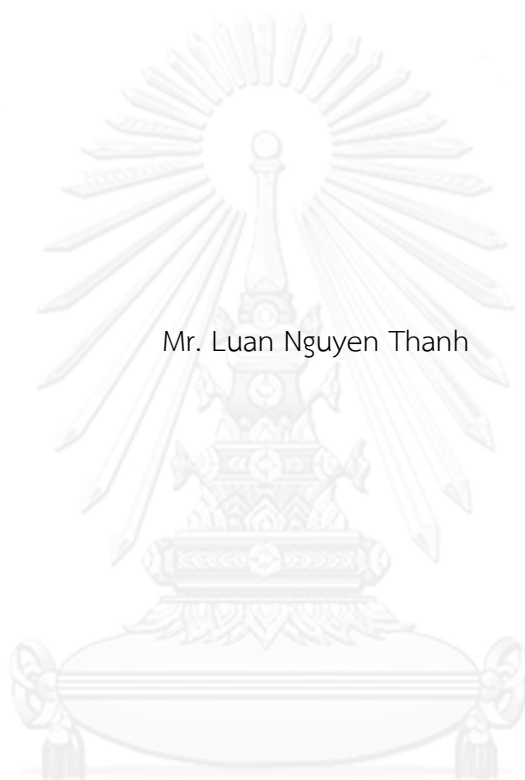


PATIENT'S SATISFACTION AND QUALITY OF HEALTHCARE: CASE OF HOSPITALS IN  
HO CHI MINH CITY

Mr. Luan Nguyen Thanh



จุฬาลงกรณ์มหาวิทยาลัย

CHULALONGKORN UNIVERSITY

A Thesis Submitted in Partial Fulfillment of the Requirements  
for the Degree of Master of Science Program in Health Economics and Health Care  
Management

Faculty of Economics  
Chulalongkorn University  
Academic Year 2013

Copyright of Chulalongkorn University

บทคัดย่อและแฟ้มข้อมูลฉบับเต็มของวิทยานิพนธ์ตั้งแต่ปีการศึกษา 2554 ที่ให้บริการในคลังปัญญาจุฬาฯ (CUIR)

เป็นแฟ้มข้อมูลของนิสิตเจ้าของวิทยานิพนธ์ ที่ส่งผ่านทางบัณฑิตวิทยาลัย

The abstract and full text of theses from the academic year 2011 in Chulalongkorn University Intellectual Repository (CUIR)  
are the thesis authors' files submitted through the University Graduate School.

ความพึงพอใจของคนไข้และคุณภาพของ

การบริการสุขภาพ: กรณีศึกษา

โรงพยาบาลในนครโฮจิมินห์



นายเหงวียน ลอน ตัน

จุฬาลงกรณ์มหาวิทยาลัย

CHULALONGKORN UNIVERSITY

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต

สาขาวิชาเศรษฐศาสตร์สาธารณสุขและการจัดการบริการสุขภาพ

คณะเศรษฐศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

ปีการศึกษา 2556

ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

Thesis Title	PATIENT'S SATISFACTION AND QUALITY OF HEALTHCARE: CASE OF HOSPITALS IN HO CHI MINH CITY
By	Mr. Luan Nguyen Thanh
Field of Study	Health Economics and Health Care Management
Thesis Advisor	Touchanun Komonpaisarn, Ph.D.
Thesis Co-Advisor	Associate Professor Jiruth Sriratanaban, Ph.D.

---

Accepted by the Faculty of Economics, Chulalongkorn University in Partial  
Fulfillment of the Requirements for the Master's Degree

.....Dean of the Faculty of Economics  
(Associate Professor Chayodom Sabhasri,, Ph.D.)

THESIS COMMITTEE

.....Chairman  
(Associate Professor Pongsa Pornchaiwiseskul, Ph.D.)

.....Thesis Advisor  
(Touchanun Komonpaisarn, Ph.D.)

.....Thesis Co-Advisor  
(Associate Professor Jiruth Sriratanaban, Ph.D.)

.....Examiner  
(Associate Professor Paitoon Kraipornsak, Ph.D.)

.....External Examiner  
(Associate Professor Wattana Suwansang Janjaroen, Ph.D.)

เชิงวิจัย ลอน ต้น : ความพึงพอใจของคนไข้และคุณภาพของ

การบริการสุขภาพ: กรณีศึกษาโรงพยาบาลในนครโฮจิมินห์. (PATIENT'S SATISFACTION AND QUALITY OF HEALTHCARE: CASE OF HOSPITALS IN HO CHI MINH CITY) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: ธัชพันธ์ โกมลไพศาล อ.ดร., อ.ที่ปรึกษาวิทยานิพนธ์ร่วม: รศ. ดร. จิรุตม์ ศรีรัตนบัลล์ อ. ดร. นพ., 96 หน้า.

การศึกษานี้มีจุดมุ่งหมายเพื่อประเมินความพึงพอใจของลูกค้าโดยใช้วิธีการ SERVQUAL ใช้ครั้งแรกกับผู้ป่วยในโรงพยาบาลในเมืองโฮจิมินห์ซิตี้ โดยวัดช่องว่างระหว่างความคาดหวังและสิ่งที่ได้รับจากการบริการด้านสุขภาพของผู้ป่วยใน 6 ด้านในโรงพยาบาลรัฐบาลและเอกชน ความแตกต่างระหว่างช่องว่างที่มากแสดงถึงความพึงพอใจที่สูงของผู้ป่วย นอกจากนั้นการวัด importance weight ที่จะช่วยกำหนดคุณภาพของการบริการด้านสุขภาพในแต่ละด้านโดยการเรียงลำดับความสำคัญเหล่านั้น ผลลัพธ์สุดท้ายแสดงถึงในขณะนี้ช่องว่างระหว่างความคาดหวังของผู้ป่วยกับสิ่งที่ได้รับจากการบริการด้านสุขภาพทั้งในโรงพยาบาลรัฐบาลและเอกชนในทุกๆด้านของการบริการด้านสุขภาพ แต่ช่องว่างระหว่างความคาดหวังของผู้ป่วยกับสิ่งที่ได้รับจากการบริการด้านสุขภาพในโรงพยาบาลเอกชนมีค่าน้อยกว่าในโรงพยาบาลรัฐบาล ซึ่งการลำดับของคุณภาพการบริการด้านสุขภาพในแต่ละด้านจะช่วยให้โรงพยาบาลรัฐบาลและเอกชนสามารถพัฒนาจุดอ่อนของตัวเองได้ในอนาคต

จุฬาลงกรณ์มหาวิทยาลัย  
CHULALONGKORN UNIVERSITY

สาขาวิชา เศรษฐศาสตร์สาธารณสุขและการ  
จัดการบริการสุขภาพ

ปีการศึกษา 2556

ลายมือชื่อนิสิต .....

ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก .....

ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์ร่วม .....

# # 5685640629 : MAJOR HEALTH ECONOMICS AND HEALTH CARE MANAGEMENT  
 KEYWORDS: SATISFACTION / EXPECTATION / PERCEPTION / GAP SCORE /  
 SERVQUAL / HCMC / PUBLIC AND PRIVATE HOSPITAL / DIMENSION

LUAN NGUYEN THANH: PATIENT'S SATISFACTION AND QUALITY OF  
 HEALTHCARE: CASE OF HOSPITALS IN HO CHI MINH CITY. ADVISOR:  
 TOUCHANUN KOMONPAISARN, Ph.D., CO-ADVISOR: ASSOC. PROF. JIRUTH  
 SRIRATANABAN, Ph.D., 96 pp.

The study aims to assess the patient's satisfaction by using a new method called SERVQUAL technique which conducted in Ho Chi Minh City (HCMC) hospitals. This technique will measure the gap between patients' expectation and their perception followed 6 dimensions of inpatient healthcare service in a public hospital and a private hospital. The higher the gap score is, the greater patients satisfy. On the other hand, this technique will also measure the importance weight of each dimension and combine with the gap score to rank the quality of dimension. The final results showed that in public and private hospital at this moment, their healthcare service in two HCMC' hospitals have not met patients' expectations, although in public hospital, in each dimension, the gap score is better than in private hospital. In other words, to rank the quality of each dimension will help two hospitals in term of determining their weakness which should be improved in the future.

จุฬาลงกรณ์มหาวิทยาลัย  
 CHULALONGKORN UNIVERSITY

Field of Study: Health Economics and	Student's Signature .....
Health Care Management	Advisor's Signature .....
Academic Year: 2013	Co-Advisor's Signature .....

## ACKNOWLEDGEMENTS

This thesis would not have been possible without the assistance and support of many individuals. Their efforts are deeply appreciated. I would like to acknowledge the following individuals who deserve special appreciations.

I would like to appreciate Touchanun Komonpaisarn, Ph.D., my thesis principal advisor, for her excellent guidance, amiable advice and support through this work; and Assoc.Prof. Jiruth Sriratanaban, my thesis co-advisor, for his very valuable advices and supports through this work.

I would like to appreciate Assoc.Prof. Pongsa Pornchaiwiseskul, Ph.D., chairman of the thesis committee; Assoc.Prof. Paitoon Kraipornsak, Ph.D. and Ajarn Wattana members of the committee, for very valuable suggestions and comments on this work.

I would like to appreciate all professors and staffs of Centre for Health Economics and the Faculty of Economics, Chulalongkorn University, for their professional, warm guidance and support during the whole year of graduation and this thesis.

For data collection, I would like to give the honest appreciation to Assoc.Prof. Nguyen Hoang Bac, Ph.D., M.D., the Vice Director of HCMC Medical University hospital and Dr. Dang Dung Thuc, the Vice Director of Van Hanh hospital for providing favorable conditions supported;

Specially, I would like to thank Ms. Hoang Anh Thao Vy, my colleague, who directly supported and helped for my data collection thoroughly.

I also would like to thank my parents, Mr. Nguyen Thanh Phuong and Mrs. Nguyen Thi Lien, who were always beside me with essential emotional supports during my study.

Finally, I would like to thank Chulalongkorn University for giving the good opportunity to study in a famous professional University as well as giving me the precious ASEAN scholarship award in this academic year.

## CONTENTS

	Page
THAI ABSTRACT .....	iv
ENGLISH ABSTRACT .....	v
ACKNOWLEDGEMENTS .....	vi
CONTENTS.....	vii
CONTENT OF FIGURES .....	viii
CONTENT OF TABLES .....	ix
ABBREVIATION.....	x
Chapter 1 INTRODUCTION.....	1
Chapter 2 BACKGROUND.....	5
2.1.    QUALITY OF HEALTHCARE:.....	5
2.2.    ROLE OF PATIENT AND HEALTHCARE SERVICES QUALITY IN HOSPITAL:.....	6
2.3.    THE IMPORTANCE OF PATIENT' SATISFACTION WITH HEALTHCARE QUALITY: 10	
2.4.    THE TOOL TO MEASURE SATISFACTION AND ASSESS THE QUALITY OF HEALTHCARE: SERVQUAL TECHNIQUE .....	12
2.5.    HEALTHCARE IN VIETNAM:.....	14
2.5.1. Healthcare market and development.....	16
2.5.2. Competition dynamics.....	17
2.5.3. Overview HCMC healthcare system:.....	18
Chapter 3 LITERATURE REVIEW .....	21
3.1.    STUDIES IN VIETNAM: .....	21
3.2.    STUDIES IN THE WORLD:.....	23
3.3.    STUDIES USING SERVQUAL TECHNIQUE: .....	28
Chapter 4 RESEARCH METHODOLOGY .....	30
4.1.    DESCRIPTIVE POPULATION .....	30
4.1.1. Target population: .....	30
4.1.2. Research population .....	30

	Page
4.1.3. Selection criteria .....	30
4.2. STUDY DESIGN .....	31
4.2.1. Design: 31	
4.2.2. Sample size:.....	31
4.3. CONCEPTUAL FRAMEWORK .....	32
4.4. COLLECTING DATA METHOD.....	33
4.4.1. Collecting instrument: .....	33
4.4.2. Collecting process: .....	33
4.5. ANALYZE METHODOLOGY .....	34
4.5.1. Testing a reliability of instrument: .....	34
4.5.2. Descriptive characteristic variables: .....	34
4.5.3. Computing Expectation, Perception, Gap and Importance weight scores: 34	
4.5.4. Multivariate regression:.....	36
4.6. VARIABLE DEFINITION AND CODE.....	41
4.6.1. Social-demographic variable: .....	41
4.6.2. Dimension variables: .....	41
4.6.3. Satisfaction variables.....	43
4.6.4. Quality of healthcare in Hospital .....	43
4.7. BIAS AND CONTROLLING BIAS.....	43
4.7.1. What are Biases? .....	43
4.7.2. Control bias:.....	43
4.8. POSSIBLE BENEFITS:.....	44
Chapter 5 RESULT AND DISCUSSION.....	45
5.1. RELIABILITY COEFFICIENT (CRONBACH' alpha).....	46
5.2. CHARACTERISTICS OF PATIENTS IN 2 HOSPITALS .....	47
5.3. EXPECTATION, PERCEPTION AND GAP SCORE: .....	53
5.4. IMPORTANCE WEIGHT AND RANKING QUALITY OF DIMENSION .....	58



	Page
5.5. MULTIVARIATE REGRESSION FOR GAP MEAN SCORE IN EACH DIMENSION AND IN OVERALL .....	60
5.6. THE DIFFERENCES OF COEFFICIENT IN EACH VARIABLE BETWEEN 2 HOSPITALS:.....	78
Chapter 6 CONCLUSION AND SUGGESTION.....	80
REFERENCES .....	86
VITA.....	96



จุฬาลงกรณ์มหาวิทยาลัย  
CHULALONGKORN UNIVERSITY

## CONTENT OF FIGURES

Figure 2-1 Dimensions of healthcare quality .....	6
Figure 2-2 Vietnamese Healthcare System.....	14
Figure 2-3 Life expectancy and per capita income, 2007 .....	15
Figure 2-4 Changes towards financial fairness in healthcare .....	15
Figure 2-5 Health Expenditure breakdown and % of GDP .....	16
Figure 2-6 Public-private mix of providers.....	17
Figure 2-7 Bed Occupancy Rate (BoR) in HCMC .....	18
Figure 4-1 Conceptual Framework.....	32

## CONTENT OF TABLES

Table 3-1 Average score of satisfaction in Nigeria hospital.....	24
Table 4-1 Calculation to obtain unweight SERVQUAL score.....	35
Table 4-2 Importance weight for each dimension .....	36
Table 4-3 SERVQUAL Weighted Scores .....	36
Table 4-4 Summarize table of expected signs.....	38
Table 4-5 Social demographic variable.....	41
Table 4-6 Dimensions variable.....	42
Table 5-1 Reliability Coefficient (Cronbach's alpha).....	46
Table 5-2 Frequency and percentage of characteristics of patients .....	47
Table 5-3 Characteristics of respondents (continuous variables).....	48
Table 5-4 Individual cost profile for treatment.....	49
Table 5-5 Expectation, perception and gap score in each dimension.....	53
Table 5-6 Average Gap score .....	58
Table 5-7 Importance weight of Dimensions .....	58
Table 5-8 Average Weighted SERVQUAL score of Dimensions.....	59
Table 5-9 Multivariate regression among patients in two hospital for Facility.....	60
Table 5-10 Multivariate regression among patients in two hospitals for Process.....	62
Table 5-11 Multivariate regression among patients in two hospitals for Attitude.....	63
Table 5-12 Multivariate regression among patients in two hospitals for Technical ...	65
Table 5-13 Multivariate regression among patients in two hospitals for Environment	67
Table 5-14 Multivariate regression among patients in two hospitals for Information	68
Table 5-15 Multivariate regression among patients in two hospitals for Overall .....	70
Table 5-16 Multivariate regression among patients in two hospitals for Average Weighted score of Overall dimensions .....	77
Table 5-17 The difference of coefficient in each variable with Overall Gap Score ...	78
Table 5-18 The difference of coefficient in each variable with Overall Gap Score	79

**ABBREVIATION**

BoR	Bed Occupancy Rate
CARG	Compound Annual Growth Rate
CT-scan	Computer Tomography scanner
GDP	Gross Domestic Product
HCMC	Ho Chi Minh City
HMUH	Ho Chi Minh City Medical University Hospital
LOS	Length of stay
MRI	Magnetic Resonance Imaging
OLS	Ordinary Least-Squares
PSI	Patient Satisfaction Indicator
SERVQUAL	Service quality
TQS	Total Quality Services
VHH	Van Hanh Hospital
WHO	World Health Organization

## Chapter 1

### INTRODUCTION

In recent years, healthcare has been seen operating as a commercial, for-profit organization that is growing rapidly in both developed and developing countries. Relationships between patients and hospitals are similar to those between customers and service providers where hospitals strive to provide services that meet or exceed patients' expectations. In the past, people would go to hospital when they had illnesses/diseases or in cases of emergency; but in modern time, people tend to be more attentive to prevention and promoting health awareness thus their visits to hospitals are not just to receive quality treatment but expect more services that would ensure total quality healthcare experience. Regardless of clinical factors, effectiveness and efficiency of therapy, nowadays, the quality of healthcare is dependent upon other dimensions comprised of environment, hygiene, attitude of staffs, facilities and material information, etc. by patients. On the other hand, World Health Organization (WHO) has mentioned that patient is a centered point in a healthcare system that anything affecting them will significantly impact a success or a defeat of hospital or organization as well as to decisions of policy-makers in making plans or strategies for their own system (WHO, 2006). Consequently, it is obvious to recognize a crucial role of patient in healthcare at this moment, hence, to deliver quality services will be revealed as a key factor in searching for sustainable competitive advantage, differentiation and excellence among competitors (Jabnoun. N., 2005). In addition, it has been recognized as highly important for satisfying and retaining customer (Reicheheld, 1990; Spreng, 1996).

However, how to realize that whether the quality of healthcare provided in a certain hospital and whether a hospital met patient' expectations or not. Recently, in the world, the concept of "patient' satisfaction" has been mentioned as a valuable tool for assessing quality of healthcare, which concerns as regard consumer-oriented in medical quality assurance (Donabedian, 2003). Moreover, WHO also proclaims in "Assessment of Quality" document that satisfaction of patient is one of nine crucial standards to evaluate the quality of healthcare services (Donabedian, 2003).

The socio-economy in Vietnam has been growing considerably which a GDP increased approximately 7.2% in the last 20 years. The growth leads the development in all relevant fields, including healthcare. Over a past decade, health system has had many reforms in term of changing health models, cooperation with foreign parties or expansion activities of public hospitals. More and more private sectors include pharmacy store, clinics, hospitals have opened and operated, hence, people now have lots of alternatives and choices for their treatment place. However, in parallel with these changes, there are still a lot of challenges and difficulties happening in healthcare industry recently, for instance, healthcare staffs and professionals making mistakes in treatment, unfriendly or even hostile attitude and behaviors of doctors and nurses toward patients, confusion in vaccine injection or poor quality of healthcare service in both public and private hospital, etc. As mentioned above, these problems may be reasons to discount and negatively impact professional images of hospitals and thus creating opportunities for competition are more appealing to customers who demand better services.

The important question for managers and administrators nowadays in Vietnam' hospitals is how to recognize and understand exactly whether delivered

services at their own hospital are good or bad, satisfied or unsatisfied by patients. That is also a difficult question because of a limitation of instrument, equipment and techniques for evaluating. Therefore, this study attempts to assess the quality of inpatient healthcare service by using a new technique called SERVQUAL to measure patient' satisfaction at Ho Chi Minh City (HCMC) hospitals. The results of study aim to provide evidences for each hospital to appropriately recognize and evaluate precisely the quality of their services. Besides, the study also helps identify strengths and weaknesses in order to recommend changes or improvements as necessary. Finally, an initial research will be the hinge for the next relevant study in the future.

### **Questions**

Does the quality of healthcare services at 2 HCMC' hospital satisfy inpatients?  
What are the differences in quality of healthcare services between the HCMC Medical University Hospital (HMHU – a representative of public hospital) and Van Hanh Hospital (VHH – representative of private hospital)?

### **Objective:**

#### **General objective**

Using SERVQUAL technique measures inpatients' satisfaction with the quality of healthcare services at HMUH and VHH hospitals and determines the correlation between satisfaction and demographic profiles of respondent.

#### **Specific objectives:**

- To compute mean score of expectation, perception and gap in six dimensions: Facilities and Material, Process, Attitude of staffs, Technical skill of doctor and nurse, Environment, Education and Information.

- To determine the satisfaction of inpatients through the gap mean score in each dimension and overall dimensions.
- To compute the importance weighted score and rank the quality for each dimension.
- To determine the correlation between gaps mean score in each dimension and demographic profiles of respondents.
- To determine the correlation between a gap mean score of overall dimension and demographic profiles of respondents.

#### Scope

The two cross-sectional studies were conducted on inpatient who admitted for treatment and prepare to be discharged in all inpatient-wards at HMUP and VHH in February 2014.



## Chapter 2

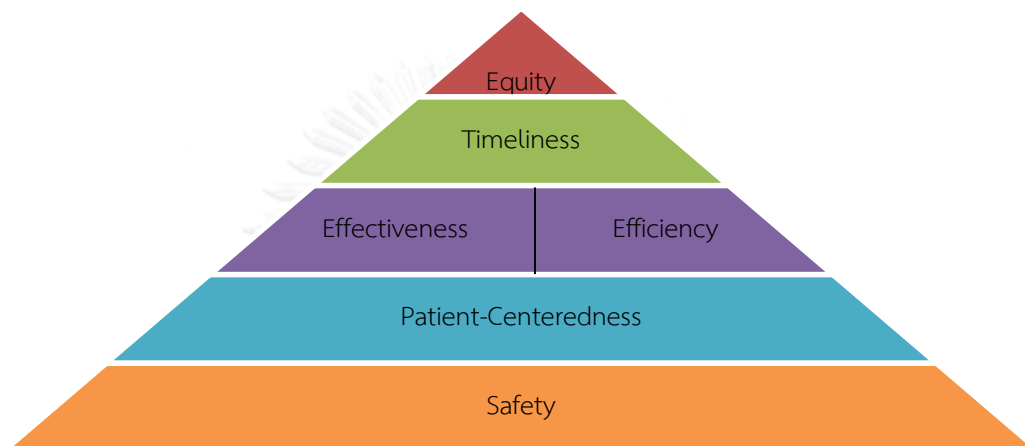
### BACKGROUND

#### 2.1. QUALITY OF HEALTHCARE:

There are many definitions of quality have been used in healthcare management and healthcare services. In Handbook of Quality of Care – A process for making strategic choices in health system of WHO, they emphasize that if an certain health system want to be successful, administrators should be focused on the quality of healthcare services supplied because it could be the greatest effect to the outcomes of their own system (WHO, 2006). In a discussion of “A New Health System for the 21<sup>st</sup> Century”, Institute of Medicine (2001) and WHO suggests that a health system should consider six dimensions for testing and improving their quality (WHO, 2006) , consist of:

- *Effective*: delivering health care that is adherent to an evidence base and results in improved health outcomes for individuals and communities, based on need.
- *Efficient*: delivering health care in a manner maximizes resource use and avoids waste.
- *Accessible*: delivering health care that is timely, geographically reasonable, and provided in a setting where skills and resources are appropriate to medical need.
- *Acceptable/patient-center*: delivering health care takes into account the preferences and aspirations of individual service users and the cultures of their communities.

- *Equitable*: delivering health care does not vary in quality because of personal characteristics such as gender, race, ethnicity, geographical location, or socioeconomic status.
- *Safe*: delivering health care minimizes risks and harm to services users.



**Figure 2-1 Dimensions of healthcare quality**

Quality problems indicated in the wide variation in use of healthcare services, the underuse and overuse of some services, and misuse of other. Improving the quality of health care and reducing medical errors are priorities for any Health System in the world nowadays.

## 2.2. ROLE OF PATIENT AND HEALTHCARE SERVICES QUALITY IN HOSPITAL:

In empirical theory, when hospitals talking about quality, it used to taking into account specific clinical data in related to the outcome of patient. However, following the modern theory, hospital nowadays is seen as the business organization where patient is the center of care who themselves assess the quality of healthcare services and the procedure of healthcare system. Therefore, the result of treatment is not only the essential factor, but also crucially depends on providing quality, supplying effective services to satisfy and meet the demand of patient.

Judith, whose report of the new role for patients in assuring high quality care, mentioned that patients now can play a number of roles in healthcare to improve quality and reduce cost (Judith, 2004). He presented three important roles of patient in assuring quality:

- Firstly, patient can be informed choosers of care; patients will have a comparison and select high performing providers, hospitals, nursing home and health plans for themselves. Moreover, patients can motivate providers to improve their performance. By choosing high-performing providers and selecting cost-effective evidence-based treatment options, patients can obtain higher quality care for themselves and stimulate quality improvement among the institutions and providers in their health care market.
- Secondary, when patients collaborate with their providers and take on a significant role in maintain their health, they are in essence helping to “produce” health. Nevertheless, when patients are engaged in their care (engage in effective self-care, taking prevention and collaborating with providers to define and implement care plans), they can play a crucial role in their own safety by being vigilant partners, assuring that healthcare providers have correct information about their medical history and care plans.
- Finally, patients can be evaluators of healthcare when they are the source of data on provider and witnesses of system performance and when they participate in defining the parameters of quality. Patients'

assessments of care can be fed back to providers and thus be the basis for quality improvement.

Furthermore, patient is focused a center-care, whom any aspects affect regardless clinic, will be the factors to affect the quality of Hospital. Managers should consider that patients are sensitive and they are used to comparing what they expected to receive and their perceptions of the quality service actually. These comparisons such as a cleanliness and hygiene of environment, physical facilities, attitude and skill of staff and the waiting (Ladhari, 2013). In another study conducted in Bangladesh, Andaleeb clarified service factors could be effects to patient (S. S. Andaleeb, et al., 2007), include:

- *Reliability*: defined that the provider's ability to perform the promised service dependably and accurately. In Vietnam, most of people trust in Physicians' ability when they go to hospital. However, recently, the accuracy in diagnosis and treatment or error medical care leads to the death or disability case occur more and more. That is the reason why patient's belief has been reducing dramatically in last years. Indeed, the more reliable healthcare providers express, the greater patients satisfy.
- *Responsiveness*: referred that when patients need to help or resolve their problems, they expect hospital staffs to respond promptly. Actually, it usually seen at some private hospitals where there are a little bit patients to be taken care. Conversely, the public hospitals have many patients and lack of staffs to respond to all patient' requests. Nevertheless, based on some studies, they admit that the greater the responsiveness of hospital staffs express, the greater the satisfaction of patients.

- *Assurance*: illustrated for knowledge, skills and courtesy of the doctors and nurse can make a sense. Patients are not scientists or professional that can understand clearly about their illness, diagnosis and treatment therapies as well more than physicians can. They will not know whether this therapy is appropriate with disease or not. On the other hand, they can feel by themselves whoever is better or worse through visual physician's performance. In healthcare system, assurance is embodied in service providers who correctly interpret laboratory reports, diagnose the disease competently, provide appropriate explanation to queries and generate a sense of safety. Thus, the greater assurance received from the healthcare providers, the greater patients satisfy.
- *Tangibles*: is something that people can see and be attracted. A hospital have visually appealing facilities, materials or modern equipment as well as clean restroom, fresh environment, which will be influence patient's impression. Thus, it will increase the patient's satisfaction.
- *Communication*: this is a crucial factor and may affect the healing process and outcome, which is the soft-skill that physician should have. When people admit to hospital, their feeling is easy to get disorder and nervous, one encouragement inside the mild voice can alleviate their feelings, make them self-confident, and vice versa. Therefore, appropriate communication and good internship help to transfer important information to influence patient satisfaction. In fact, this is the weakness of Vietnamese health providers.

- *Empathy*: it reflects service provider's empathy. As mentioned above, patient desire physicians to be attentive and understand toward them. Similarly, the more empathy performs, the greater satisfaction of patient is.
- *Process features*: is defined an orderly management of the overall healthcare service process

Regardless the dimensions of quality services, healthcare quality also depends on patient's social-demographics. For example, age (older respondents being more satisfied with overall services), health status (sicker patients being less satisfied overall services) and education (higher education less satisfied) (Campbell, 2001; Crow, 2002a; Maldonado, 2003; Zaslavsky, 2001). In contrast, the relation of gender to satisfaction has been less clear, the review cited above (Crow, 2002a), found that of 39 published reports, women were significantly more satisfied in 6 (15.4%), men were significantly in 7 (17.9%) and the relationship was not significant in 26 (66.7%).

In conclusion, hospital manager should be aware of patients' experience by seeking cognitive feedback about hospital services quality (Ladhari, 2013). Understanding patient's experience (demographic, expectation and perception) from dimensions of quality services and their emotional reaction are crucial and be a critical points of hospital services in current.

### 2.3. THE IMPORTANCE OF PATIENT' SATISFACTION WITH HEALTHCARE QUALITY:

Nowadays, the new concept of measurement approach to assess the quality of healthcare has been developing and implicating, that is measurement of patient's satisfaction. In accordance with the journal of Dr. Claire R. Brown from School of Public Health, Griffith University, Australia, published on Oxford Journal, she puts a

question to discuss that is “Where are the patients in the quality of health care”. She concludes that if patients are not placing the same weight on patient health outcomes as the rest of the health care community (Claire, 2007). It may lead to the argument that the same weight does not need to apply to their definitions of quality, only whether or not they are satisfied. In briefly, to evaluate the patient’s satisfaction are a crucial task, which decides the quality of healthcare and the success of health system in a country or hospital.

As same as the point of Dr. Claire R. Brown, some specialists, researchers in the world acknowledge the meaning of patient’s satisfaction and undertake some studies to evaluate the quality in healthcare sectors. A study of Andaleeb, he developed and tested a five-dimensional model of patient satisfaction with hospital services: quality of facilities, demeanor of staff, competence of staff, communication with patients and perceived cost (S. S. Andaleeb, 1998). The results indicated that five dimensions explained 62% of the variation of patient satisfaction and that the dimension of “competence of the staff” had the greatest impact on satisfaction. Another study of Dagger, he found that overall health service quality had a significant positive impact on customer satisfaction and behavioral intentions (Dagger, 2006). Dagger and Sweeney reported that patient’s perceptions of technical service quality had a significant influence on their level of satisfaction with clinic services; however, functional service quality had a less influence on patient satisfaction.

However, if only using the satisfaction score to determine the quality of healthcare, it would be perhaps theoretical, empirical deficiencies and the high likelihood of risky bias as well (Davoll, 2013). These problems include failure to consider the patient’s personal important fulfilment (Crow, 2002b) and the

consistently positive skew of satisfaction indices (Verbeek, 2001). Therefore, Christian Janssen, from Munich University of Applied Sciences, who conducted a lot of studies in relevant area, introduces the new model which to combine together 3 factors in a study at 6 hospitals in Germany (2013): Importance weighting, Expectation fulfilment and Satisfaction of patient (Janssen, 2013). This model describes satisfaction or dissatisfaction as being the results of the patient's gap of their expectation and perception.

#### **2.4. THE TOOL TO MEASURE SATISFACTION AND ASSESS THE QUALITY OF HEALTHCARE: SERVQUAL TECHNIQUE**

In this study, we will attempt to apply the new approach to evaluate the satisfaction and quality of healthcare service by using SERVQUAL technique, which measures the gap score between perception and expectation, and measure importance weighted score of each dimensions. Since then, we determine the patient's satisfaction and rank quality for each dimension.

SERVQUAL were originally introduced by Parasuraman in 1985 and reassessment in 1991 in the area of service quality (Parasuraman, 1991). SERVQUAL based on the view of the customer's assessment. This assessment has been conceptualized as a gap between the customer's expectations by way of SERVQUAL, from a class of service providers and their evaluation of the performance of particular service providers.

The SERVQUAL instrument has been empirically evaluated in hospital environment, and has been shown to be a reliable and valid instrument in that setting (Babakus, 1992). Other studies of health-care quality measurement have also



used the SERVQUAL method of analysis (Canel, 2001; Donthu, 1991; Lam, 1997). Berman-Brown and Bell outlined a patient-center audit that has been recognized as the first instrument to firmly establish the views of patients (Brown, 1998). However, as later acknowledged by the authors, even this measure is no more than an adaptation of the SERVQUAL framework.

The SERVQUAL instrument extensively adopted in various industries, and its validity and reliability confirmed. Scardina and Arikan reported that SERVQUAL was superior in validity and reliability for evaluating patient satisfaction in medical care. However, caution should be exercised, and adaptations must be within the stated guidelines to ensure that the integrity of the instrument is maintained (Arikan, 1999; Scardina, 1994).

SERVQUAL mention the quality of healthcare service in 5 dimensions of healthcare services will be listed below:

- *Tangibles*: Tangibles are the appearance of physical facilities, equipment, personnel and communication.
- *Reliability*: It promises delivery, service provision, problem resolving and cost.
- *Responsiveness*: It emphasizes attentiveness and promptness in dealing with customers' requests, questions, complaints and problems.
- *Assurance*: is defined as employee's knowledge of the firm and its employee capacity to inspire trust and confidence in the customer.
- *Empathy*: Empathy is conveying through personalized services.

Some previous studies in the area of patient satisfaction and factors influence the behavior of patients but they do not throw light on the service gaps. With a fast

growth of hospital services, it becomes vital to know the patient expectation and delivery services like tangibles, reliability, responsiveness, assurance and empathy. These service dimensions are prime for any service industry especially the hospital sector. They generate interest in finding the expectation and perception of the patient before and after the delivery of service. This tool helps the hospital industry in understanding their position and the probable service gaps.

**2.5. HEALTHCARE IN VIETNAM:**

As a developing country, Vietnam is in the process of improving healthcare system and made great efforts in implementing health-financing reforms. The quality of healthcare provided by Vietnam’s public hospitals has improved dramatically in recent years, with significant progress made in the rates of life expectancy and child mortality, in particular. Improvement in healthcare provision remains, however, a crucial element of the government’s legislative reforms.

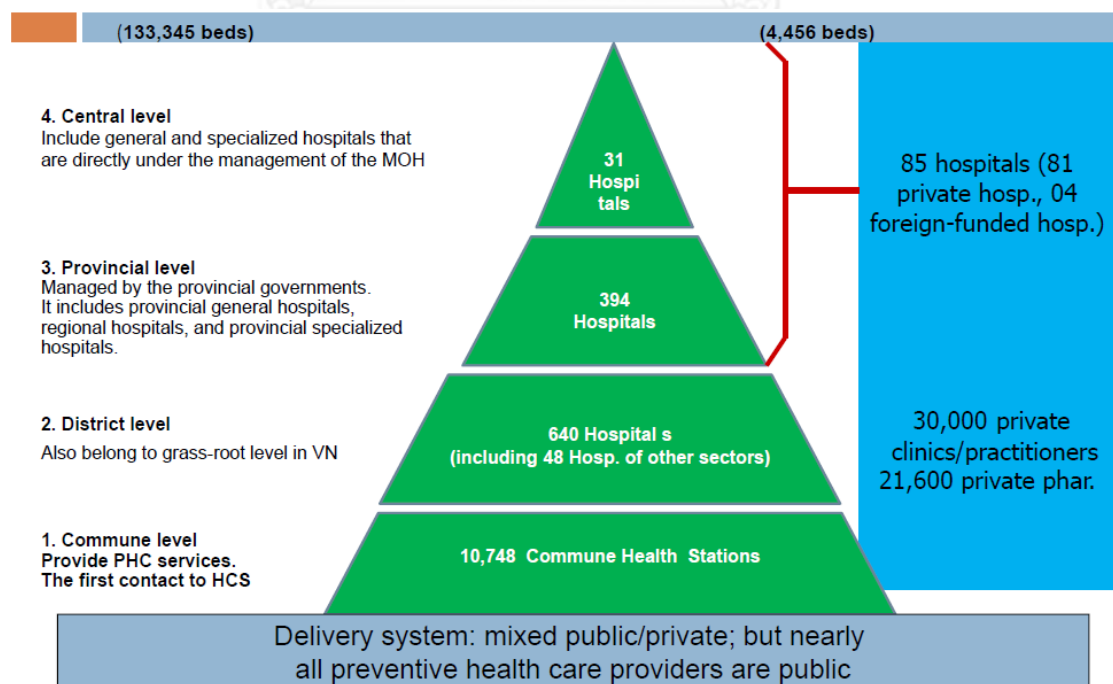


Figure 2-2 Vietnamese Healthcare System

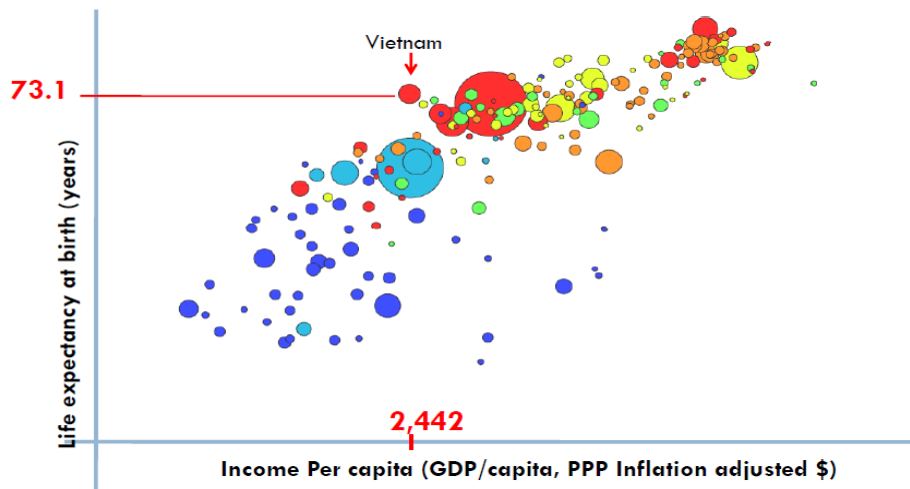
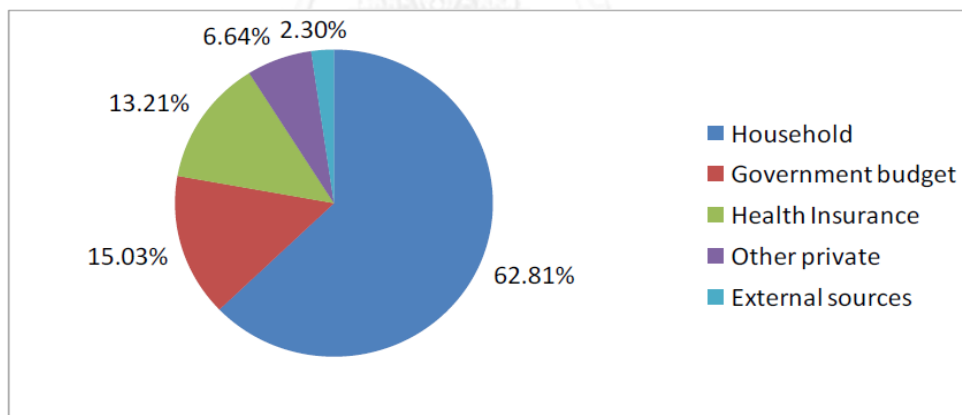


Figure 2-3 Life expectancy and per capita income in Vietnam in international comparison, 2007

Medical care in Vietnam is shared between the public and private sectors. Most people living in Vietnam currently have to pay for some, or all, health services out of their own pocket, especially if they visit the better-equipped private clinics.



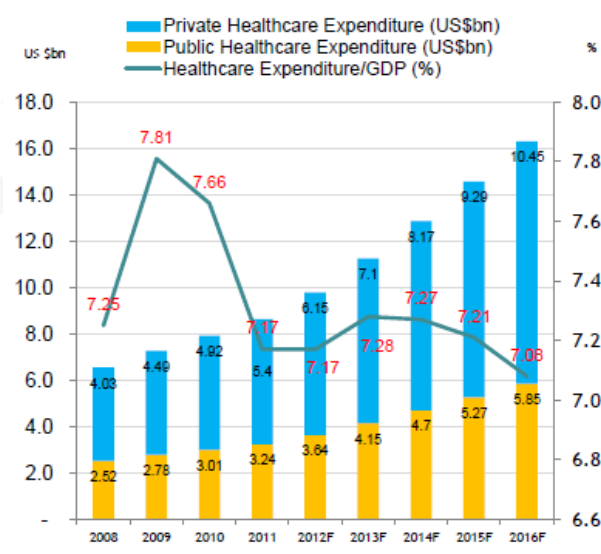
70% pay for medical costs in health facilities (both public and private facilities, including direct and indirect costs)  
30% spent at pharmacies for self-treatment

Figure 2-4 Changes towards financial fairness in healthcare

According to STOX Research Organization, whose Vietnam Healthcare Report 2012, presented the entire picture of healthcare sectors during last years that will be show below,

### 2.5.1. Healthcare market and development

The development of healthcare market is driven by economic growth that includes an improvement of revenue per capital, higher awareness for health issues, changes in lifestyle and working habit as well as rapid urbanization and industrialization. In accordance with official data by the Ministry of Health and some other researches, Vietnamese healthcare market size by the end of 2011 could be approximate US\$9bn. Furthermore, healthcare service is the largest segment at US\$6.67bn, referring 72% of total market; medical equipment sales containing the lab and diagnostic imaging equipment about US\$1.89bn (or 20%) and drugs sale was about US\$.73bn (8%). During five years from 2006 to 2011, Compound Annual Growth Rate (CAGR) of healthcare market was 12%. For the next five years (2012 - 2017), the market aims to grow faster with CARG will be expected about 15%. However, in opinion and discussion in some conferences in Vietnam, polyclinics and private hospital administrators believe that the actual market size may be significantly increased higher than estimated.



Source: MoH, StoxPlus

Figure 2-5 Health Expenditure breakdown and % of GDP

### 2.5.2. Competition dynamics

As an inheritance of socialist healthcare system, Vietnam healthcare market is dominated by public hospitals. Private hospitals only accounted for 3% of total country' hospital beds. There are only 135 (8%) private hospitals over 1184 hospitals in Vietnam currently. In addition, private hospitals only provided 4.2% and 5.1% of total hospital system's inpatients and outpatients in 2011.

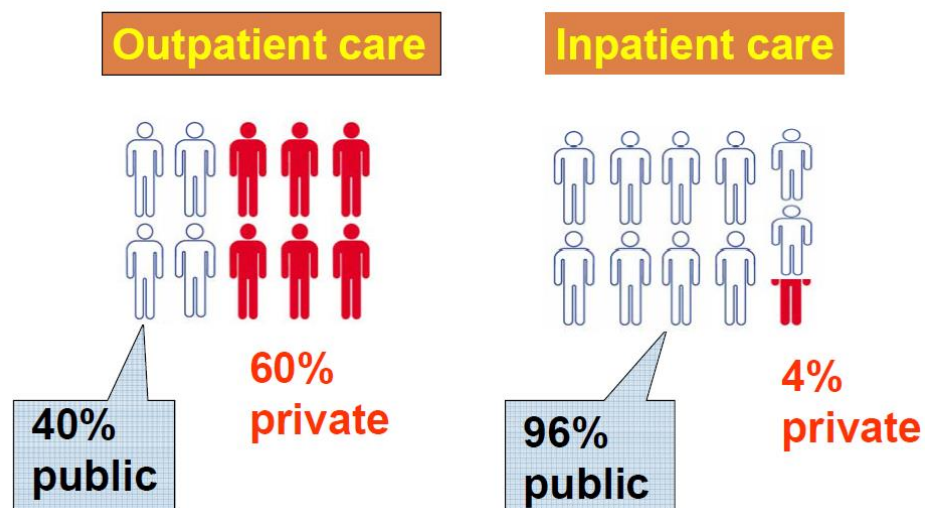


Figure 2-6 Public-private mix of providers

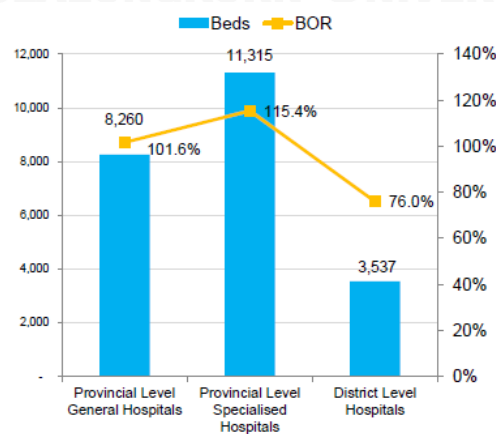
Government significantly subsidizes public hospitals. Financial resource from state budget allocation and health insurance are usually from 60-70% of their revenue. Moreover, public hospitals, especially leading ones in HCMC and Hanoi capital, have long history and enjoy good perception that they have the best-trained, experienced doctors in the country. They have great appeal to patients and doctors. In contrast, Private hospitals in a short history, the oldest was established in the mid-1997. The perception about private hospital is that they provide better caring services but they do not have good doctors as their public counterparts. As a result, private hospitals have to cooperate with doctors from public hospitals in order to attract customers before they can build their own doctor team and their own client

system. Attraction of doctors from public hospitals is considered the key competitive advantages of private hospitals as a good doctor can bring hundreds of visits per day.

Doctors in Vietnam are allowed to have their own clinics, doctors from public hospitals are allowed to cooperate with private, foreign hospitals (after official hour or after they finish some quota with public hospital). Most doctors from public hospital have their own clinics or cooperate with a private hospital. They earn more money when working with private hospital but rarely drop their job at public hospitals. This shapes a very important character of competition in healthcare market in Vietnam.

### 2.5.3. Overview HCMC healthcare system:

HCMC is the largest city in Vietnam with more than 9 million population and is one of the big economic center of Vietnam. About Healthcare system, HCMC is the main official medical center for whole South East area of country. Patients from other provinces in the South usually go to HCMC for their treatment and healthcare services. In 2010, hospitals in HCMC delivered 28 million consultations to patients that are 4 times higher than Hanoi. Number of inpatients, outpatients and inpatient days are also about 2 times greater than Hanoi. That is one of the reasons causes the overload situation at this moment.



Source: StoxPlus, HCMC's DoH

Figure 2-7 Bed Occupancy Rate (BoR) in HCMC

To confront with these challenges, HCMC' Authority has been very active in designing and creating mechanisms for improving the healthcare service. It has very clear design for the 4-healthcare clusters and welcoming to private sector. Now, in HCMC, there are 34 private hospitals, 176 private polyclinics and nearly 17 thousands of private clinics or specialty units. In lab and diagnostic imaging services, Medic currently accounted for 20% total market share with total reported revenue of about US\$20mn in 2010. Some public hospitals are also very strong in these businesses and it was built in-house as their departments. Hundreds of private followers are very small and highly fragmented.

Among these feature in development of HCMC' hospitals, Medical University Hospital and Van Hanh Hospital exceed like the two of the best hospitals having good healthcare services quality where attract a lot of clients visit per day and also receive many good feedbacks from patients as well.

➤ **Medical University Hospital:**

Medical University Hospital is original from The University of Medicine and Pharmacy, which is one of the most highly ranked universities of medicine and pharmacy in Vietnam. Furthermore, the University is known as the biggest center, which provides and allocates healthcare human resource to all provinces in South of Vietnam.

On 10.18.2000, the Minister of Health decided to establish Medical University Hospital based on merging clinics of University in the Faculty of Nursing and in the Faculty of Traditional Medicine , with 300 beds , 6 operating rooms and 16 clinical and subclinical . In currently, Hospital has sub-centers with 400 beds, 44 clinics includes enough specialties and 16 operating rooms with full modern equipment.

Moreover, Hospital offers a various services for outpatient and inpatient care, prevention and education. Since then, Hospital has been known as a high quality hospital, be able to meet the demand of patients and a reliable address in HCMC.

➤ **Van Hanh Hospital:**

Van Hanh General Hospital is established and operated on 27 July 2000 to meet the demand on health services of the public. It locates in the center district of Ho Chi Minh City that is convenience for transportation. Van Hanh General Hospital has total 150 beds equipped special and hi-tech medical tools. Van Hanh Hospital has rooms equipped with medical devices in accordance with regulations stated by health industry. There are VIP rooms, single rooms, double bed rooms, four bed and six bedrooms for option of patients. The hospital is also equipped with high-grade and modern diagnostic imaging equipment such as MRI, CT-scanner, C-ARM, ultrasonic machines, modern endoscopic equipment (from Olympus). Especially for endoscopy, the hospital performs diagnostic and therapeutic endoscopy.

Doctors of the hospital are professional, effective who always try their best to ensure the best health services providing to patients.



## Chapter 3

### LITERATURE REVIEW

#### 3.1. STUDIES IN VIETNAM:

The number of studies conducted in Vietnam is very small. Two appropriate studies will be shown below:

Firstly, a study of Nha Nguyen conducted at Tropical Disease Hospital in HCMC, this is a cross-sectional analytical was conducted on 355 clients. The information about demographic and satisfaction of patients was collected by interview face-to-face using a structured questionnaire. The study aims to survey the rate of patient satisfaction with the healthcare service in five aspects: Reception counter, Treatment counter, Laboratory, Pharmacy Store and Timeliness. The results are 98% of participants satisfied with the hospital in general. The highest satisfaction is in treatment counter, the lowest is in reception counter.

This is a new study in hospital in term of measuring satisfaction of patient to healthcare services delivered but there are some problems should be taken into account in the future studies. For instance:

- The target population is only outpatient, not consist of inpatient, thus study cannot assess the overall quality of services in hospital.
- In hospital, outpatients include people using health insurance and someone paying out-of-pocket, both of type is different in treatment procedure but in study, the author has not separated and combined all to calculate the satisfaction score. It will lead a bias influence to the results.

The questionnaire is designed by the author which has not been valid the value and the appropriate, therefore, the result value maybe not reliable and significant.

Another study in 2011 was done by Luan Nguyen, this is also a cross-sectional study conducted with 367 outpatient using Health Insurance. Its objectives are to identify the proportion of patient's satisfaction on the health insurance services and to determine the relationship between satisfaction score and social-demographic characteristics of patient. The result showed that there were 47.7% of patients satisfy with the hospital in general, 78.7% satisfied with diagnosing phase, 73% satisfied with consultant phase, 78.7% satisfied with diagnosing phase, 73.6% satisfied with test phase, 64.9% satisfied with distributing medicine phase.

The study was undertaken at the moment the quality of treatment with Health Insurance in Vietnam was the important argument among policy-maker after over 20 years with the worse critical from patients and customers in term of the bad attitude of medical staffs, the low quality and the inadequate regulation. Therefore, it helped hospital managers to improve the quality of health insurance services as well as reorganized the hospital' process come to better.

Conversely, it also got some problems as same as some previous studies. Those are:

- Do survey in outpatient group only.
- Do not use standardizes-questionnaire.

One of the biggest problem happened in statistical test, with the response "Neutral", it was identified as "Dissatisfied" which was not correct and unreasonable. Thus, the results of study are not reliable and insignificant.

### 3.2. STUDIES IN THE WORLD:

There are many studies conducted in the world. About the results reveal a relatively high degree of global satisfaction (75.125%), yet satisfaction is higher for the medical (89.721%) and nursing (86.432%) services. Moreover, satisfaction derived from the hotel facilities and the general organization was found to be more limited (76.536%). Statistically significant differences in participant satisfaction were observed (depending on age, gender, citizenship, education, number of previous admissions and self-assessment of health status at the first and last day of patients' stay) for the medical, nursing and hotel facilities/organizational dimension, but not for global satisfaction. The strength in this study is to use appropriate analyses method but the valid and information of questionnaire are not shown.

The next study was conducted at Tertiary Hospital in Eastern Nigeria by Iloh G. et al which be mentioned about satisfaction with quality of care received by patients without National Health Insurance (Iloh, 2013). This was also a cross-sectional study carried out on 400 non-National Health Insurance patients in 6 month at the primary care clinic of Federal Medical Centre, Umuahia, Nigeria. Data were collected using pretested, structured interviewer administered questionnaire designed on a five points Likert scale items with one and five indicating the lowest and highest levels of satisfaction respectively. Satisfaction was measured from the following domains: patient waiting time, patient–staff communication, patient-staff relationship, and cost of care, hospital bureaucracy and hospital environment. Operationally, patients who scored 3 points and above in the assessed domain were considered satisfied while those who scored less than 3 points were dissatisfied.

The results were shown in the table below:

Table 3-1 Average score of satisfaction in Nigeria hospital

Care Parameter	Average Score	Rank
Patient-staff relationship	3.9	1 <sup>st</sup>
Patient-staff communication	3.8	2 <sup>nd</sup>
Hospital environment	3.6	3 <sup>rd</sup>
Cost of Care	2.6	4 <sup>th</sup>
Hospital bureaucracy	2.5	5 <sup>th</sup>
Patient waiting time	1.9	6 <sup>th</sup>

The limitation in this study is only collected the social-demographic characteristics of patient but they did not show the relationship among Care Parameter with these characteristics. It is necessary to realize the influences of Care parameter to each characteristics of patient. Another omission is to survey only outpatient, not include inpatient. However, the results will be the evidences to compare in our own study.

One of studies mentioned patient satisfaction in relation to demographic profile and social economic characteristics is Mikael's in Sweden. In his study, he wanted to analyze the relationship between patients' satisfaction and background factors (e.g. age, gender, health status and pain). A questionnaire was sent by post to patients who had completed their treatment care at a hospital within the County of Ostergotland, Sweden. The survey included 33 questions, 21 of which concerned the quality of healthcare and satisfaction (represented by PSI parameter). The results showed that gender did not correlate with the PSI, although men were somewhat more satisfied than women were. PSI differed among medical specialties and interestingly, when age and other background factors were controlled for, the picture changed regarding the medical specialty that received the best PSI score (Mikael, 2001).

Furthermore, in a research of Schmittziel, he mentioned that there are differences between age, gender and satisfaction with healthcare. The results shows that 81% of women compared to 83% of men were satisfied with their community based health care; 91% of women compared to 92% of men rated their most recent family physician visit as satisfactory. However, women were more satisfied with tele-health services received than men (85% versus 81%) were. Women and men may have different expectations of the health care system, which may affect their satisfaction with services. On the other hand, patient satisfaction varies by age, with satisfaction being highest among people aged 65 and older (90%). Patient satisfaction levels were high among 15-19 year olds (88%) and lowest among 20-34 year olds (81%). The patient satisfaction increased with age in age groups 35 and older (Schmittziel, 2000).

About the association between patient' experience and patient' satisfaction, Sara has done a study which using World Health Survey to collect data and run ordinary least-squares (OLS) regression model to evaluate the extent to which variables commonly associate with satisfaction with the healthcare system. The results in this study found that higher satisfaction among individuals with higher income per capita. On the other hand, they also found that a positive association between age and satisfaction with aged  $\geq 70$  years group was more likely to be satisfied with the health system than 18-29 years of age group were. They observed a weak but statistically significant association between education and satisfaction; people with some college education were less likely to be satisfied with the health system than people without a high school diploma were. Their results also point to patient who had been inpatients had higher levels of satisfaction than those who

had been outpatients. Individuals who received care from a private health-care facility were less likely to report high levels of satisfaction than those receiving care from a public provider (Sara, 2007).

In Japan, we found a study of Tokunaga and college, who want identify specific patient satisfaction items related to overall satisfaction by different length of stay (LOS) for patients in Japanese hospital. This cross-sectional study involved a participant sample, drawn from 77 voluntarily participating hospitals throughout Japan, of in-patients discharged to the community. Older patients and psychiatric, pediatric, obstetric and gynecologic patients were excluded. The 1050 respondents analyzed were divided into three groups based on their LOS: group 1<sup>st</sup>, LOS < or = 1 week; group 2<sup>nd</sup>, LOS < or = 1 month; and group 3<sup>rd</sup>, LOS > 1 month. They found that some unique satisfaction items for each group (e.g. 'skill of nursing care' in group 1, 'Recovery of physical health', 'skill of nursing care', and 'respect for patients opinions and feelings' in group 2, and 'relief from pain' and 'respect for patients' opinions and feelings' in group 3) were significantly associated with overall satisfaction. It also shows that according to LOS, unique items could determine significantly the achievement of overall satisfaction (Tokunaga, 2002).

Conversely, in another study, Borghans and colleges found that there are no correlation between LOS and patient satisfaction in six out of seven specialties. In his study, he wants to investigate the correlation on the level of hospital wards. The underlying hypothesis is that good quality of care leads both to shorter LOS and to patients that are more satisfied. He used standardized LOS and patient satisfaction data from seven specialisms: internal medicine, cardiology, pulmonology, neurology, general surgery, orthopedic surgery, obstetrics, and gynecology in the period 2003-

2010. All LOS data were computer from the National Medical Registration and patient satisfaction scores were measured by a questionnaire covering six dimensions of care. The LOS data were standardized for the year of discharge, age, primary diagnosis and procedure. Patient satisfaction data were standardized for the year, age, education and health status. Total number of participants in this study was 102,815 patients (Borghans, 2012).

In the relationship between satisfaction and insurance or cost for treatment, there is a study which compared the difference between using and non-using community health insurance with satisfaction in healthcare in India. The results indicated that there was no significant difference in the levels of satisfaction between the insured and uninsured patients. The main reasons for satisfaction were the availability of doctors and medicines and the recovery by the patient. Nevertheless, insured hospitalized patients did not have significantly higher levels of satisfaction compared to uninsured hospitalized patients. If Insurance schemes want to improve the quality of care for their clients, so that they adhere to the scheme, the scheme managers need to negotiate actively for better quality of care with empanelled providers (Devadasan, 2011).

In a study of Fenton and colleges, they want to know relationship between patient satisfaction and health care utilization, expenditures, and outcomes remains ill defined. They conducted a prospective cohort study of adult respondents (N=51,946) to the 2000 through 2007 national Medical Expenditure Panel Survey, including 2 years of panel data for each patient and mortality follow-up data through December 31, 2006, for the 2000 through 2005 subsample (n = 36,428). The results presented that higher patient satisfaction was associated with less emergency

department use but with greater inpatient use, higher overall health care and prescription drug expenditures, and increased mortality (Joshua, 2012).

### 3.3. STUDIES USING SERVQUAL TECHNIQUE:

A study in Malaysia of M. Sadiq Sohail, he used SERVQUAL technique to examine and measure the quality of services provided by private Hospitals and concluded that this technique is more favorable than people might think (Sohail, 2003). He used a 15-questionnaire focused the quality in five dimensions: tangible, reliability, responsiveness, assurance and empathy. The feature results from this study such as patients' expectation for the five dimensions were generally low; in contrast, the mean scores of perceptions were higher than expectations for all the measures examined. This indicates that the perceived value of service quality has exceeded the initial expectation for all variables under all dimensions. Malaysians have low expectations concerning private healthcare is explained that to be due to reliability on treatment in Government hospitals where the costs for medical services are much lower than private because the Government subsidies them by more than 90%. With the gap scores between expectation and perception, in fact, Malaysia are generally satisfied with the quality of services received from private hospitals.

Another study of Annamalai Solayappan in Singapore, he also used SERVQUAL technique to measure the service quality gap in Hospital (Annamalai, 2011). The data were collected from 300 samples by using 22 questionnaire focused on five dimensions: tangible, reliability, responsiveness, assurance and empathy. The service quality gap was described by the following equation  $SQ = E - P$ , where E was expectation of service dimension; P was perception of service dimension; SQ was



service quality gap. Here the gap was very high in case of reliability and assurance. The gap was the lowest for employees at hospitals were always willing to help the patients; the second place was occupied for hospitals having modern equipment and facilities; convenient operating hours was considered as the third lowest gap. From this study, it was found that there was a huge gap in employees' neat appearance, lack of interest in solving the problem, communication regarding services, problem in doing the right things for the first time, giving services as their promise, poor knowledge of the employees to answer the patients' questions and problems in personnel attention.

## Chapter 4

### RESEARCH METHODOLOGY

#### 4.1. DESCRIPTIVE POPULATION

##### 4.1.1. Target population:

This study aims to evaluate the satisfaction of patients who admitted for treatment at public and private hospitals in HCMC.

##### 4.1.2. Research population

In our study, we collected primary data at two hospitals: one public hospital represented by Medical University Hospital (HMUH) and one private hospital referred by Van Hanh Hospital (VHH). Two hospitals are very famous in HCMC, where gather a lots of outpatient per day and receive a lots of trust from people in HCMC recently.

Respondents, who joined in study, admitted for treatment and prepared to be discharged at all inpatient wards of HMUH and VHH in February 2014

##### 4.1.3. Selection criteria

➤ *Inclusion criteria*

- Inpatients, who stayed at least 3 days, finish treatment and prepare to be discharged.
- Inpatients, who are under 18 year olds or elderly or in emergency or having disability in communication, replaced by interviewing their relatives who directly take care for him or her.
- Inpatients agree to take part in study.

➤ *Exclusion criteria*

- Inpatients were transferred to another hospital.
- Inpatients were severe or moribund.

## 4.2. STUDY DESIGN

### 4.2.1. Design:

Cross-sectional study

### 4.2.2. Sample size:

- Two pilot studies, which included 10 patients per hospital, will be conducted in two hospital to compute Mean.
- According results of pilot studies, apply formula to calculate sample size

Estimated sample size for two-sample comparison of means formula:

$$n = \frac{2(z_{1-\frac{\alpha}{2}} + z_{1-\beta})^2}{\left(\frac{\mu_0 - \mu_1}{\sigma}\right)^2}$$

*(The equation was suggested by Lehr (1992))*

**n** : sample size

**α** : Type I error (.05) =>  $Z_{1-\alpha/2} = 1.96$

**β** : Type II error (.20) =>  $Z_{1-\beta} = .84$

**μ<sub>0</sub>** : Mean of overall gap score from result of pilot conducted in HMUH (.041)

**μ<sub>1</sub>** : Mean of overall gap score from result of pilot conducted in VHH (-.25)

➔ The sample size collected for each hospital = 75 inpatients

4.3. CONCEPTUAL FRAMEWORK

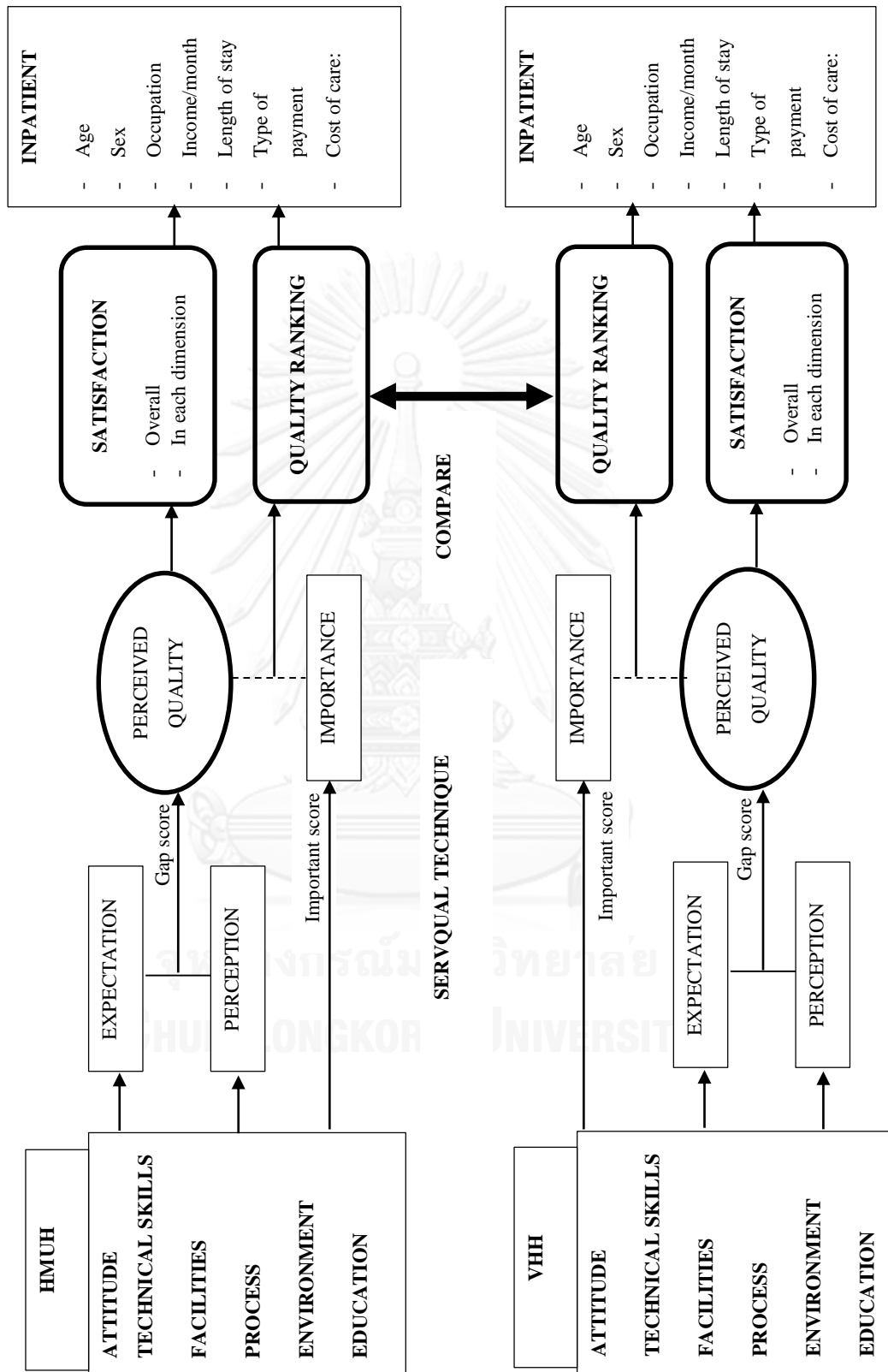


Figure 4-1 Conceptual Framework

#### 4.4. COLLECTING DATA METHOD

##### 4.4.1. Collecting instrument:

- Using self-completion questionnaire, drop-off and pick up.
- Content of questionnaire is designed by author, which contains of three parts:
  - Part 1: General information includes 15 questions in related to demographic (gender, age), social-economic (hometown, income, occupation), treatment (Using insurance, length of staying) and personal cost for treatment (Non-medical cost: transportation, bed, food, other and Medical cost: doctor care, drug, sub-clinical test and Surgery).
  - Part 2: Expectation and Perception of Healthcare service consists of 26 questions for six dimensions.
    - + 4 questions in Facilities and Material
    - + 5 questions in Process feature.
    - + 7 questions in Attitude of Staffs.
    - + 4 questions in Technical Skills of doctor and nurse.
    - + 4 questions in Environment and Hygiene.
    - + 2 questions in Information and Education.
  - Part 3: Importance weight for six dimensions contains 5 questions.

##### 4.4.2. Collecting process:

- Inpatients, who prepare to be discharged, will be selected to participate.
- Firstly, collaborators introduce meaning and target of study to inpatients and then ask for taking part in study.

- Secondary, if inpatients agree, collaborator will guide in general how to conduct a survey.
- Thirdly, inpatients will do survey by themselves without recommendation of collaborator or anyone. In case of misunderstand any questions; collaborator will help to explain to them.
- Finally, when inpatients finish their survey and submit to collaborators, collaborators have to check it for detecting missing or failure and asking them to fix.

#### 4.5. ANALYZE METHODOLOGY

##### 4.5.1. Testing a reliability of instrument:

We used Cronbach' alpha indicator to test the reliability coefficient of instrument. The instrument is good if Cronbach' alpha is more than 60%.

##### 4.5.2. Descriptive characteristic variables:

- Binary and categorical variables are presented by frequency and percentage.
- Continuous variables are shown by mean, median, standard deviation, min and max.

##### 4.5.3. Computing Expectation, Perception, Gap and Importance weight scores:

Applying SERVQUAL technique is instructed below:

- We use Likert 5 points scale to assess Expectation and Perception
 

+ Strongly Disagree	[1]
+ Disagree	[2]
+ Neutral	[3]

+ Agree [4]

+ Strongly Agree [5]

- Expectation, Perception, Gap and Importance weight score will be computed following 2 parts:

- **Part 1: Steps to obtain GAP scores**

**Step 1:** Firstly, to obtain the score for each of the 26 expectation questions. Next, obtain a core for each of the perception questions. Calculate the Gap Score each of the statements

(Gap Score = Perception – Expectation).

**Step 2:** Obtain an average Gap Score for each dimension by assessing the Gap Scores for each of the statements that constitute the dimension and dividing the sum by the number of statements making up the dimension.

**Step 3:** In table 4.1 transfer the average dimension scores (for all six dimensions) from the instrument. Sum up the scores and divide it by six to obtain the overall measure of service quality or **Overall Gap Scores**.

**Table 4-1 Calculation to obtain unweight score or gap score**

Contents	Scores
Average <b>Facilities</b> gap score	
Average <b>Process</b> gap score	
Average <b>Attitude</b> gap score	
Average <b>Technical Skill</b> gap score	
Average <b>Environment</b> gap score	
Average <b>Information</b> gap score	
<b>AVERAGE OVERALL GAP SCORE</b>	

- **Part 2: Steps to obtain Importance weight and to rank quality of each dimensions**

**Step 1:** In Table 4.2 calculate the *Importance Weights Scores* for each of the six dimensions (Using 100 points scale to measure)

**Table 4-2 Importance weight for each dimension**

Contents	Scores
Importance of <b>Facilities</b>	/ 100
Importance of <b>Process</b>	/ 100
Importance of <b>Attitude</b>	/ 100
Importance of <b>Technical Skill</b>	/ 100
Importance of <b>Environment</b>	/ 100
Importance of <b>Information</b>	/ 100
<b>TOTAL 100 points</b>	<b>100</b>

**Step 2:** In Table 4.3 enter the average GAP score for each dimension (from Table 4.1) and the importance weight for each dimension (from Table 4.22). Then multiply the average score for each dimension with its importance weight. We call a new parameter that is *Average Weighted Scores*.

**Step 3:** According to the results of average weighted scores, we rank the quality for each dimension.

**Table 4-3 Average Weighted Scores**

Dimension	Table 1 x Table 2	Weighted Score	Ranking
Average <b>Facilities</b>			
Average <b>Process</b>			
Average <b>Attitude</b>			
Average <b>Technical Skill</b>			
Average <b>Environment</b>			
Average <b>Information</b>			

#### 4.5.4. Multivariate regression:

- **Dependent variable:** in study, we aim to analyze the determinant of changes in gap score for each dimension and overall dimensions among characteristics of inpatients. There are 7 outcome in study:



- +  $Y_{\text{Facility}}$ : Gap score of Facility dimension.
  - +  $Y_{\text{Process}}$ : Gap score of Process dimension.
  - +  $Y_{\text{Attitude}}$ : Gap score of Attitude dimension.
  - +  $Y_{\text{Skills}}$ : Gap score of Technical skills dimension.
  - +  $Y_{\text{Environment}}$ : Gap score of Environment dimension.
  - +  $Y_{\text{Information}}$ : Gap score of Information dimension.
  - +  $Y_{\text{Overall}}$ : Gap score of Overall dimensions.
- **Independent variable:** independent variables include
- + Demographic: Gender, age.
  - + Socio-economic: Hometown, income, occupation (dummy variable)
  - + Treatment: Length of stay, using insurance
  - + Cost for treatment: Total non-medical cost, total medical cost.
- **Multivariate Regression model:**

$$Y_{\text{Facility}} = \beta_0 + \beta_1 \text{Gender} + \beta_2 \text{Age} + \beta_3 \text{Hometown} + \beta_4 \text{Income} \\ + \beta_5 \text{Occupation} + \beta_6 \text{Length} + \beta_7 \text{Insurance} \\ + \beta_8 \text{Total\_cnonmedical} + \beta_9 \text{Total\_cmedical}$$

$$Y_{\text{Process}} = \beta_0 + \beta_1 \text{Gender} + \beta_2 \text{Age} + \beta_3 \text{Hometown} + \beta_4 \text{Income} \\ + \beta_5 \text{Occupation} + \beta_6 \text{Length} + \beta_7 \text{Insurance} \\ + \beta_8 \text{Total\_cnonmedical} + \beta_9 \text{Total\_cmedical}$$

$$Y_{\text{Attitude}} = \beta_0 + \beta_1 \text{Gender} + \beta_2 \text{Age} + \beta_3 \text{Hometown} + \beta_4 \text{Income} \\ + \beta_5 \text{Occupation} + \beta_6 \text{Length} + \beta_7 \text{Insurance} \\ + \beta_8 \text{Total\_cnonmedical} + \beta_9 \text{Total\_cmedical}$$

$$\begin{aligned}
 Y_{\text{Skills}} = & \beta_0 + \beta_1 \text{Gender} + \beta_2 \text{Age} + \beta_3 \text{Hometown} + \beta_4 \text{Income} \\
 & + \beta_5 \text{Occupation} + \beta_6 \text{Length} + \beta_7 \text{Insurance} \\
 & + \beta_8 \text{Total\_cnonmedical} + \beta_9 \text{Total\_cmedical} \\
 Y_{\text{Environment}} = & \beta_0 + \beta_1 \text{Gender} + \beta_2 \text{Age} + \beta_3 \text{Hometown} + \beta_4 \text{Income} \\
 & + \beta_5 \text{Occupation} + \beta_6 \text{Length} + \beta_7 \text{Insurance} \\
 & + \beta_8 \text{Total\_cnonmedical} + \beta_9 \text{Total\_cmedical} \\
 Y_{\text{Information}} = & \beta_0 + \beta_1 \text{Gender} + \beta_2 \text{Age} + \beta_3 \text{Hometown} + \beta_4 \text{Income} \\
 & + \beta_5 \text{Occupation} + \beta_6 \text{Length} + \beta_7 \text{Insurance} \\
 & + \beta_8 \text{Total\_cnonmedical} + \beta_9 \text{Total\_cmedical} \\
 Y_{\text{Overall}} = & \beta_0 + \beta_1 \text{Gender} + \beta_2 \text{Age} + \beta_3 \text{Hometown} + \beta_4 \text{Income} \\
 & + \beta_5 \text{Occupation} + \beta_6 \text{Length} + \beta_7 \text{Insurance} \\
 & + \beta_8 \text{Total\_cnonmedical} + \beta_9 \text{Total\_cmedical}
 \end{aligned}$$

Where:  $\beta_0$  is Y intercept

$\beta_n$  is slope of Y with variable  $X_n$  (age, gender, hometown, income, etc.)

Table 4-4 Summarize table of expected signs

Variable	Descriptive	Expected
Gender	0: Male 1: Female	-
Age	Continuous	+
Hometown	0: HCMC 1: Province	+
Occupation	0: un-work 1: Work	+
Income	Continuous	-
Length	Continuous	-

Variable	Descriptive	Expected
Using Insurance	0: Non-insurance 1: Insurance	+
Total non-medical cost	Continuous	-
Total medical cost	Continuous	+/-

**Gender:** we expected that if patient were female, their satisfaction would be reduced. In our own intuition, there are some differences in expectation and satisfaction between men and women that means women seem to tend their satisfaction lower than men for most healthcare services.

**Age:** age was also one of the most important basic factors affecting variation of satisfaction. In some previous studies, it was demonstrated that elder patients scoring more highly and being more satisfied than young and adult patient. We expected that the older patients are, the greater gaps score are.

**Hometown:** In our opinion, the healthcare quality in HCHC is higher than in other provinces, so that is one of the reason patient come to hospital in HCMC. Therefore, we expected that if patients come from other provinces, the gap score will be increase.

**Occupation:** In regression, occupation is made dummy variable: Work and Un-work. In our opinion, people, who are working, do not have much time and do not want to spend much time on treatment in crowded public hospitals. They perhaps want to finish treatment as soon as possible so that it is a reason they choose better hospitals like HMUH and VHH for their treatment, hence, they will easy to be satisfied with their choices. Therefore, there are a positive trend between satisfaction and people who are still working.

**Income:** In our opinion, people, who get high income, will be require a lot from service and tend to be negative with overall services. We suppose that the higher of income people earn per month, the lower gaps score are.

**Length of stay:** In our own opinion, normally, patients want to finish treatment as soon as possible. So, if a length of stay increases, they will suspect the quality of healthcare and will reduce their satisfaction.

**Insurance:** In our opinion, occasionally, cost for treatment is always the most worrying factor for patients, so that the less they have to pay, the more satisfied they will.

**Total non-medical cost:** No researchers focus on the influence of this factor to satisfaction in previous studies, but in our study, we want to demonstrate that the lower gap score will happen if patients pay a lot for this cost. Normally, if they pay too much, they will feel uncomfortable and dissatisfaction.

**Total medical cost:** in previous studies, we found that patients who were most satisfied had about higher total healthcare cost. In our opinion, the more patients pay, the less satisfaction they feel. However, sometimes, people think that paying a higher cost for medical means higher quality received in return (e.g. brand name drugs imported from foreign countries appear to be much better than drugs made in Vietnam). Therefore, they pay a lot of money to get the quality of medical and feel satisfied with their decisions as well as greatly assess healthcare quality.

#### 4.6. VARIABLE DEFINITION AND CODE

##### 4.6.1. Social-demographic variable:

Table 4-5 Social demographic variable

Name	Type	Code
Gender	Binary	0: Female 1: Male
Age	Continuous	Years
Occupation	Category	1: Civil servant 2: Private staff 3: Housewife 4: Un-employ 5: Retire 6: Freelance
Occupation	Dummy	0: Un-work 1: Work
Income per month	Continuous	USD (1USD = 21,000 VND)
Length of stay	Continuous	Days
Using insurance	Binary	0: Non-insurance 1: Insurance
Cost of transportation	Continuous	USD (1USD = 21,000 VND)
Cost of bed	Continuous	USD (1USD = 21,000 VND)
Cost of food	Continuous	USD (1USD = 21,000 VND)
Other Cost	Continuous	USD (1USD = 21,000 VND)
<b>Non-medical cost</b>	Continuous	Total sum of 4 cost above
Cost of doctor care	Continuous	USD (1USD = 21,000 VND)
Cost of drug	Continuous	USD (1USD = 21,000 VND)
Cost of sub-clinical test	Continuous	USD (1USD = 21,000 VND)
Cost of surgery	Continuous	USD (1USD = 21,000 VND)
<b>Medical cost</b>	Continuous	Total sum of 4 cost above

##### 4.6.2. Dimension variables:

- Using Likert scale 5 points to measure “AGREE or DISAGREE” of Expectation and Perception.
- Using 100 points scale to measure Importance for each dimensions.

Table 4-6 Dimensions variable

Name	Code
<b>Facilities</b>	
Modern equipment	EF1 – PF1
Enough facilities	EF2 – PF2
Enough material	EF3 – PF3
Professionally perform	EF4 – PF4
<b>Process</b>	
Quickness in recording	EP1 – PP1
Convenience in moving	EP2 – PP2
Quickness in doing test	EP3 – PP3
Quickness in procedure	EP4 – PP4
Quickness in payment	EP5 – PP5
<b>Attitude of Staffs</b>	
Doctor' behavior	EA1 – PA1
Doctor' listening	EA2 – PA2
Doctor' explanation	EA3 – PA3
Nurse' behavior	EA4 – PA4
Nurse' listening	EA5 – PA5
Nurse' explanation	EA6 – PA6
Others politeness	EA7 – PA7
<b>Technical Skill of Doctor and Nurse</b>	
Doctor' expression	ET1 – PT1
Doctor' response	ET2 – PT2
Nurse' manipulation	ET3 – PT3
Nurse' response	ET4 – PT4
<b>Environment and Hygiene</b>	
Airy, freshly	EE1 – PE1
Silence	EE2 – PE2
Safety	EE3 – PE3
Hygiene	EE4 – PE4
<b>Education and Information</b>	
Enough information	EI6 – PI6
Opening talk show	EI7 – PI7

#### 4.6.3. Satisfaction variables

Satisfaction is the gap-score between expectation and perception of healthcare quality service, with a range of value from - 4 to + 4 and these gap scores inpatients satisfaction. The higher gap scores are, the greater inpatients satisfy.

#### 4.6.4. Quality of healthcare in Hospital

The score of weight that is combined by gap-scores and importance weight score of six dimensions measure quality of healthcare in Hospital. According to results, it will be ranked from 1<sup>st</sup> to 6<sup>th</sup> to assess the quality of dimensions in Hospital at this moment.

### 4.7. BIAS AND CONTROLLING BIAS

#### 4.7.1. What are Biases?

- Selection bias: selection is wrong if we choose exclusion criteria.
- Content bias: patients misunderstand the content of certain questions and choose the incorrect answers or collaborators explain wrongly to the patients.
- Analyze bias: choose an inappropriate statistical tests or mistakes in procedure.

#### 4.7.2. Control bias:

Selection bias and content bias: training collaborators carefully the selection criteria and how to response effectively and carefully with the questions from patients before undertaking. By the way, questionnaire translation were attempted to use simple words and easily to understand.

#### 4.8. POSSIBLE BENEFITS:

The results of study aim to provide evidences for each hospital to appropriately recognize and evaluate precisely the quality of their services. Besides, the study also helps identify strengths and weaknesses in order to recommend changes or improvements as necessary. Finally, an initial research will be the hinge for the next relevant study in the future.





## Chapter 5

### RESULT AND DISCUSSION

This chapter will describe the data in two hospitals: HMUH and VHH with 75 respondents in each hospital. The results will be presented in 5 parts, consisting of:

Part 1: Reliability coefficient (cronbach' alpha) of survey instrument.

Part 2: Characteristics of respondents in two hospitals: demographic, social-economic, cost for treatment

Part 3: Expectation, perception and gap score in each dimension.

Part 4: Importance weight and quality ranking for six dimensions.

Part5: Multivariate regression analysis.

We will discuss about the results of study, interpretation and comparison of the differences between two hospitals and among previous relevant studies in Vietnam and in the world.

### 5.1. RELIABILITY COEFFICIENT (CRONBACH' alpha)

Table 5-1 Reliability Coefficient (Cronbach's alpha)

Dimension	Cronbach's alpha			
	HMHU		VHH	
	Study	Pilot	Study	Pilot
Facilities & Material	77.09	65.24	79.13	91.50
Process feature	80.18	79.10	78.82	91.61
Attitude of Staffs	94.55	86.52	92.32	94.77
Technical Skill of D&N	85.91	70.40	91.41	89.77
Environment & Hygiene	83.28	84.59	85.54	89.99
Information & Education	71.72	88.43	83.09	56.61

Following the empirical concept of doing a study, we did two pilots before conducting main studies. There were two objectives of this activity; firstly according to the results of gaps mean score, we calculated the sample size for main studies. Then, we tested availability and reliability of questionnaire in order to adjust opportunely.

The content of survey used in this study was designed by author which was based on the content of some standardized surveys in the world, for instance, SERVQUAL' instrument of Parasuraman, HCAHPS Survey of CAHP' Hospital in United State of America, PSQ tool of RAND Health Organization in UK and Picker Questionnaire (PPE-15) in UK.

Using the Cronbach' alpha for testing reliable coefficient of instrument, the results in Table 5.1 show that in each dimension, there is a high consistency internal questions among patients' answers in both pilot and main study (alpha > 50%). It refers that this survey is fairly good and a reliable tool which could be applied to measure patients' satisfactions.

## 5.2. CHARACTERISTICS OF PATIENTS IN 2 HOSPITALS

Table 5-2 Frequency and percentage of characteristics of patients

Variable name	HMHU		VHH	
	Frequency	%	Frequency	%
<b>Gender</b>				
Male	37	49.33	15	20.00
Female	38	50.67	60	80.00
<b>Hometown</b>				
Ho Chi Minh City	20	26.67	30	40.00
Province	55	73.33	45	60.00
<b>Using insurance</b>				
No	28	37.33	44	58.67
Yes	47	62.67	31	41.33
<b>Occupation (category)</b>				
Civil servant	7	9.33	5	6.67
Private staff	7	9.33	9	12.00
Housewife	8	10.67	16	21.33
Un-employment	3	4.00	2	2.67
Elderly/Retired	25	33.33	12	16.00
Freelance	23	30.67	29	38.67
Student/Pupil	2	2.67	2	2.67

Table 5.2 refers to the frequency and percentage of binary and categorical variables (gender, hometown, occupation and using insurance). The results show:

- **Gender:** In HMUH, the number of males joined as many as the number of females. Similarly, in VHH, females participated more than four times as many as males did.

- **Hometown:** The number of patients in HMUH came from other provinces is approximate three times as many as those in HCMC. Likewise, in VHH, patients who live in other provinces are more than those in HCMC.

- **Using insurance:** Insurance was used more than non-insurance in both hospitals. In HMUH, insured patients were nearly twice as many as non-insured patients (62.67% and 37.33%). Meanwhile, the rate in VHH was 58.67% of insurance and 41.33% of non-insurance.

- **Occupation:** Generally, patients, who were elderly/retired, freelancer and housewife, had a lot of participants in study, very few respondents were pupils and students (2.67%). In HMUH, this characteristic was often concentrated on elderly/retired group and freelance group (33.33% and 30.67%). Patients, who were civil servants or working in private sector, were fewer than another group (9.33%). In VHH, the most participated was freelancer group (38.67%), next was housewife group (21.33%), elderly and retired group occupied 16%.

Table 5-3 Characteristics of respondents (continuous variables)

Variable	HMUH			VHH		
	Mean	SD	Min-max	Mean	SD	Min-max
Age	59.34	18.63	18-90	46.52	21.68	21-92
Income	271.18	298.97	0-1420	403	518.90	0-2500
Length of stay	5.94	4.98	3-30	4.12	2.44	3-16

Table 5.3 presents the results of some continuous variable, such as age, income and length of stay in term of unit of measurement, standard deviation, max and min.

- **Age:** Most patients in HMUH were older than in VHH with mean of age was 59.34 years compared with 46.22 years.

- **Income:** In VHH, patients usually pay out-of-pocket expenses as a large number of them do not use insurance benefits for treatment; hence, it may indicate

that their monthly incomes are higher than patients in HMUH. Indeed, mean of income in VHH is nearly twice as much as mean of income in HMUH.

- **Length of staying:** The average length of stay in HMUH is approximate 6 days in the range of 3 to 30 days. Respectively, in VHH, the average is 4 days in the range of 3 to 16 days.

Table 5-4 Individual cost profile for treatment

Total Cost	HMUH			VHH		
	Mean	SD	Min-Max	Mean	SD	Min-max
Transport	31.05	48.70	2 – 284	15.89	24.79	0 – 150
Bed	352.66	350.29	90 – 2400	99.92	59.44	45 – 375
Food	39.08	33.64	15 – 210	26.06	18.14	15 – 140
Other	9.09	25.23	0 – 140	1.13	4.72	0 – 30
<b>Non-medical</b>	<b>452.02</b>	<b>429.83</b>	<b>142 – 2583</b>	<b>140.69</b>	<b>82.94</b>	<b>55 – 494</b>
<b>Insurance</b>		<b>n<sub>1</sub>=47</b>			<b>n<sub>2</sub>=31</b>	
Doctor	48.25	37.25	25.2 – 252	41.66	25.06	31.5 – 168
Drug	127.50	78.05	57.4 – 462	82.08	46.94	44.1 – 283
Sub-clinical test	26.37	33.50	7 – 112.7	29.16	17.54	22.0 – 117
Surgery	40.76	101.89	0 – 490	80.38	146.44	0 – 455
<b>Medical cost</b>	<b>242.90</b>	<b>192.16</b>	<b>92.4 – 1113</b>	<b>233.29</b>	<b>176.34</b>	<b>106 – 792</b>
<b>Non-Insurance</b>		<b>n<sub>1</sub>=28</b>			<b>n<sub>2</sub>=44</b>	
Doctor	75.42	70.41	36 – 360	63.40	37.56	45 – 225
Drug	136.52	108.80	60.9 – 546	110.38	42.70	75 – 310
Sub-clinical test	22.28	12.00	8.4 – 28	115.88	100.52	12 – 300
Surgery	86.75	142.54	0 – 490	260.79	248.67	0 – 550
<b>Medical cost</b>	<b>320.98</b>	<b>251.86</b>	<b>118.9 – 1133</b>	<b>550.47</b>	<b>348.55</b>	<b>132 – 1045</b>

In table 5.4, we concentrate on types of cost that patients had to pay for their treatment during time of staying in hospital. The results will be separated into two groups: “**Non-medical cost**” covering transportation (two-way), bed, food and other; “**Medical cost**” covering doctor care, drug, sub-clinical test and surgery, especially,

in this group cost will be further divided into two groups: a payment in “Non-insurance” and in “Insurance”.

- **Transportation:** The mean of this cost in HMUH is 31.05\$ which is double than in VHH. The result could be explained by the difference of hometown. A lot of patients in HMUH came from provinces which were far from HCMC, traveling distance in range of more than 1000 km; some places were in North areas. Thus, the main transportation used was airplane or a high quality coach bus, which could cost a lot more for two way trips. Conversely, patients in VHH came from provinces which are almost near HCMC, about less than 100 km so they can travel by themselves by riding motorcycle or by vans which cost less money.

- **Bed:** In HMUH, the price of bed per day fluctuates from 30 USD to 80 USD, respectively, in VHH, the price is from 15 USD to 50 USD. It is obvious that patients in HMUH stayed longer time and chose higher price rooms than patients in VHH did; so the average cost in HMUH is more than three times as much as the average cost in VHH.

- **Food:** Expenses for food in HMUH were much greater than those in VHH. As result shown, cost for food per day per patient in HMUH ranges from 5 USD to 20 USD, which is as similar as cost for food in VHH. In both hospitals, patients have options in either buying foods in Hospital, or buying from outside or cooking at home or ordering deliveries. In our study, most of patients chose to buy from outside or cooked at home and delivered to hospital, because they did not like nor had good appetites with food in hospitals.

- **Other costs:** Other cost includes some sundries that are not available in hospital (such as boil water, toothbrush, towel, etc.) In VHH, patients had to pay for these expenses less than in HMUH.

- **Total Non-Medical Cost** is summed up of all costs listed above. The result shows a total non-medical cost in VHH is four times less than the cost in HMUH.

In our study, we did not classify according to diseases because we want to compare the different levels of satisfaction between two hospitals. On the other hand, in VHH, there are not many specialty departments like HMUH; therefore, it would be difficult to compare if classified into disease' groups. However, in our next studies we would suggest to focus on this content as in some previous studies, they also showed some conclusions in related to the differences in satisfaction among disease' groups, especially related to the effects of medical costs.

In this part, we will discuss about the cost for treatment that patients had to pay. As a private hospital, VHH management regulates all prices of services provided, hence, the prices in private hospitals are usually higher from 5% to 20% than the normal price in public hospitals. Respectively, although HMUH is a public hospital, it manages its own financial budgets. HMUH, therefore, also has a right to regulate their prices of services in hospital. That is a feature of a new model of public hospitals such as Medical University Hospital in Vietnam. However, both of hospitals must keep a regulation of payment for insured patients. With patients using insurance, their payment will be reduced by 30% in 1<sup>st</sup> rank-hospital, they are only charged by 70% of their total medical costs.

- **Cost for Doctor:** cost for doctor care per day in HMUH is 12 USD per day per patient and 15 USD in VHH. In two hospitals, average doctor fee in insured group is lower than it is in non-insured group, especially, in HMUH, insured group paid less twice as much as non-insured did.

- **Cost for Drug:** Drug fees depend on patients' diseases and treatments. Similarly, average of drug fee in insured patients is not as much as it is in non-insured patients. The difference between HMUH and VHH is that patients in HMUH paid much more than patients in VHH, it could be explained by hospital' therapies which is different in two hospitals.

- **Cost for sub-clinical tests:** this cost also depends on physician's request. Average of this cost in insured group is slightly higher than in non-insured group in HMUH; in contrast, it is less than 5 times as much as compared in non-insured in VHH

- **Cost for surgery:** the number of patients who have to be operated in VHH is more than those in HMUH. Most of operations/surgeries in VHH are cosmetic related surgeries, which is a core specialty of VHH. In contrast, operations in HMUH were often carried out for normal disease. Cosmetic surgeries will be cost a lot more money; therefore, average cost for surgeries in VHH is higher than those in HMUH, and insured patients paid less than non-insured patients.

- **Total Medical Cost:** is summed up of all medical costs listed above. The results indicate total medical costs in VHH are significantly higher than those in HMUH in non-insured group; however, in insured group, these costs in HMUH are lower than those in VHH.



## 5.3. EXPECTATION, PERCEPTION AND GAP SCORE:

Table 5-5 Expectation, perception and gap score in each dimension

Dimensions	HMHU						VHH					
	Expectation		Perception		Gap-Score		Expectation		Perception		Gap-Score	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<b>Facilities</b>												
Modern equipment	4.01	.81	4.18	.80	.17	.86	4.22	.70	4.04	.70	-.18	.60
Enough facilities	4.34	.64	4.29	.73	-.05	.80	4.41	.61	4.13	.79	-.28	.64
Enough material	4.25	.73	4.34	.74	.09	1.00	4.42	.57	4.36	.56	-.06	.62
Professionally perform	4.38	.63	4.50	.70	.12	.86	4.49	.60	4.40	.54	-.09	.54
<i>Average</i>	<b>4.25</b>	<b>.59</b>	<b>4.33</b>	<b>.57</b>	<b>.08</b>	<b>.68</b>	<b>4.39</b>	<b>.54</b>	<b>4.23</b>	<b>.51</b>	<b>-.16</b>	<b>.45</b>
<b>Process</b>												
Quickness in recording	4.32	.70	4.32	.87	.00	1.01	4.42	.57	4.30	.71	-.12	.67
Convenience in moving	4.29	.67	4.20	.85	-.09	.94	4.25	.63	4.14	.65	-.11	.62
Quickness in doing test	4.40	.67	4.26	.82	-.13	.97	4.44	.59	4.16	.82	-.28	.68
Quickness in procedure	4.38	.76	4.05	.78	-.33	.90	4.50	.50	4.34	.62	-.16	.59
Quickness in payment	4.36	.74	4.25	.79	-.10	.87	4.41	.57	4.29	.69	-.12	.69
<i>Average</i>	<b>4.35</b>	<b>.64</b>	<b>4.21</b>	<b>.61</b>	<b>-.13</b>	<b>.75</b>	<b>4.40</b>	<b>.49</b>	<b>4.25</b>	<b>.51</b>	<b>-.15</b>	<b>.44</b>
<b>Attitude of Staffs</b>												
Doctor' behavior	4.41	.65	4.57	.49	.16	.67	4.53	.55	4.48	.53	-.05	.54
Doctor' listening	4.42	.66	4.60	.51	.17	.74	4.48	.62	4.42	.54	-.06	.63
Doctor' explanation	4.45	.64	4.50	.57	.05	.73	4.53	.57	4.37	.63	-.16	.54
Nurse' behavior	4.46	.66	4.56	.62	.09	.71	4.53	.57	4.41	.65	-.12	.61
Nurse' listening	4.42	.64	4.54	.62	.12	.67	4.50	.60	4.33	.68	-.17	.57
Nurse' explanation	4.42	.64	4.61	.51	.18	.67	4.45	.70	4.40	.65	-.05	.56
Others politeness	4.40	.65	4.50	.66	.10	.81	4.50	.64	4.37	.67	-.13	.74
<i>Average</i>	<b>4.43</b>	<b>.60</b>	<b>4.55</b>	<b>.49</b>	<b>.12</b>	<b>.64</b>	<b>4.50</b>	<b>.56</b>	<b>4.40</b>	<b>.52</b>	<b>-.10</b>	<b>.46</b>
<b>Technical skills</b>												
Doctor' expression	4.44	.72	4.50	.62	.06	.77	4.57	.52	4.33	.70	-.24	.67
Doctor' response	4.48	.62	4.46	.64	-.02	.77	4.52	.57	4.37	.67	-.15	.48
Nurse' manipulation	4.42	.64	4.42	.66	.00	.73	4.54	.55	4.41	.65	-.13	.44
Nurse' response	4.52	.60	4.57	.54	.05	.65	4.54	.57	4.42	.64	-.12	.46
<i>Average</i>	<b>4.46</b>	<b>.59</b>	<b>4.49</b>	<b>.51</b>	<b>.02</b>	<b>.63</b>	<b>4.54</b>	<b>.48</b>	<b>4.38</b>	<b>.59</b>	<b>-.16</b>	<b>.44</b>

Dimensions	HMHU						VHH					
	Expectation		Perception		Gap-Score		Expectation		Perception		Gap-Score	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<b>Environment</b>												
Airy, freshly	4.38	.85	4.53	.72	.15	1.03	4.53	.50	4.10	.81	-.43	.87
Silence	4.30	.83	4.56	.62	.26	.85	4.48	.52	4.29	.65	-.19	.56
Safety	4.29	.89	4.57	.54	.28	.87	4.58	.49	4.44	.52	-.14	.42
Hygiene	4.34	.84	4.49	.66	.15	1.02	4.50	.50	4.32	.52	-.18	.53
<i>Average</i>	<b>4.33</b>	<b>.81</b>	<b>4.54</b>	<b>.51</b>	<b>.21</b>	<b>.86</b>	<b>4.52</b>	<b>.47</b>	<b>4.29</b>	<b>.52</b>	<b>-.23</b>	<b>.49</b>
<b>Information</b>												
Enough information	3.73	1.06	3.32	.98	-.41	1.10	3.85	.94	3.00	1.03	-.85	1.14
Opening talk show	3.82	1.05	3.38	.97	-.44	1.17	3.82	.92	2.93	.85	-.89	1.20
<i>Average</i>	<b>3.78</b>	<b>.96</b>	<b>3.35</b>	<b>.86</b>	<b>-.43</b>	<b>1.01</b>	<b>3.84</b>	<b>.84</b>	<b>2.96</b>	<b>.87</b>	<b>-.88</b>	<b>1.07</b>

Table 5.5 shows the results of computing mean of expectation, perception and gap score that will be presented in each dimension:

**Facility and Material** are something that people can see and be appealed to. A hospital which has visually appealing facilities, materials or modern equipment as well as professional rating performance appears to win patients' first impressions. It is without doubt that such hospital will and can achieve high level of patient's satisfactions, for instance, a private hospital like VHH. In our own opinion, facility dimension was seen as a serious matter and was the reason of patients' dissatisfaction, especially in public hospital. There is a similar expectation of patients in two hospitals with score level ranging from 4 to 5, the average of expectation in HMUH is 4.25 and 4.39 in VHH. However, patients in HMUH perceived much more than in VHH which is referred by negative scores in gap. Indeed, most perception' responses in a survey in VHH are measured lower than expectation, whereas, in HMUH, only a gap of "Enough facilities" received a negative point. Mean of Gap Score of "Facility and Material" in HMUH is .08 and -.16 in VHH.

**Process feature:** includes convenience in moving and timeliness for treatment procedure. As indicated in a report in Canada, there appears to have been marginal increases in satisfaction with “timeliness of access to care” since 2001. The increases are slight at best, however, it is still the case that barely half of Canadians (46 per cent) are satisfied in this regard (Stuart, 2007). In Vietnam, currently, it is one of the factors causing patients’ dissatisfactions. When patients enter in a certain hospital, they usually get lost in a maze of clinic rooms, laboratory rooms or drug store, etc; the arrangement of these facilities is not conveniently and appropriately suitable for patients to find their ways while at the hospitals. It will be very difficult for disabled patients or the elderly. Moreover, waiting time at clinic room or wait time for doing and receiving test or wait time for making payments cause tiredness, dissatisfactions and anxiety for patients who already have problems of their own. In this dimension, an expectation in two hospitals is also very high, however, patients in VHH think that they did not perceive as much as they expected, so all gaps are negative scores. Meanwhile, the perception in HMMU is lower than expectation regardless “Quickness in recording” with a positive gap score. The satisfaction of HMMU’ patients in this dimension is as similar as the satisfaction of VHH’ patients.

**Attitude of staffs:** Psychology, which is one of the crucial factor impacting successful rates of treatment. There are a lot of matters relating to patients’ psychology but physicians’ attitude is a prerequisite importance. A certain sympathetic action or a gusty performance also affects patient’ feeling and results in good or bad satisfaction evaluation from patients. Therefore, attitude is crucial which is embodied in service providers who correctly interpret laboratory reports, diagnose the disease competently, provide appropriate explanation to queries, courtesy and

generate a sense of safety. Thus, in our own intuition, the greater the perceived good attitude from the healthcare providers, the greater the satisfaction of patients will be. According to a J.D. Power and Associates report, high patient satisfaction is more influenced by superior service-related communication with nurses and physicians than impressive technology or facility (Power, 2012). As the result shows, patients in HMUH received the respect and good behavior, attitude from hospital' staffs better than patients in VHH, especially with nurse' explanation (.18), doctor's listening (.17) and doctor' behavior (.16). Patients in HMUH continue to express their higher satisfaction than patients in VHH (.12 and -.10).

**Technical Skills:** is illustrated for interpersonal skills, including expressing knowledge, skills and promptly response of doctors and nurse. Patients are not scientists or professional who can understand clearly about their illness, diagnosis and treatment therapies. They will not know whether or not a therapy or treatment is appropriate for their illness. But they themselves can quickly acknowledge or grasp their illness conditions by observing physician's performance and gestures. Hence, in our own opinion, the more technical skill patients see, the greater satisfaction patients are. J.D. Power also mentioned that higher patient satisfaction is more influenced by interpersonal skills of nurses and physicians (Power, 2012). Three in four perceptions in this dimension indicate a satisfaction of patients in HMUH, regardless "Doctor' response". Conversely, in VHH, all of factors did not satisfy patient' expectation, especially with doctor' explanation (-.16) and nurse' listening (-.17). Similarly, in this dimension, patients in VHH still satisfied less than patient in HMUH (-.16 and .02).

**Environment:** The environment of the hospital can also play a critical role in patient' satisfaction. Above all, patients want to know whether the facility is clean, sterile and safe, and that proper disease control procedures are followed consistently. However, they also want patient rooms and common areas such as waiting rooms to be warm, comfortable and inviting. In our own intuition, to address the problems of errors in healthcare, assurance of quality and serious safety issues, fundamental changes of health care processes, culture, and the physical environment are necessary and need to be aligned. Furthermore, in a study of GUP Iloh in Nigeria, hospital environment is ranked 3<sup>rd</sup> importance to impact to patient' satisfaction (Iloh, 2013). In HMUH, environmental factors are evaluated very well (.51 gap score), in contrast, the environment in VHH is assessed as not to be hygiene, lack of safety and silence with the mean of gap score is low (-.23).

**Information:** in Vietnam, to provide information and education in hospital is one of the compulsory accreditations of quality. However, in our own opinion, rarely hospitals actually consider and pay more attention in this matter. That causes the same negative results in two hospitals (means of gap score are -.43 and -.88 in HMUH and VHH). On the other hand, in our own opinion, with inpatients, they spend much time in hospital so that information and education could be a useful entertainment type for patient and be an incentive to patient' satisfaction.

Table 5-6 Average Gap score

Average Gap-score of	HMHU		VHH	
	Mean	SD	Mean	SD
Facilities & Material	.08	.68	-.16	.45
Process feature	-.13	.75	-.15	.44
Attitude of Staffs	.12	.64	-.10	.46
Technical Skill of D&N	.02	.63	-.16	.44
Environment & Hygiene	.21	.86	-.23	.49
Information & Education	-.43	1.01	-.88	1.07
<b>Average Gap score</b>	<b>-.02</b>	<b>.60</b>	<b>-.28</b>	<b>.39</b>

Table 5.6 presents the average gap score of six dimensions in two hospitals. To compute the total average gap score, two hospitals have a negative average gap score (-.02 in HMUH and -.28 in VHH) which means in term of total service quality, two hospitals have not met the expectation of patients.

#### 5.4. IMPORTANCE WEIGHT AND RANKING QUALITY OF DIMENSION

Table 5-7 Importance weight of Dimensions

Importance Weight	HMHU		VHH	
	Mean	SD	Mean	SD
Facilities & Material	15.77	9.03	16.21	14.06
Process feature	13.82	8.03	13.52	9.44
Attitude of Staffs	17.64	9.19	19.21	13.95
Technical Skill of D&N	33.20	16.77	35.78	18.05
Environment & Hygiene	12.28	8.97	9.26	6.85
Information & Education	7.29	4.96	6.02	4.48

Importance weight is a feature of SERVQUAL technique which helps managers measure a current value for each dimension in a certain healthcare service. Based on fundamental of SERVQUAL, Parasuraman mentioned that although gap between expectation and perception maybe a perfect representative of patient' satisfaction

and quality of healthcare, it is insufficient to conclude whether this dimension is better than another or not as well as unable to help managers to consider the quality for each dimension (Parasuraman, 1991). Thus, add in importance weight and combined with gap score will have the best parameter to establish the quality for each dimensions of healthcare service. On the other hand, ranking dimensions will help administrators to recognize which one is the best and worst at this moment.

Table 5.7 shows the result represents the importance weight scores for each dimension, it is obvious to recognize that in HMUH and VHH, “Technical skill” is seen as the most important in 6 dimensions (33.20% and 18.05%), whereas “Information” is the least important (7.29% and 4.48%).

**Table 5-8 Average Weighted SERVQUAL score of Dimensions**

Average Weighted Score	HMUH		VHH	
	Score	Rank	Score	Rank
Facilities & Material	.13	4	-2.65	4
Process feature	-2.52	5	-2.19	2
Attitude of Staffs	1.32	3	-1.45	1
Technical Skill of D&N	5.07	1	-4.74	6
Environment & Hygiene	2.49	2	-2.47	3
Information & Education	-4.63	6	-4.70	5
<b>Average weighted score</b>	<b>.31</b>		<b>-3.03</b>	

Table 5.8 shows the weighted SERVQUAL score for each dimension: To compute the average weighted SERVQUAL in each dimensions by taking average gap score of each dimensions multiplies by its importance score, since then, according to score, ranking the dimensions in turn. As the result shows, in HMUH, the dimension of “Technical Skills” ranks the first, next are “Environment”, “Attitude of staffs”, “Facilities and Material”, and “Process feature”. The last one is “Information and

Education”. On the other hand, in VHH, “Attitude of Staffs” ranks at first, next in turn are “Process feature”, “Environment”, “Facilities and Material” and “Information”, the last is “Technical Skills”.

#### 5.5. MULTIVARIATE REGRESSION FOR GAP MEAN SCORE IN EACH DIMENSION AND IN OVERALL

Table 5-9 Multivariate regression among patients in two hospital for Facility' mean of gap score

Variable	HMUH		VHH	
	Coef (Robust S.E)		Coef (Robust S.E)	
Gender	-.167 (.147)		-.165 (.169)	
Age	<b>.011 (.004) **</b>		<b>.005 (.002) **</b>	
Hometown	<b>.282 (.142) *</b>		<b>.349 (.002) ***</b>	
Occupation	.080 (.161)		<b>.236 (.056) *</b>	
Income	-.0002 (.0001)		-.0001 (.0001)	
Length	-.015 (.011)		-.005 (.020)	
Insurance	.079 (.132)		.078 (.103)	
Total non-medical cost	-.0002 (.0002)		-.0005 (.0005)	
Total medical cost	<b>-.001 (.0005) *</b>		-.0001 (.0001)	
_cons	-.388 (.396)		-.546 (.222)	
Number of obs in HMUH	= 75	Number of obs in VHH	= 75	
F (9, 65)	= 4.01	F (9, 65)	= 5.21	
Prob>F	= .0004	Prob>F	= .0000	
R-squared	= .3361	R-squared	= .3177	
Root MSE	= .5972	Root MSE	= .4013	
*: significant at 10% of significance level		***: significant at 1% of significance level		
		***: significant at 5% of significance level		

\*\*\*: significant at 1% of significance level

For Chow test: F (10, 130) = 1.54      Prob > F = .1307

Table 5.9 shows the association between mean of gap score in Facility dimension and characteristic variables in two hospitals. As result shown:



- In HMUH: there are statistically significant association between mean of gap score and age, hometown and total medical cost
- In VHH: there are statistically significant association between mean of gap score and age, hometown and occupation.

A hospital is equipped the high-technique machine, modern and full facilities are one of the reasons, which is needed to show to attract customers' impression; especially with patients in provinces and elderly. With elderly, because of complicated therapies and difficulties in response with physician, therefore, the more high-technique to support to them, the more satisfaction they are. On the other hand, with patients living in provinces, not only in this dimension, but also in overall dimension, they always express their good feeling and good assessment about quality and modernization in HCMC's hospital. Within them, higher technique in HCMC is one of the important reasons they go to HCMC's hospitals. Similarly, modern and high technique equipment will help some working people' illness will be recovered sooner and quickly return to work.

About Chow test, we conclude that in Facility dimension, we do not need to run equation separately.

Table 5-10 Multivariate regression among patients in two hospitals for Process' mean of gap score

Variable	HMHU		VHH	
	Coef (Robust S.E)		Coef (Robust S.E)	
Gender	-.488 (.146) ***		.065 (.150)	
Age	.014 (.004) ***		.004 (.002) *	
Hometown	.578 (.128) ***		.380 (.087) ***	
Occupation	.427 (.167) **		.053 (.090)	
Income	-.0006 (.0001) ***		-.0001 (.00008) *	
Length	.008 (.010)		.011 (.019)	
Insurance	.024 (.126)		-.064 (.101)	
Total non-medical cost	-.0003 (.0002) *		-.0003 (.0005)	
Total medical cost	-.001 (.0003) ***		-.0004 (.0008) ***	
_cons	-1.069 (.335)		-.364 (.065)	
Number of obs in HMUH	= 75	Number of obs in VHH	= 75	
F (9, 65)	= 6.23	F (9, 65)	= 6.27	
Prob>F	= .0000	Prob>F	= .0000	
R-squared	= .4987	R-squared	= .4758	
Root MSE	= .5665	Root MSE	= .3457	

\*: significant at 10% of significance level      \*\*: significant at 5% of significance level

\*\*\*: significant at 1% of significance level

For Chow test:  $F(10, 130) = 3.47$        $Prob > F = .0005$

Table 5.10 presents the association between mean of gap score in Process dimension and characteristic variables of respondents in two hospitals. As result:

- In HMUH: there are statistically significant association between mean of gap score and gender, age, hometown, occupation, income, total non-medical cost and total medical cost
- In VHH: there are statistically significant association between mean of gap score and age, hometown, income and total medical cost.

Overload in hospital, especially in public hospitals is the big important problem in Vietnamese healthcare system at this moment. A main reason causes this situation that is long time for waiting and unreasonably managing in hospitals. On the other hand, when patients go to a certain hospital currently, they always lost in a maze of clinic rooms, laboratory, drug store that should have made their illness suffered worse. Thus, when patients choose HMMH and VHH as a better treatment place, they expected more and more in term of improving the timeliness and better process than another hospitals. In both of hospitals, there are lots of significantly association with this dimension. Within them, we should consider to the factors makes the gap change in a negative trend and have a solution to work out.

About Chow test, we conclude that we conclude that in Process dimension, we need to run equation separately (significance at 1%).

Table 5-11 Multivariate regression among patients in two hospitals for Attitude of Staff' mean of gap score

Variable	HMUH	VHH
	Coef (Robust S.E)	Coef (Robust S.E)
Gender	-.169 (.145)	.111 (.147)
Age	<b>.012 (.004) ***</b>	<b>.007 (.002) ***</b>
Hometown	<b>.436 (.100) ***</b>	<b>.393 (.112) ***</b>
Occupation	.261 (.159)	.091 (.100)
Income	-.00008 (.0002)	-.0001 (.00009)
Length	-.002 (.009)	-.0005 (.017)
Insurance	.154 (.124)	.058 (.118)
Total non-medical cost	-.0002 (.0001)	-.0001 (.0006)
Total medical cost	<b>-.0008 (.0004) **</b>	-.0002 (.0001)
_cons	-.929 (.333)	-.650 (.212)

Number of obs in HMUH	= 75	Number of obs in VHH	= 75
F (9, 65)	= 3.89	F (9, 65)	= 5.50
Prob>F	= .0005	Prob>F	= .0000
R-squared	= .3484	R-squared	= .4835
Root MSE	= .5578	Root MSE	= .3561

\*: significant at 10% of significance level      \*\*: significant at 5% of significance level

\*\*\*: significant at 1% of significance level

For Chow test: F (10, 130) = .69      Prob > F = .7338

Table 5.11 shows the association between mean of gap score in Attitude dimension and characteristic variables of respondents in two hospitals. As result:

- In HMUH: there are statistically significant association between mean of gap score and age, hometown and total medical cost
- In VHH: there are statistically significant association between mean of gap score and age and hometown.

Attitude of staffs is one of the most important factors influences directly to patient' satisfaction. Indeed, in public hospitals, the attitude of staffs is too bad and worth to judgment. To be aware of this matter, attitude in both of hospitals has some considerably change in term of professional and respectful. In Vietnam, at this moment, attitude of physicians is one of the worst problem in healthcare, which has a bad assessment and get a lots of complaints from patients. In some previous studies, they conclude that attitude of doctor or nurse influence strongly to psychology of patient, since then contribute to the success of treatment, especially with elder people. In a common psychology, the higher patients' age are, the more patient' worries and puzzle about their illness are and physician' attitude is very

important, which in role of a closely friend or relative to assure patient' mind. This role is as same as with patient in province, because most of them firstly come in HCMC and they feel alone and maybe afraid of everything in HCMC' society and in hospitals.

About Chow test, we conclude that in Attitude dimension, we do not need to run equation separately.

Table 5-12 Multivariate regression among patients in two hospitals for Technical skills' mean of gap score

Variable	HMUH	VHH
	Coef (Robust S.E)	Coef (Robust S.E)
Gender	-.243 (.140) *	-.107 (.161)
Age	.014 (.005) ***	.003 (.003)
Hometown	.253 (.110) **	.284 (.136) **
Occupation	.175 (.173)	.035 (.120)
Income	-.00006 (.0001)	-.00002 (.0001)
Length	-.0001 (.009)	-.011 (.011)
Insurance	.200 (.102) *	.130 (.119)
Total non-medical cost	-.0001 (.0001)	-.0003 (.0007)
Total medical cost	-.0007 (.0004)	-.0003 (.0001)
_cons	-1.00 (.372)	-.330 (.234)

Number of obs in HMUH	= 75	Number of obs in VHH	= 75
F (9, 65)	= 3.53	F (9, 65)	= 2.03
Prob>F	= .0013	Prob>F	= .0498
R-squared	= .3498	R-squared	= .2712
Root MSE	= .5427	Root MSE	= .4094

\*: significant at 10% of significance level

\*\*: significant at 5% of significance level

\*\*\*: significant at 1% of significance level

For Chow test: F (10, 130) = .88

Prob > F = .5559

Table 5.12 presents the association between mean of gap score in Technical skills in dimension and characteristic variables of respondents in two hospitals.

- In HMUH: there are statistically significant association between mean of gap score and gender, age, hometown and insurance.
- In VHH: there are only a statistically significant association between mean of gap score and hometown.

Technical skills of physician is the most important factor in both of hospitals. When people get illness, they usually expect to find out the best doctors, who can help them recovery in a soon time. As we mentioned above, patients are not specialists but they can feel by themselves technical skills of physicians through explanations, expression as well as physician' response. As similar as Attitude dimensions, this dimension also have a strong influence to patient' psychology, which impacts to their satisfaction and assessment about the quality in hospital. In our study, it is more sensitive with female, elder and provincial patients than another group.

Especially, female is referred as sensitive and a difficult group, which means if patient is female, the gap score of this dimension will be change in term of a negative trend in HMUH.

About Chow test, we conclude that in Technical Skill dimension, we do not need to run equation separately.

Table 5-13 Multivariate regression among patients in two hospitals for Environment' mean of gap score

Variable	HMHU		VHH	
	Coef (Robust S.E)		Coef (Robust S.E)	
Gender	-.324 (.157) **		.208 (.149)	
Age	.017 (.004) ***		.003 (.003)	
Hometown	.649 (.128) ***		.357 (.127) ***	
Occupation	.380 (.177) **		-.015 (.118)	
Income	.00003 (.0002)		-.00007 (.0009)	
Length	-.017 (.009) *		-.004 (.017)	
Insurance	.183 (.150)		.034 (.150)	
Total non-medical cost	-.0001 (.0002)		.0002 (.0006)	
Total medical cost	-.0008 (.0004) *		-.0004 (.0001) **	
_cons	-1.072 (.349)		-.610 (.253)	
Number of obs in HMUH	= 75	Number of obs in VHH	= 75	
F (9, 65)	= 7.59	F (9, 65)	= 4.17	
Prob>F	= .0000	Prob>F	= .0003	
R-squared	= .4475	R-squared	= .3401	
Root MSE	= .6856	Root MSE	= .4273	

\*: significant at 10% of significance level      \*\*: significant at 5% of significance level

\*\*\*: significant at 1% of significance level

For Chow test:  $F(10, 130) = 2.51$        $Prob > F = .0085$

Table 5.13 presents the association between mean of gap score in Environment dimension and characteristic variables in two hospitals. As result shown:

- In HMUH: there are statistically significant association between mean of gap score and gender, age, hometown, occupation, length and total medical cost.
- In VHH: there are two statistically significant associations between mean of gap score and hometown, total medical cost.

As similar as attitude, environment in healthcare sector in Vietnam is terrible with the higher and higher the rate of infection as well as some relevant matters,

such as: hygiene in public places or safety and security. Therefore, when patients choose these hospitals, they also expect the hygiene and environment in 2 hospitals that will be better and cleaner than some public hospitals. However, this situation seem to be significant in HMUH with more association factors than in VHH. Perhaps, in a private hospital like VHH, environment is seen as obviousness.

About Chow test, we conclude that in Environment dimension, we need to run equation separately (significance at 1%).

Table 5-14 Multivariate regression among patients in two hospitals for Information' mean of gap score

Variable	HMUH		VHH	
	Coef (Robust S.E)		Coef (Robust S.E)	
Gender	-.270 (.218)		.378 (.325)	
Age	.023 (.004) ***		.010 (.005) *	
Hometown	.438 (.210) **		.941 (.233) ***	
Occupation	-.161 (.224)		-.271 (.190)	
Income	-.0004 (.0002)		-.00001 (.0001)	
Length	-.016 (.016)		-.020 (.024)	
Insurance	.198 (.201)		.422 (.265)	
Total non-medical cost	-.0001 (.0003)		-.001 (.001)	
Total medical cost	-.0007 (.0007)		-.0006 (.0004)	
_cons	-1.681 (.512)		-1.313 (.418)	
Number of obs in HMUH	= 75	Number of obs in VHH	= 75	
F (9, 65)	= 4.71	F (9, 65)	= 9.51	
Prob>F	= .0001	Prob>F	= .0000	
R-squared	= .3945	R-squared	= .4855	
Root MSE	= .8378	Root MSE	= .8204	

\*: significant at 10% of significance level

\*\* : significant at 5% of significance level

\*\*\* : significant at 1% of significance level

For Chow test: F (10, 130) = .96

Prob > F = .4847



Table 5.14 shows the association between mean of gap score in Information dimension and characteristic variables in two hospitals. As result shown:

- In HMUH: there are statistically significant association between mean of gap score and age and hometown.
- In VHH: there are two statistically significant association between mean of gap score and age, hometown

As we mentioned above, information is a limitation in hospitals currently, despite of being one of compulsory accreditations in Vietnamese healthcare system. The result shows that this dimension seem to be not have more association with factors than another dimensions. Only elder and patients come from provinces actually take into account this dimension in both of hospitals; especially with provincial patients group. They may be interested in information and education in hospitals, which helps to increase the gap score of this.

About Chow test, we conclude that in Information dimension, we do not need to run equation separately.

Table 5-15 Multivariate regression among patients in two hospitals for Overall mean of gap score

Variable	HMUH	VHH
	Coef (Robust S.E)	Coef (Robust S.E)
Gender	-.277 (.114) **	.081 (.086)
Age	.015 (.003) ***	.005 (.001) ***
Hometown	.439 (.074) ***	.451 (.082) ***
Occupation	.167 (.130)	.021 (.063)
Income	-.0002 (.0001)	-.0001 (.00005) *
Length	-.001 (.007)	.002 (.011)
Insurance	.073 (.090)	.068 (.077)
Total non-medical cost	-.0001 (.0001)	-.0002 (.0004)
Total medical cost	-.0009 (.0002) **	-.0003 (.0001) ***
_cons	-1.023 (.237)	-.635 (.123)

Number of obs in HMUH	= 75	Number of obs in VHH	= 75
F (9, 65)	= 9,78	F (9, 65)	= 19.90
Prob>F	= .0000	Prob>F	= .0000
R-squared	= .5557	R-squared	= .7109
Root MSE	= .4269	Root MSE	= .2274

\*: significant at 10% of significance level      \*\*: significant at 5% of significance level

\*\*\*: significant at 1% of significance level

For Chow test:      F (10, 130)      = 2.16      Prob > F      = .0244

Table 5.15 shows the association between mean of gap score of all dimensions and characteristic variables in 2 hospital. As result shown:

- In HMUH: there are statistically significant association between mean of gap score and gender, age, hometown and insurance.
- In VHH: there are statistically significant association between mean of gap score and age, hometown, income and total medical cost.

In this part, we show the association between mean of gap score in each dimension and characteristic variables of respondents in two hospitals from table 5.9

to table 5.15. Characteristic of patients add in these regression model which are also mentioned in previous studies with some significances in each dimension and overall dimensions.

**Gender:** gender is one of the important factors which can impact the assessment of the quality of healthcare. In our intuition, there are some differences in expectation and satisfaction between men and women. Women seem to tend their satisfaction lower than men for most healthcare services. On the other hand, men tended to be more positive over all about their hospital experience. Indeed, in our study, women usually express a higher expectation and lower perception than men do which causes a lower gap scores in female' satisfaction (Appendix) in each dimension. Gender has significant association with mean of gap score of Process, Technical skills, Environment dimension and in Overall dimensions in HMUH (Table 5.10, 5.12, 5.13 and 5.15). The results indicate that if patient is female, the gap score will be fallen. There is no significant association with any dimensions in VHH.

**Age:** age was also one of the most important basic factors affecting variation of satisfaction. Mikael Rahmqvist has concluded in his study that age was a feature determinant of the Patient Satisfaction Index (PSI) with elder patients scoring more highly and being more satisfied than young and adult patient (Mikael, 2001). In our own study, most patients in HMUH are older than in VHH with mean of age is 59.34 compared with 46.22 years. As same as relevant studies, age in our study also has a significant correlation between age and all dimensions of healthcare service as same as in VHH regardless Technical skills, and Environment dimension (Table 5.12, 5.13). The results show that the older patients are, the greater gaps score are.

**Hometown:** there are a high number of patients, who came from other provinces, participated in studies. During time of survey, they always express their satisfaction and surprise with quality of healthcare in two hospitals. Because the quality of hospital in their hometown were bad, terrible and lack of professional physician, so that they decided to go to hospitals in HCMC for a higher quality. The relation of this factor to patient' satisfaction has not been seen in previous studies; however, we expected that there would be a positive correlation with satisfaction. As a result shows, there is a significant association between hometown and all dimensions in both of hospitals (Table 5.9 to 5.15). The results refer that if patients come from province, there will be a significant increase of gaps score.

**Occupation:** Similarly to hometown, this element has not been mentioned previously. In regression, occupation is made dummy variable: Work and Un-work and we want to demonstrate that there is a correlation between work group and gap score in term of a positive trend. Because, in our own opinion, people, who are working, do not have much time and do not want to spend much time on treatment in crowded public hospitals. They perhaps want to finish treatment as soon as possible so that it is a reason they choose better hospitals like HMUH and VHH for their treatment, hence, they will easy to be satisfied with their choices. As we expected, the results indicate that there is a correlation between occupation and gaps score of Facility, Process, Environment dimension and gap score of Overall dimensions. The results presents that satisfaction will be increased if patients are in working group.

**Insurance:** a lot of patients used insurance for their payment in both of hospitals in the study. There are many various opinions in related to a correlation

between insured and uninsured with satisfaction of healthcare. According to the results from a study of Gallup, 85% of American with health insurance coverage are broadly satisfied with the quality of medical care they receive and with their healthcare cost, 15% who are uninsured are far less satisfied and only 27% are satisfied with their healthcare cost (Lydia, 2009). Conversely, in India, Devadasan mentioned that there is very little evidence that the relationship between using Community Health Insurance and satisfaction as well as there was no significant difference in the levels of satisfaction between the insured and uninsured patient in his study (Devadasan, 2011). In our opinion, occasionally, cost for treatment is always the most worrying factor for patients. Insured patients enjoy lower costs than those non-insured. Therefore, their satisfaction may exceed non-insured patients'. However, the result in study shows that indeed there is almost no correlation between Insurance and gap score in each dimension and overall dimensions. There is only a significant association between using insurance and Technical skills in HMUH which shows that if patient uses insurance for their treatment, the gap will be increased (Table 5.12). One of the defects is not to ask them whether their insurance is compulsory or voluntary. It may be obvious to recognize the difference if we compare within in Insured patients.

**Income:** At VHH, it has been observed that those patients without insurance usually pay out-of-pocket expenses more than those who have insurance; and this can be explained that their monthly income is higher than those at HMUH. In study, we add in factor “income” because we want to understand whether there is an effect from income on satisfaction of healthcare. Sara N. Bleich, whose study “How does satisfaction with the healthcare system related to patient experience”, found

that higher satisfaction among individuals with higher income per capita (Sara, 2007). Consequently, in our expectation, the more patients spend on treatment, the higher expectation they aim. The relationship between expectation and satisfaction will be represented by negative trend so that income and satisfaction indicate also a negative relationship. Income has a significant correlation with Process dimension in HMUH and Process, Overall dimensions in VHH. The result refers that the higher of income people earn per month, the slightly lower gaps score are.

**Length of stay:** Is the length of stay in hospital correlated with patient's satisfaction? That is a question that some administrators want to find out an answer. Borghans in his study referred that there is no correlation between length of stay and patient satisfaction in six out of seven specialties (Borghans, 2012). In contrast, in Japanese hospital, Tokunaga concluded that some unique satisfaction items (e.g. "skill of nursing care") for each group of length of stay ( $\leq 1$  week-group,  $1 \text{ week} < \leq 1$  month-group,  $> 1$  month) were significantly associated with overall satisfaction (Tokunaga, 2002). In our own opinion, normally, patients want to finish treatment as soon as possible. So, if a length of stay increases, they will suspect the quality of healthcare and will reduce their satisfaction. Actually, there is only significant negative correlation between length of stay and Environment dimension in HMUH. The result shows that if patient adds 1 day of staying in hospital for treatment, the gap will be declined.

**Total non-medical cost:** patients in HMUH expensed for their non-medical much more than patients did in VHH. Total non-medical cost in VHH is four times less than the cost at HMUH. No researchers focus on the influence of this factor to satisfaction in previous studies, but in our study, we want to demonstrate that the

lower gap score will happen if patients pay a lot for this cost. Normally, if they pay too much, they will feel uncomfortable and it will be one of the bad factors affecting satisfaction. Unfortunately, it is not as expected there is no correlation in each dimension and in overall dimensions between total non-medical cost and satisfaction score.

**Total medical cost:** in a study of Joshua Fenton, they found that patients who were most satisfied had about 9% higher total healthcare costs as well as 9% higher prescription drug expenditure. However, in our opinion, there are maybe two viewpoints: the more patients pay, the least satisfaction they feel. But, sometimes, people think that paying a higher cost for medical means higher quality received in return (e.g. brand name drugs imported from foreign countries appear to be much better than drugs made in Vietnam). Therefore, they pay a lot of money to get the quality of medical and feel satisfied with their decisions as well as greatly assess healthcare quality of hospital. Indeed, based on the results, we found that there is a significant negative trend between gaps score and total medical cost but as similar as income, only a small change when this cost increases. There is a significant association with Facility, Attitude dimension in particular in HMUH and Process, Environment, Overall dimensions in both of hospitals. The results show that in spite of a negative trend between gaps and cost, there is a small change in gap score.

In our study, there are some variables which show no correlation in each dimension and overall dimensions, for instance insurance, length of staying or total non-medical cost, at least total medical cost with a small change. They could be explained by some defects in our study. As we mentioned above, this is a first time we apply a new method to measure patient' satisfaction, hence, we only conduct

with a small sample in two hospitals, one public and one private. With a small sample, they may not express their correlation. Nevertheless, we only want to measure satisfaction and have a comparison between two hospitals in general; therefore, that perhaps causes no relation in some variables. In next studies in the future, we suggest that necessarily increase sample size, also survey outpatients and should classify patient into disease' group to have a accuracy in term of payment as well as cost that patients have to pay.

About Chow test, we conclude that in Overall dimensions, we need to run equation separately (significant at 5%).

**Table 5-16 Multivariate regression among patients in two hospitals for Overall average weighted score:**

Variable	HMUH		VHH	
	Coef (Robust S.E)		Coef (Robust S.E)	
Gender	-3.906**		-1.582	
Age	.259***		.081**	
Hometown	6.988***		6.486***	
Occupation	3.169		.769	
Income	-.001		-.001	
Length	-.055		.250	
Insurance	2.000		.693	
Total non-medical cost	.002		.0002	
Total medical cost	-.014***		-.006***	
_cons	-17.57		-7.960	
Number of obs in HMUH	= 75	Number of obs in VHH	= 75	
F (9, 65)	= 7.86	F (9, 65)	= 7.98	
Prob>F	= .0000	Prob>F	= .0000	
R-squared	= .5358	R-squared	= .5272	
Root MSE	= 7.0504	Root MSE	= 4.7877	
*: significant at 10% of significance level		***: significant at 5% of significance level		
***: significant at 1% of significance level				



For Chow test:  $F(10, 130) = 2.02$        $\text{Prob} > F = .0359$

In this table, we attempt to run another regression among patient' characteristics with average weighted score of overall dimensions. The result will compare with the results of Overall mean of gap score. It indicates that there is the same statistically association with gender, age, hometown and total medical cost in HMUH as well as age, hometown, total medical cost in VHH like Overall mean of gap score but the magnitude of values is larger than with Overall mean of gap score. Average weighted score refers to the quality of overall dimensions or the quality of healthcare service. Therefore, the result helps us to understand the influences of patient' characteristics to the quality of healthcare service, not only specific to patient' satisfaction in hospitals. This matter has not been mentioned in another studies as well as in SERVQUAL technique, hence, we should hope this is a new detection, a new method to help administrators understand clearly the strongly effect of important patient role to the quality of hospital.

About Chow test, we conclude that in Average Weighted score, we need to run equation separately (significance at 5%).

5.6. THE DIFFERENCES OF COEFFICIENT IN EACH VARIABLE BETWEEN 2 HOSPITALS:

Table 5-17 The difference of coefficient in each variable between 2 hospitals with Overall Gap Score

VARIABLE	DIFFERENCE COEFFICIENT	T-TEST
Gender	-.31	-1.64
Age	.008	2.26 **
Hometown	.07	.55
Occupation	.03	.19
Income	-.0002	-1.13
Length	-.02	-1.48
Insurance	.25	1.63
Total non-medical cost	.0006	.99
Total medical cost	-.0005	-2.39 **

\*: significant at 10% of significance level      \*\*: significant at 5% of significance level

\*\*\*: significant at 1% of significance level

To test the difference of coefficient in each variable in regression with Overall Gap score between 2 hospitals, the result shows that there are two differences between 2 hospitals about age and total medical cost (statistically significant at 5% level).

Table 5-18 The difference of coefficient in each variable between 2 hospitals with Average Weighted Score:

VARIABLE	DIFFERENCE COEFFICIENT	T-TEST
Gender	-2.52	-.82
Age	.14	2.38 **
Hometown	2.39	1.05
Occupation	-.31	-.12
Income	-.003	-.87
Length	-.52	-2.42 **
Insurance	3.55	1.46
Total non-medical cost	.007	.73
Total medical cost	-.008	-1.91 *

\*: significant at 10% of significance level      \*\*: significant at 5% of significance level

\*\*\*: significant at 1% of significance level

To test the difference of coefficient in each variable in regression with Average Weighted score between 2 hospitals, the result shows that there are three differences between 2 hospitals about age, length (statistically significant at 5% level) and total medical cost (statistically significant at 10% level).

## Chapter 6

### CONCLUSION AND SUGGESTION

In Vietnam, recently, healthcare has been grown up rapidly along with some challenges of maintaining sustainable and developing. In chapter 2, we have mentioned the role and the importance of patients and their satisfaction in term of validating the quality of healthcare in hospital or health system. However, currently, there are few studies to consider about this topic. Most studies conducted is usually simple, unspecific and not able to determine which elements administrator should be considered for an adjustment and an improvement. They prefer to do some studies in related to assess effectiveness of treatment or therapies, which is often seen as a scale of quality for hospital. On the other hand, not appreciate the crucial of patient' role as well as benefits or lacking of instruments, valuable tools or not understanding clearly what satisfaction they have to measure on patient are also a barrier to restrain them from doing this research field. Therefore, that is a reason why this study is expected to be the best value instrument for applying in hospital and to be the hinge for another studies after.

**After conducting study, we can conclude that**

- **SERVQUAL technique is actually demonstrated to be a reliable and usefulness technique** to assess the patient' satisfaction as well as determine the quality of healthcare service in hospitals.
- **The study satisfied our own initial objectives.**
- In an objective to compute the mean score of expectation, perception and gap score for six dimensions. The results in Table 5.5 show that the

expectation of patient in both of hospitals is very high (ranging from 4 point to 5 point) in each dimensions. However, patients in HMUH perceived much more than patients in VHH did regardless in Progress and Information, which the results in HMUH are as same negative score as the results in VHH.

- In an objective of determining the satisfaction of inpatients for each dimension and overall dimensions, table 5.6 presents that all dimensions in VHH have a negative gap score, which means patients in VHH unsatisfied with healthcare service in this hospital. On the other hand, regardless Process and Information dimension, patients in HMUH feel that they have been perceived much more than they expected before in rest dimensions. To compute the total average gap score, two hospitals have a negative average gap score (-.02 in HMUH and -.28 in VHH) which means in term of total service quality, two hospitals have not met the expectation of patients.

- One of the interesting feature of SERVQUAL technique is to compute importance weight score for scaling the quality in each dimensions of healthcare service. The result in table 5.7 presents that in both of hospitals, “Technical skill” and “Attitude” is seen as the most important in 6 dimensions, whereas, “Information” is the least important. The combination between satisfaction score and importance weighted score gave us the score for ranking the quality in each dimension. Table 5.8 shows that in HMUH, “Technical Skills” ranks the first, next are “Environment”, “Attitude of staffs”, “Facilities and Material”, and “Process feature”. The last one is “Information and Education”. On the other hand, in VHH, “Attitude of Staffs” ranks at first, next in turn are “Process feature”, “Environment”, “Facilities and Material” and “Information”, the last is “Technical Skills”.

- About the correlation between gaps mean score in each dimension and characteristics of patients.

***With Facilities dimension***, table 5.9 presents that

- In HMUH: there are statistically significant association between mean of gap score and age, hometown and total medical cost

- In VHH: there are statistically significant association between mean of gap score and age, hometown and occupation.

***With Process dimension***, table 5.10 presents that

- In HMUH: there are statistically significant association between mean of gap score and gender, age, hometown, occupation, income, total non-medical cost and total medical cost.

- In VHH: there are statistically significant association between mean of gap score and age, hometown, income and total medical cost.

***With Attitude dimension***, table 5.11 presents that

- In HMUH: there are statistically significant association between mean of gap score and age, hometown and total medical cost

- In VHH: there are statistically significant association between mean of gap score and age and hometown.

***With Technical skill dimension***, table 5.12 presents that

- In HMUH: there are statistically significant association between mean of gap score and gender, age, hometown and insurance.

- In VHH: there are only a statistically significant association between mean of gap score and hometown.

*With Environment dimension*, table 5.13 presents that

- In HMUH: there are statistically significant association between mean of gap score and gender, age, hometown, occupation, length and total medical cost.
- In VHH: there are two statistically significant association between mean of gap score and hometown, total medical cost.

*With Information dimension*, table 5.14 presents that

- In HMUH: there are statistically significant association between mean of gap score and age and hometown.
- In VHH: there are two statistically significant association between mean of gap score and age, hometown

- About the correlation between gaps mean score of overall dimensions and characteristics of patients. Table 5.15 shows that:

- In HMUH: there are statistically significant association between mean of gap score and gender, age, hometown and insurance.
- In VHH: there are statistically significant association between mean of gap score and age, hometown, income and total medical cost.

### **Recommendation**

According to results in Chapter 5, although gap score in 2 hospitals are equal negative, which means the quality of healthcare services in both of hospitals have not met patients' expectation. However, the quality in each dimension of healthcare service in HMUH is better than in VHH. The crucial weakness in HMUH is providing information that should be improved strongly in the future because it is a main

factor to lead the gap score down. Conversely, in VHH, a lot of things should be discussed together again among accountants in hospital' conference in order to determine the limitations, weaknesses and give out solutions to work-out, improve, reform or need to change for getting better results in the future.

Furthermore, some regression models give us the evidences of influences of patients' characteristics to satisfaction with hospital services. It is very important and precious for managers to determine respondents or specific groups, who should be taken into account to improving quality of healthcare appropriately as well as in constructing Marketing plan to attract people in the future. For example:

- In HMUH, we recommend to improve strongly in terms of providing information to inpatients. On the other hand, changing in process features should be considered deeply; especially to abridge timeliness in each process. Overall satisfaction correlates to gender, age, hometown and total medical cost as same as we expected before. Especially, hospital should pay more attention with female patients.
- In VHH, we recommend administrators and managers should discuss together again about overall quality of healthcare and patients' satisfaction. VHH is seen as a famous hospital with the quality of healthcare services, includes high technique equipment, facilities, material and a professional performance of process and physician. However, the result at this moment is absolutely converse. All dimensions should be taken into account deeply and considerably; especially in providing information and environment.

On the other hand, total medical cost also influences to satisfaction with a tiny negative change. The reason is lack of classifying into disease groups we will have a



particular total medical cost. In next studies, we recommend that should measure satisfaction in each specific group of disease.

A new detection of running regression of average weighted score is expected to be a new scale in term of determine the influences of factors to the quality of healthcare services in hospitals.

Finally, we can determine that this method has met our ambitious and expected objectives as well. In spite of some limitations, this method has expressed its usefulness and appropriate for applying in Hospitals in HCMC.

**Limitation in our study:**

We recognize that there are some limitations in our own study:

- The small sample size.
- Total medical cost is not clearly explanation for the association with the satisfaction of patients because we did not classify into their own illness. Each illness will have a particular cost for treatment and the satisfaction is also different among these patients.
- Heterogeneity in the group of patients who respond to questionnaire might be large, because different groups of people will visit the two types of hospitals.

## REFERENCES

- Andaleeb, S.S. (1998). Determinants of customer satisfaction with hospitals: A managerial model. International Journal of Health Care Quality Assurance, 11, 181-187.
- Andaleeb, S.S., et al. (2007). Patient satisfaction with health services in Bangladesh. Health Policy Plan, 22(4), 263-273. doi: 10.1093/heapol/czm017
- Annamalai, S., Jothi, J., et al. (2011). Quality Measurement for Hospital Services. IACSIT Press, Singapore, 12
- Arikan, Y.S. (1999). Effect of nursing service on patient satisfaction. Marmara University. Istanbul, Turkey., Health Sciences Institute.
- Babakus, E., Mangold, W.G. (1992). Adapting the SERVQUAL scale to hospital services: An empirical investigation. Health Sciences Research, 26(2), 767-786.
- Borghans, I., Kleefstra, S.M., et al. (2012). Is the length of stay in hospital correlated with patient satisfaction? Int J Qual Health Care, 24(5), 443 - 451 doi: 10.1093/intqhc/mzs037
- Brown, R.B., Bell, L. (1998). Patient-centred audit: A users' quality model. Managing Service Quality, 8(2), 88-96.
- Campbell, J.L., Ramsay, J., Green, J. (2001). Age, gender, socioeconomic, and ethnic differences in patients' assessments of primary care. Qual Assur Health Care, 10, 90-95.
- Canel, C., Fletcher, E.A.A. (2001). An analysis of service quality at a student health center. International Journal of Health Care Quality Assurance, 14(6), 260-267.
- Claire, R.B. (2007). Where are the patients in the quality of health care? Int J Qual Health Care, 19(3), 125-126. doi: 10.1093/intqhc/mzm009
- Crow, R., Gage, H., et al. (2002a). The measurement of satisfaction with healthcare: implication for practice from a systematic review of the literature. Health Technol Assessment, 32, 45-51.
- Crow, R., Gage, H., et al. (2002b). The measurement of satisfaction with healthcare: implications for practice from a systematic review of the literature. Health Technol Assess, 6(32), 1-244.
- Dagger, T. S., Sweeney, J. C. (2006). The effect of service evaluations on behavioural intentions and quality-of-life. Journal of Service Research, 9(1), 2-19.
- Davoll, S., Kowalski, C., et al. (2013). "Tendency to excuse" and patient satisfaction of those suffering with breast cancer. Int J Public Health, 58(3), 385-393. doi: 10.1007/s00038-012-0405-6

- Devadasan, N., Criel, B., et al. (2011). Community health insurance schemes & patient satisfaction - evidence from India. Indian Journal of Medical Research, 133(1), 40 - 49
- Donabedian, A. (2003). An introduction to quality assurance in healthcare. Oxford University Press, New York.
- Donthu, N. (1991). Quality control in services industry. Journal of Professional Service Marketing, 7(1), 31-54.
- HRSDC. (2007). Health - Patient Satisfaction. Well-being home in Canada. Retrieved 10th April, 2014, from <http://www4.hrsdc.gc.ca/.3ndic.1t.4r@-eng.jsp?iid=7>
- Iloh, G., Ofoedu, J., et al. (2013). Satisfaction with Quality of Care Received by Patients without National Health Insurance Attending a Primary Care Clinic in a Resource-Poor Environment of a Tertiary Hospital in Eastern Nigeria in the Era of Scaling up the Nigerian Formal Sector Health Insurance Scheme. Ann Med Health Sci Res, 3(1), 31-37. doi: 10.4103/2141-9248.109471
- Jabnoun. N., Al Rasasim A.J. (2005). Transformational leadership and service in UAE hospital. Managing Service Quality, 15.
- Janssen, C., Ommen, O., et al. (2013). Importance weighting, expectation fulfilment and satisfaction: an integrative and innovative approach to measuring patient satisfaction with hospital stays. Int J Public Health. doi: 10.1007/s00038-013-0517-7
- John, R., Ronda, G.H., Mike, R.M. (2008). Patient Safety and Quality: An Evidence-Based Handbook for Nurses. (Vol. Agency for Healthcare Research and Quality ed.). USA.
- Joshua, J.F., Anthony, F.J., et al. (2012). The Cost of Satisfaction: A National Study of Patient Satisfaction, Health Care Utilization, Expenditures, and Mortality Arch Intern Med, 172(5), 405 - 411. doi: 10.1001/archinternmed.2011.1662
- Judith, H.H. (2004). New Roles for Patients and Consumers in Assuring High Quality Care. Medicine and Society. 2004, from <http://virtualmentor.ama-assn.org/2004/06/msoc1-0406.html>
- Ladhari, R., Rigaux, B.B. (2013). Determinants of patient satisfaction with public hospital services. Health Mark Q, 30(4), 299-318. doi: 10.1080/07359683.2013.844015
- Lam, S.S.K. (1997). SERVQUAL: A tool for measuring patient's opinions of hospital service quality in Hong Kong. Total Quality Management, 8(4), 145-152.
- Lech, M.M., Petryka, I. (2002). Evaluation of patients' satisfaction in relation to private or public health care providers. Wiad Lek, 55(1), 313 - 320.
- Lydia, S. (2009). Cost is foremost Healthcare Issue for Americans. Retrieved 23rd Sept, 2009, from <http://www.gallup.com/poll/123149/cost-is-foremost-healthcare-issue-for-americans.aspx>

- Maldonado, R.W., Morales, L.S., et al. (2003). Race/ethnicity, language, and patients' assessments of care in Medicaid managed care. Health Serv Manage Res, 38, 789-808.
- Marc, N.E., William, G.L., et al. . (2012). Gender Differences in Patients' Perceptions of Inpatient Care. Health Research and Education Trust, 47(4), 1482 - 1501. doi: 0.1111/j.1475-6773.2012.01389.x
- Mikael, R. (2001). Patient satisfaction in relation to age, health status and other background factors: a model for comparisons of care units. International Journal for Quality in Healthcare, 13(5), 385 - 390.
- Parasuraman, A., Berry, L.L., Zeithaml, V.A. (1991). Refinement and reassessment of the SERVQUAL scale. Journal of Retailing, 64, 420-450.
- Power, J.D. (2012). Patient satisfaction more influenced by hospital staff than facilities. Healthcare Finance News. from <http://www.healthcarefinancenews.com/news/patient-satisfaction-more-influenced-hospital-staff-facilities>
- Reicheheld, F., Sasser, W. (1990). Zero Defections: quality comes to services. Harvard Business Review, 68(5), 105-111.
- Sara, N.B., Emre, Ö., Christopher J.L.M. . (2007). How does satisfaction with the health-care system relate to patient experience? Bulletin of the World Health Organization(87), 271 - 278 doi: 10.2471/BLT.07.050401
- Scardina, S. A. (1994). SERVQUAL: A tool for evaluating patient satisfaction with nursing care. Journal of Nursing Care Quality, 8, 38-46.
- Schmittdiel, J., Grumbach, K., et al. (2000). Effect of Physician and Patient Gender Concordance on Patient Satisfaction and Preventive Care Practices. Journal of General Internal Medicine(15), 761 - 769.
- Sohail, S.M. (2003). Service Quality in Hospitals: More Favourable Than You Might Think. Managing Service Quality, 13(3), 197-206.
- Spreng, R.A., MacKenzie, S.B., Olshavsky, R.W. (1996). A re-examination of the determinants of consumer satisfaction. Journal of Marketing, 60, 105-111.
- Stuart, N.S. (2007). Canadian Perceptions of the Healthcare System *A report to the Health Council of Canada* (pp. 15 - 45). McGill University.
- Tokunaga, J., Imanaka, Y. (2002). Influence of length of stay on patient satisfaction with hospital care in Japan. Int J Qual Health Care, 14(6), 493 - 502.
- Verbeek, J., Dijk, F.V. (2001). Consumer satisfaction with occupational health services: should it be measured? Occup Environ Med, 58(4), 272-278.
- WHO. (2006). Quality of care: a process for making strategic choices in health systems (ed.). World Health Organization.

Zahida, A., Amanat, A.J. (2012). Healthcare facilities and Patients satisfaction: a case study of civil hospital Karachi. Interdisciplinary Journal of Contemporary Research in Business, 4(1), 781 - 799.

Zaslavsky, A.M., Zaborski, A.B., et al. (2001). Adjusting performance measures to ensure equitable plan comparisons. Health Care Financing Review, 22, 109-126.



APPENDIX



จุฬาลงกรณ์มหาวิทยาลัย  
**CHULALONGKORN UNIVERSITY**

## QUESTIONNAIRES

### PART 1: GENERAL INFORMATION

- G1. Your gender: 0.  Male 1.  Female
- G2. Your nationality 0.  Vietnamese 1.  Foreigner
- G3. Your age ..... (years old)
- G4. Your occupation 1.  Civil servant 2.  Private sector  
3.  Housewife 4.  Un-employ  
5.  Elderly/ Retire 6.  Freelance
- G5. Your income per month: ..... (VND/ USD)
- G6. Length of stay in hospital ..... (Days)
- G7. Payment 0.  Non-insurance 1.  Insurance
- G8. Patient's cost for treatment
- Direct Cost: MEDICAL
    - G8.1. Doctor fee ..... (VND/ USD)
    - G8.2. Drugs ..... (VND/ USD)
    - G8.3. Hospitalization ..... (VND/ USD)  
(Surgery, laboratory test,...)
    - G8.4. Rehabilitation ..... (VND/ USD)
  - Direct Cost: NON-MEDICAL
    - G8.5. Transportation ..... (VND/ USD)
    - G8.6. Food ..... (VND/ USD)
    - G8.7. Bedroom ..... (VND/ USD)
    - G8.8. Others ..... (VND/ USD)

## PART 2: TO SURVEY PATIENT'S EXPECTATION

<i>Before admitted, do you agree with these expected ideas below?</i>	AGREE				
	1	2	3	4	5
<b>Facilities and Material</b>					
Hospital will have modern equipment					
Hospital will have enough facilities (bed, seat, etc.)					
Hospital will have enough material (instruction, map, etc.)					
Hospital staffs will perform professional appearance					
<b>Process feature</b>					
Quick process in information recoding area					
Quick and convenience in clinics, laboratory, pharmacy					
Quick in doing TEST and receiving result					
Quick procedure in admitted and discharge					
Quick procedure for payment					
<b>Attitude of Staffs</b>					
Doctor will perform respect and politeness to patient					
Doctor will listen carefully to patient					
Doctor will explain in a way of understanding					
Nurse will perform respect and politeness to patient					
Nurse will listen carefully to patient					
Nurse will explain things in a way of understanding					
Other staffs will perform Respect and politeness					
<b>Technical Skill of Doctor and Nurse</b>					
Doctor will have more knowledge and experience of patient' illness					
Doctor will respond promptly when patient need					
Nurse will perform professional skill & experience in support patient					



<i>Before admitted, do you agree with these expected ideas below?</i>	AGREE				
	1	2	3	4	5
Nurse will respond promptly respond when patient need					
<b>Environment and Hygiene</b>					
Environment in hospital will be airy, freshly					
Hygiene in hospital will be assured					
Hospital will assure the silence in inpatient ward					
Hospital will assure security for safety of patient					
<b>Education and Information</b>					
Hospital provide enough leaflet, booklet, paper about disease, prevention, etc. to patient.					
Hospital will usually open education class about disease, prevention, etc. to patient.					

## PATIENT'S QUESTIONNAIRE

## PART 3: TO SURVEY PATIENT'S PERCEPTION

<i>Do you agree with these idea below after length of staying at Hospital?</i>	AGREE				
	1	2	3	4	5
<b>Facilities and Material</b>					
Hospital has modern equipment					
Hospital has enough facilities (bed, seat, etc.)					
Hospital has enough material (instruction, map, etc.)					
Hospital staffs performed professional appearance					
<b>Process feature</b>					
Quick process in information recoding area					
Quick and convenience in clinics, laboratory, pharmacy st					
Quick in doing TEST and receiving result					
Quick procedure in admitted and discharge					
Quick procedure for payment					
<b>Attitude of Staffs</b>					
Doctor performed respect and politeness to ME					
Doctor listened carefully to ME					
Doctor explained in a way of understanding to ME					
Nurse performed respect and politeness to ME					
Nurse listened carefully to ME					
Nurse explained in a way of understanding to ME					
Other staffs performed respect and politeness to ME					
<b>Technical Skill of Doctor and Nurse</b>					
Doctor has more knowledge and experience of MY illness					
Doctor responded promptly when I need					
Nurse performed professional skill & experience in support ME					

<i>Do you agree with these idea below after length of staying at Hospital?</i>	AGREE				
	1	2	3	4	5
Nurse responded promptly respond when I need					
<b>Environment and Hygiene</b>					
Environment in hospital is very airy, freshly and hygiene					
Hygiene in hospital will be assured					
The silence in inpatient ward is very good					
I feel be safe during last days					
<b>Education and Information</b>					
Hospital provided enough leaflet, booklet, paper about disease, prevention, etc. to patient.					
Hospital usually open education class about disease, prevention, etc. to patient.					

### PATIENT'S QUESTIONNAIRE

#### PART 4: TO SURVEY IMPORTANCE WEIGHT

We would like to know how much each of these features is important to the PATIENT. Please allocate 100 points among the six features according to how important it is to you. Make sure the points add up to 100.

Contents	Scores
Importance of <b>Facilities</b>	
Importance of <b>Process</b>	
Importance of <b>Attitude</b>	
Importance of <b>Technical Skill</b>	
Importance of <b>Environment</b>	
Importance of <b>Information</b>	
<b>TOTAL 100 points</b>	<b>100</b>

## VITA

Birthday : 22nd April, 1986  
Hometown : Ho Chi Minh City, Vietnam  
Address : 163/29/53 To Hien Thanh Str., Dist.10, Ward 13, HCMC,  
Vietnam  
Occupation : Lecturer at Department of Healthcare Management,  
Faculty of Public Health,  
The University of Medicine and Pharmacy  
Email address : thanhluan224@yahoo.com  
Cell phone No : (+84)938-224-102