.
3. **The reason to question this group:** To know cause why this group does not make use of the service of Lerdsin Hospital.
4. **Time used for the interview:** Approximately 15 minutes at the house of the one being questioned.
5. **Expectations:** To know about the need, problems and opinions of those entitled to make use of the service but don't, and to improve the health care service of Lerdsin Hospital.
6. **Risk for interviewee to participate in this study:** None; In case the member requires more information before answering the questionnaire, he or she can ask for it.
7. **Confidentiality:** The information will be gathered without taking for the name and family name of those being questioned. The information just will be collected as one study case taken from the general services of the hospital.
8. The interviewee can withdraw from the study at any time and without any discrimination.

Name of researcher: Miss Nualpund Eamtrakul

Address: Lerdsin Hospital

190 Silom road Bangkok 10500 Tel. 02-3539799

Form to ask consent from the people living in the area under the responsibility of Lerdsin Hospital but never used the service of the hospital to question them and getting permission to use the information for the study.

Study title: A demand for health services at Lerdsin Hospital after implementation of the Universal Health Coverage scheme.

Date: Months: Year:

Before signing this form, the objective of this study was explained to me, and the method of data collection as well as the benefits gained by this study. I am willing to answer the interviewer or fill out the questionnaire by myself clearly. I understand, that I can revoke my permission and co-operation any time and that by no means will affect to me presently or in future.

The information I provide will be held strictly confidential and only will appear as a study case making use of the general services of the hospital without giving my name and family name.

The investigator will take full responsibility for any damage which will be related to my participation in this study.

I read the above statements and fully understand them. I sign this form by my own will.

Signature(Respondent)

Signature (Witness)

Signature (Witness)

I cannot read and write. The investigator did read to me the content of this form which I understand well. In order to document my willingness to respond to the interviewer I stamp with my right thumb this form.

Signature (Respondent)

Signature (Witness)

Signature (Witness)

13. Do you have a chronic diseases?

() No () Don't know () Yes (please name the disease).....

14. In case you were not severe sick, what did you do first?

- () did not do anything () consulted friends or relatives
- () bought medicine at the drug store () used Thai traditional medicine
- () used local remedy () used Chinese traditional medicine
- () went to see monk/ nun () went to private clinic
- () went to governmental hospital () went to private hospital
- () went to health center in Bangkok Metropolis () others.....

The reason that you chose it.....
.....

15. Have you ever been seriously sick by a severe disease?

- () No.
- () Yes; if yes, what did you do first?
- () did not do anything () consulted friends or relatives
- () bought medicine at the drug store () used Thai traditional medicine
- () used local remedy () used Chinese traditional medicine
- () went to see monk/ nun () went to private clinic
- () went to governmental hospital () went to private hospital
- () went to health center in Bangkok Metropolis () others.....

The reason that you chose it.....
.....

16. Please find the reasons, why you don't use the services of Lerdsin Hospital.....
.....

17. Please express your opinion, how to improve the services of Lerdsin Hospital in such a way, that you will come to use the services.....
.....
.....
.....

Thank you for your cooperation

Table 49 Determinant factors of Gold card with 30 Baht payment of outpatients

Variables	B	Std. Error	Beta	T	Sig
(Constant)	5.951	0.542		2.442	0.015
OCC3	1.228	0.432	0.412	4.372	0.000
Status 2	2.078	0.232	0.364	3.985	0.000
Age	0.043	0.209	0.323	3.211	0.000
Education	-0.184	0.468	-0.289	-3.143	0.000
R = 0.515 R² = 0.265 Adjust R² = 0.264 Std.Error = 6.31 F-test = 11.997 P-Value < 0.05					

Note : OCC3 = Housewife or jobless

Status2 = Widowed or divorced or separated

Table 50 Correlation of independent variables of Gold card with 30 Baht payment of outpatients

Variables	# of OPD visits	OCC3	Status2	Age	Education
# of OPD visits	1.000				
OCC3	0.336	1.000			
Status 2	0.312	0.010	1.000		
Age	0.287	0.266	0.075	1.000	
Education	-0.273	-0.291	0.060	-0.284	1.000

Table 51 Determinant factors of Gold card without 30 Baht payment of outpatients

Variables	B	Std. Error	Beta	T	Sig
(Constant)	9.263	0.831		4.748	0.000
Age2	1.210	0.610	0.215	3.704	0.000
Type2	2.284	0.582	0.211	2.918	0.004
Status2	2.063	0.377	0.206	2.870	0.005
Travel time	-0.003	0.389	-0.197	-2.550	0.005
Wait2	-1.400	0.557	-0.181	-2.376	0.006
R = 0.582 R² = 0.339 Adjust R² = 0.338 Std.Error = 6.85 F-test = 7.463 P-Value < 0.05					

Note : Age2 = Age > 60 years

Type2 = Chronic illness

Status2 = Widowed or divorced or separated

Wait2 = Long waiting time

Table 52 Correlation of independent variables of Gold card without 30 Baht payment of outpatients.

Variables	# of OPD visits	Age2	Type2	Status2	Travel time	Wait2
# of OPD visits	1.000					
Age2	0.313	1.000				
Type2	0.298	0.208	1.000			
Status2	0.265	0.075	0.054	1.000		
Travel time	-0.245	0.035	0.016	0.075	1.000	
Wait2	-0.217	0.221	0.047	-0.053	0.044	1.000

Table 53 Determinant factors of Social security of outpatients

Variables	B	Std. Error	Beta	T	Sig
(Constant)	3.449	0.314		4.513	0.000
OCC3	1.884	0.144	0.394	3.343	0.000
Status1	1.551	0.625	0.298	3.253	0.001
Place1	1.214	0.541	0.266	2.520	0.012

R = 0.457 R² = 0.209 Adjust R² = 0.208 Std.Error = 3.81 F-test = 9.154 P-Value < 0.05

Note : OCC3 = Housewife/jobless Status1 = Married Place1 = Residence in zone9

Table 54 Correlation of independent variables of Social security of outpatients

Variables	# of OPD visits	OCC3	Status1	Place1
# of OPD visits	1.000			
OCC3	0.291	1.000		
Status1	0.268	-0.023	1.000	
Place1	0.217	0.139	-0.150	1.000

Table 55 Determinant factors of Civil servants and state enterprise employees of outpatients

Variables	B	Std. Error	Beta	T	Sig
(Constant)	6.470	1.638		8.590	0.000
Travel time	-0.014	0.356	-0.235	-3.950	0.000
Place1	1.218	0.642	0.117	2.840	0.000
OCC6	1.222	0.365	0.103	2.713	0.000

R = 0.497 R² = 0.247 Adjust R² = 0.246 Std.Error = 5.06 F-test = 15.604 P-Value < 0.05

Note : Place1= Residence in zone9 OCC6 = Receiving pension as former civil servant

Table 56 Correlation of independent variables of Civil servant of outpatients

Variables	# of OPD visits	Travel time	Place1	OCC6
# of OPD visits	1.000			
Travel time	-0.337	1.000		
Place1	0.270	-0.246	1.000	
OCC6	0.284	0.136	-0.137	1.000

Table 57 Determinant factors of the out of pocket groups of outpatients

Variables	B	Std. Error	Beta	T	Sig
(Constant)	2.405	0.507		6.320	0.000
Status2	1.118	0.432	0.310	3.898	0.000
Place1	1.071	0.643	0.304	3.728	0.000
OCC3	1.011	0.367	0.246	2.846	0.000
Age	0.020	0.160	0.172	2.388	0.014

R = 0.502 R² = 0.252 Adjust R² = 0.251 Std.Error = 3.36 F-test = 6.662 P-Value < 0.05

Note : Status2 = Widowed or divorced or separated Place1 = Residence in zone9

OCC3 = Housewife or jobless

Table 58 Correlation of independent variables of Out of pocket of outpatients

Variables	# of OPD visits	Status2	Place1	OCC3	Age
# of OPD visits	1.000				
Status2	0.334	1.000			
Place1	0.259	0.016	1.000		
OCC3	0.240	0.233	0.088	1.000	
Age	0.222	0.221	-0.115	0.214	1.000

Table 59 Determinant factors of Gold card with 30 Baht payment of inpatients

Variables	B	Std. Error	Beta	T	Sig
(Constant)	4.101	0.773		6.408	0.000
Sex	-2.993	0.507	-0.350	-4.386	0.000
OCC1	1.286	0.558	0.284	3.386	0.000
Type2	2.102	0.472	0.249	3.142	0.001
Severe1	2.314	0.610	0.214	2.984	0.002
Travel time	0.022	0.503	0.195	2.810	0.003

R = 0.585 R² = 0.342 Adjust R² = 0.341 Std.Error = 7.12 F-test = 12.401 P-Value < 0.05

Note : OCC1 = Worker Type2 = Chronic illness Severe1 = Moderate severity

Table 60 Correlation of independent variables of Gold card with 30 Baht payment of inpatients

Variables	LOS per year	Sex	OCC1	Type2	Severe1	Travel time
LOS per year	1.000					
Sex	-0.350	1.000				
OCC1	0.320	-0.186	1.000			
Type2	0.273	-0.216	0.144	1.000		
Severe1	0.268	-0.186	-0.025	0.122	1.000	
Travel time	0.241	-0.178	0.215	0.176	-0.152	1.000

Table 61 Determinant factors of Gold card without 30 Baht payment of inpatients

Variables	B	Std. Error	Beta	T	Sig
(Constant)	6.819	1.646		4.003	0.000
Sex	-3.484	0.356	-0.492	-4.763	0.000
Severe2	5.157	0.576	0.451	4.062	0.000
Type2	2.123	0.438	0.317	3.643	0.000
OCC3	2.426	0.510	0.302	3.566	0.000
Severe1	2.464	0.494	0.241	3.472	0.001
R = 0.644 R² = 0.415 Adjust R² = 0.414 Std.Error = 8.61 F-test = 15.021 P-Value < 0.05					

Note : Severe2 = Severe symptoms

Type2 = Chronic illness

OCC3 = Housewife or jobless

Severe1 = Moderate severity

Table 62 Correlation of independent variables of Gold card without 30 Baht payment of inpatients.

Variables	LOS per year	Sex	Severe2	Type2	OCC3	Severe1
LOS per year	1.000					
Sex	-0.370	1.000				
Severe2	0.274	0.192	1.000			
Type2	0.246	-0.129	0.128	1.000		
OCC3	0.233	0.248	-0.197	0.249	1.000	
Severe1	0.226	0.169	0.221	0.192	-0.177	1.000

Table 63 Determinant factors of Social security of inpatients.

Variables	B	Std. Error	Beta	T	Sig
(Constant)	3.341	1.021		3.936	0.000
Sex	-3.567	0.449	-0.341	-3.855	0.000
Type2	2.406	0.516	0.234	3.795	0.000
Travel time	0.028	0.487	0.177	3.158	0.002
Severe1	1.741	0.623	0.160	3.027	0.003
R = 0.576 R² = 0.332 Adjust R² = 0.331 Std.Error = 6.28 F-test = 13.292 P-Value < 0.05					

Note : Type2 = Chronic illness

Severe1 = Moderate severity

Table 64 Correlation of independent variables of Social security of inpatients.

Variables	LOS per year	Sex	Type2	Travel time	Severe1
LOS per year	1.000				
Sex	-0.425	1.000			
Type2	0.300	0.081	1.000		
Travel time	0.286	-0.013	0.034	1.000	
Severe1	0.225	0.067	0.096	0.005	1.000

Table 65 Determinant factors of Civil servant and state enterprise employees of inpatients.

Variables	B	Std. Error	Beta	T	Sig
(Constant)	6.447	0.911		3.147	0.002
OCC6	4.965	0.629	0.314	3.426	0.000
Type2	4.655	0.424	0.287	3.210	0.000
Severe2	4.426	0.418	0.207	3.021	0.003
Severe1	2.148	0.376	0.132	2.554	0.012
R = 0.603 R² = 0.364 Adjust R² = 0.363 Std.Error = 6.19 F-test = 11.431 P-Value < 0.05					

Note : OCC6 = Receiving pension as former civil servant

Type2 = Chronic illness

Severe2 = Severe symptoms

Severe1 = Moderate severity

Table 66 Correlation of independent variables of Civil servant of inpatients.

Variables	LOS per year	OCC6	Type2	Severe2	Severe1
LOS per year	1.000				
OCC6	0.440	1.000			
Type2	0.351	-0.024	1.000		
Severe2	0.224	0.182	0.160	1.000	
Severe1	0.218	0.113	0.156	0.174	1.000

Table 67 Determinant factors of Out of pocket of inpatients.

Variables	B	Std. Error	Beta	T	Sig
(Constant)	4.746	0.680		12.866	0.000
Type2	2.242	0.672	0.386	4.124	0.000
Travel time	0.019	0.707	0.326	3.957	0.000
Sex	-3.236	0.189	-0.291	-2.487	0.010
Place1	-2.410	0.784	-0.268	-2.399	0.012
Age2	2.096	0.624	0.243	2.353	0.015

R = 0.642 R² = 0.412 Adjust R² = 0.411 Std.Error = 5.76 F-test = 23.648 P-Value < 0.05

Note : Type2 = Chronic illness

Place1 = Residence in zone9

Age2 = Age > 60 years

Table 68 Correlation of independent variables of Out of pocket of inpatients.

Variables	LOS per year	Type2	Travel time	Sex	Place1	Age2
LOS per year	1.000					
Type2	0.435	1.000				
Travel time	0.393	0.273	1.000			
Sex	-0.333	-0.385	-0.243	1.000		
Place1	-0.240	0.210	0.278	0.184	1.000	
Age2	0.231	0.395	0.135	-0.184	0.142	1.000

Date	Order for one day	Date	Order for continue	Nurse sign
	<p>Day of Admission</p> <p>CBC, HIV, VDRL, HbsAg, U/A, Urine albumin, Urine sugar, Vital signs record body weight, PV Prep skin perineum, SSE, Soft diet Resord FHS q ½ hr, Record uterine fundus q 4 hrs, Record uterine contraction q ½ hr</p> <p>If cervix open ≥ 5 cm., NPO 5% D/N/2 1000 cc. v drip 120 cc./hr After placenta remove. Methergin 0.2 mg IM stat If IV fluid ≥ 500 cc add Oxytocin 20 u < 500 cc add Oxytocin 10 u</p> <p>Immediate postpartum care</p> <p>Vital signs every 15 mins until stable Observe bleeding per vagina.</p> <p>First postpartum day</p> <p>Second postpartum day</p>		<p>Diagnosis : Normal delivery</p> <p>Routine postpartum care</p> <p>Regular diet, Vital signs as usual. Perineum care in the morning and the evening.</p> <p>Medication</p> <p>Genalin F 1 x bid pc. (60 tabs) Paracetamol (500mg) 2 tabs prn for fever or pain q 4-6 hrs (20 tabs)</p> <p>Advice to mother for self care and child care.</p> <p>Discharge: when the patient is recovered or can take care of herself and ready to return home.</p> <ol style="list-style-type: none"> 1. To take home the same medicines prescribed for use during hospital admission and finish them up. 2. Follow up for check up in 2 weeks and 1 month. 3. Suggestion to the patients: <ol style="list-style-type: none"> 1. Take value foods and avoid taking preserved foods. 2. Take perineum care as often as possible. 3. Avoid an intercourse and being pregnancy during the first 6 months. 4. Encourage breast-feeding at least during the first 6 months. 5. Consult a doctor immediately if abnormal symptom is found e.g. fever, foul lochia. 	
Name of patient Department of Service		Age Ward	Hospital Number Attending Physician	

Date	Order for one day	Date	Order for continue	Nurse sign
	<p>Day of Admission CBC, HIV, VDRL, HbsAg, U/A, Urine albumin, Urine sugar, Vital signs, record body weight, PV Prep skin perineum, SSE , NPO Record FHS q ½ hr, Record uterine fundus q 4 hrs, Record uterine contraction q ½ hr. 5% D/N/2 1000 cc. + Syntocinon 10 u v drip 100 cc./hr Pethidine (50 mg) 1 amp. IM and Phenergan (50 mg) 1 amp. IM stat After placenta remove. Methergin 0.2 mg IM stat If IV fluid ≥ 500 cc add Oxytocin 20 u < 500 cc add Oxytocin 10 u</p> <p>Immediate postpartum day Vital signs every 15 mins until stable. Observe bleeding per vagina. Remove IV needle when IV fluid run out.</p> <p>First postpartum day</p> <p>Second postpartum day</p>		<p>Diagnosis: Delivery by V/C</p> <p>Routine postpartum care Soft diet, Vital signs as usual. Perineum care in the morning and the evening.</p> <p>Medication Amoxil (500 mg) 1 x tid pc.(30 caps) Synflex (500mg) 1 x bid pc. (30 caps) Genalin F 1 x bid pc. (60 tabs) Paracetamol (500mg) 2 tabs prn for fever or pain q 4-6 hrs (20 tabs)</p> <p>Regular diet Advice to mother for self care and child care.</p> <p>Discharge: when the patient is recovered or can take care of herself and ready to return home. 1. To take home the same medicines prescribed for use during hospital admission and finish them up. 2. Follow up for check up in 2 weeks and 1 month. 3. Suggestion to the patients: 1. Take value foods and avoid taking preserved foods. 2. Take perineum care as often as possible. 3. Avoid an intercourse and being pregnancy during the first 6 months. 4. Encourage breast-feeding at least during the first 6 months. 5. Consult a doctor immediately if abnormal symptom is found e.g. fever, foul lochia.</p>	
Name of patient Department of Service	Age Ward	Hospital Number Attending Physician		

Date	Order for one day	Date	Order for continue	Nurse sign
	<p>Day of Admission CBC, HIV, VDRL, HbsAg, U/A, Urine albumin, Urine sugar, Vital signs, record body weight, PV Prep skin perineum, SSE , NPO Record FHS q ½ hr, Record uterine fundus q 4 hrs, Record uterine contraction q ½ hr 5% D/N/2 1000 cc. + Syntocinon 10 u v drip 100 cc./hr Pethidine (50 mg) 1 amp. IM and Phenergan (50 mg) 1 amp. IM stat After placenta come out Methergin 0.2 mg IM stat If IV fluid ≥ 500 cc add Oxytocin 20 u < 500 cc add Oxytocin 10 u</p> <p>Immediate postpartum day Vital signs every 15 mins until stable. Observe bleeding per vagina. Remove IV needle when IV fluid run out.</p> <p>First postpartum day</p> <p>Second postpartum day</p>		<p>Diagnosis: Delivery by F/E</p> <p>Routine postpartum care Soft diet, Vital signs as usual. Perineum care in the morning and the evening.</p> <p>Medication Amoxil (500 mg) 1 x tid pc.(30 caps) Synflex (500 mg) 1 x bid pc.(30 caps) Genalin F 1 x bid pc. (60 tabs) Paracetamol (500mg) 2 tabs prn for fever or pain q 4-6 hrs (20 tabs)</p> <p>Regular diet Advice to mother for self care and child care.</p> <p>Discharge: when the patient is recovered or can take care of herself and ready to return home 1. To take home the same medicines prescribed for use during hospital admission and finish them up. 2. Follow up for check up in 2 weeks and 1 month. 3. Suggestion to the patients: 1. Take value foods and avoid taking preserved foods. 2. Take perineum care as often as possible 3. Avoid an intercourse and being pregnancy during the first 6 months. 4. Encourage breast-feeding at least during the first 6 months. 5. Consult a doctor immediately if abnormal symptom is found e.g. fever, foul lochia.</p>	
Name of patient Department of Service	Age Ward	Hospital Number Attending Physician		

Date	Order for one day	Date	Order for continue	Nurse sign
	<p>Day of Admission and operation Set OR, CBC,U/A,HIV,FBS,BUN,Cr, Electrolyte, Chest X-ray, EKG Vital signs as usual, Soft diet 1% Mydriacyl eye drop and 10% Phenyl epinephine to RE/LE/BE Prep and cut eyelash RE/LE/BE Paracet (500 mg) 2 tabs oncall. Diazepam (5 mg) 1 tab oncall Diamox 1 tab oncall 100% Glycerine 50 cc. + orange juice 50 cc. oncall Void before send to OR</p> <p>Immediate post operative care</p> <p>First post operative day</p>		<p>Diagnosis: Cataract</p> <p>Regular diet Vital sign as usual</p> <p>Medication Paracetamol (500 mg) 2 tab prn for pain q 6 hrs (20 tabs) Dexoph eye drops q 2 hrs (2 tubes) Syezadexoline eye drops q 2 hrs (2 tubes) Sterile eye washing RE/LE/BE</p> <p>Discharge: when the patient is recovered or can take care of himself or herself and ready to return home</p> <ol style="list-style-type: none"> 1. To take home the same medicines prescribed for use during hospital admission and finish them up. 2. Follow up in 1 week and 1 month. 3. Suggestion to the patients: <ol style="list-style-type: none"> 1. Rest up and do not rub upon eyes 2. Avoid frequent looking up or bending your head down. 3. Consult a doctor immediately if abnormal symptom is found e.g. fever, eye pain. 4. Avoid lifting heavy items, jumping. 5. Avoid taking foods that are hard for digestion and very tasty foods. 6. Take as much fruits as possible to avoid constipation. 7. Avoid tension. 8. Avoid coughing and sneezing. 	
Name of patient Department of Service		Age Ward	Hospital Number Attending Physician	

BIOGRAPHY

NAME	Miss Nualpund Eamtrakul
DATE OF BIRTH	28 October 1963
PLACE OF BIRTH	Bangkok, Thailand
INSTITUTION ATTENDED	Bangkok Nursing College, 1982 - 1986 Bachelor degree of Nursing Mahidol University, 1992 - 1995 Master degree of Science (Public Health Administration) Mahidol University, 2000 - 2005 Doctor of Philosophy (Medical and Health Social Science)
RESEARCH GRANT	Supported in part by the Thesis Grant, Faculty of Graduate Studies, Mahidol University
OFFICE	190 Lerdsin Hospital Silom road, Bangkok, Thailand Tel. 02-353-9799 E-mail : nunual20@hotmail.com
POSITION	Nurse