CHAPTER 1

INTRODUCTION

1.1 Rationale

Technologies, vaccines and drugs have the important contributions to the quality and expectancy of human life. Now people live longer than before. Many of the dreadful infectious diseases in the past are under control. Advances in health technology, delivery being safe for mother and infant. People can delivery the family size and space their children to suit their lifestyle. They can also raise a healthy family when they are ready. Better quality of life has been achieved through better management of chronic diseases.

New medical technologies have been used all over the world both in developed or developing countries. High technology in medicine is intended to improve the quality of patient management. In general, this include two main aspects of patient management ie: diagnostic and curative.

High technologies also come with high cost and often create unwarranted complications, which giving rise to inequity, inefficiency, and poor quality of health care, largely due to suboptimal facility planning, technical and managerial inefficiency.

Thus, the most medical technological advancement countries, which do not necessarily ensure that their population enjoy good health. The situations in developing country could be worse off in order to less strict mechanism for technology assessment and control of procurement.

In many country, MRI has been rapidly adopted on the assumption that it will improve the capacity to diagnose some disorders less invasively, more quickly, and with better outcomes. Like in many other countries, MRI is widely accepted, adopted and used in Thailand although there is still limited formal evidence of effectiveness in regard to its impact on patient management, particularly outside the hospital setting. This has lead to a significant growth of import of the MRI expensive equipment, which requires high initial capital investment cost and also incurs high maintenance cost, without and effective regulatory mechanism to control the procurement and distribution.

Medical technologies have also imposed a demand on qualifications of health personnel in the health care system. It is generally accepted that the number of well trained help professionals is unlikely to be sufficient in provision of equitable, effective and efficient care for the populations. For example, Thailand has about 60 million populations with about ten

thousand medical doctors. It is impossible and infeasible for every patient to get access to care by physicians for all of their illness episodes.

In addition, medical technology has developed so quickly that many policy makers and health care providers have not been able all willing to keep updated technological advances to make decisions. Sales promotions of technologies have been actively targeted toward the general public, decision makers, and health care practitioners.

To a certain extent information is available on the diffusion and utilization pattern of MRI in Thailand. A study of Tangchareonsathien (1994) showed that the number of units installed in Thailand were 20 of which 75 % in Bangkok. The proportion installed in the private sector was 60 %. For the same year the majority installed in the public sector were in medical schools (88 %) while the MRI's in the private sector were allocated to MRI diagnostic centers (42%), private hospitals not listed on the stock market(33%)and private hospital listed on the stock market(25%).

MRIs installed in Bangkok seem to be overutilized while those installed in hospital outside Bangkok are underutilized due to the lack of technical personnel which will result in additional cost. However, data on the efficient use of MRI and information on the equitable access to MRI is still lacking in Thailand.

MRI is able to produce images without the use of ionizing radiation and the use of contrast media, both of which are known associated with health risks. The long term risks of exposure to the magnet and radio wave of MRI are not known because the technology has been in use only since the 1980's.

Before MRI was introduced, computed tomography was the main diagnostic imaging technology being used. Now, there is a consensus that MRI has remarkably advanced the diagnostic accuracy in examinations of the brain and the spinal cord. The conditions better diagnosed by MRI include tumors, particularly those situated in the base and posterior fossa , malformations, degenerative diseases, possibly epilepsy. It is expected that MRI will be the only imaging used in patient with suspect sellar tumors, acoustic neuromas, tumors at the cranial base and multiple sclerosis.

CT scan , however, remains the examination of choice for acute cerebrovascular disease and trauma. " A rather large group of diseases likely will be investigated using both CT and MRI.

In the back region, MRI has proven superior to CT scan in the diagnosis of tumors, infections, inflammations, condition following trauma (herniated disks) and the generative diseases. However CT scan produced better images of bones in the back.

Musculoskeletal application are also one area of superiority, particularly in the diagnostic of tumors, joint (knee) trauma and bone inflammation. Also, because it does not use ionizing radiation, it is expected to be used more widely in the obstetrics and pediatric population.

More recent MRI application include imaging of the heart and vascular system, liver, pancreas, kidneys and pelvic organs but its superiority has not yet been proven. In conclusion, diagnostic improvements resulting from MRI mainly involve the central nervous system, the spinal cord and the neuromuscular system.

This study will describe the present pattern of diffusion of MRI in Thailand to access the factors that determine the pattern of diffusion. Given the present economic and financial decline in the South East Asian region the impact of this crisis in Thailand on the diffusion of MRI will be investigated. This information will result in policy recommendations.

1.2 The research questions

Primary Research Question (s)

1.What is the MRI diffusion situation ?

2.Which factors influence the utilization of MRI ?

3.What is MRI financing structure and the alternative investment ?

4.What is the unit cost and cost recovery of utilizing MRI ?

1.3 The objectives of the study

The general objective is analyze the situation and performance of Magnetic Resonance Imaging (MRI) in Thailand. The specific objectives of this study are :

1.To determine the MRI diffused situation in private and public hospitals in Thailand

2.To study the utilization patterns using MRI including patient characteristics.

3.To evaluate situation of MRI expenditure (from the public and private perspective).

4.To study financial aspects and the information will result in policy implications of MRI.

1.4 The scope of the study

This thesis will describe the current situation and problems relevant to MRI usage in Thailand, there are two limitations in this study. Firstly, the study has focused on utilization and financial aspects of MRI without comparable measure of effectiveness. So that it does not represent directly whether which MRI in Thailand is the most cost-effectiveness.

Second, the sample was investigated purposely from the one public hospital in Bangkok will be studied due to their difference in service behavior. The appropriate study design for one private diagnostic center in outside Bangkok which the financial data is not availability and due to time frame of study. The data collected within time frame (from the end of February to March 1998) and related to retrospective patient' s data was selected.

1.5 The expected benefits of the study

The benefit of this study is come first to identify potential problems relevant to MRI usage which informs policy decision whether to use MRI more efficiency. Since Thailand is at this time is involved an economic crisis, it is more important than ever to rationalize the use of expensive technology by using it more efficiently.

The results of the financing aspect are also important inputs into strategic planning for MRI distribution and informs them to make appropriate decisions on purchasing of this technology in the future due to reduce complicated investment in Thailand.

Finally, after we understand current situation of MRI usage and distribution, for further study who do other cost-effectiveness analysis of MRI project may use this result to make comparison between public and private sector in order to identify which alternative approach is the cost-effectiveness.