CHAPTER 2

LITERATURE REVIEW

2.1 Medical Education Programme

According to Abeykoon and Mattock (WHO, 1996) the first school of western medicine was established at Siriraj Hospital in 1889. At first the curriculum covered a period of three years. In the first class there were nine students who graduated in 1893. The curriculum was gradually expanded after 1902 to four years in 1903 and to five years in 1923 and finally it has increased to a six – year programme. This was under the influence of HRH, Prince Mahidol of Songkhla and with the assistance of the Rockefeller Foundation. While the curriculum was revised to assume the basic structure it has since retained matching international standards. The curriculum consists of one year of pre-medical science education, which is studied on completion of high school education and is included in the six years of medical education. Medical education in the country has been revised continuously to suit the country's needs. This is because of relative shortage of doctors in rural areas, the population has increased. At the present time there are 11 government universities and 1 private university. To meet the national health goal of HFA, all university will continue to evaluate and revise their medical curriculum.

The national health policy is stated in every Health Development Plan. The Seventh Five years National Health Development Plan (1990-1996) is geared towards health for all, quality of life and basic minimum needs. The core of the plan is based on coverage and quality, integrated development and relevance to local needs and self-reliance. Items of the Seventh Health Development Plan which relate to manpower include: improving the quality and efficiency of health services at all levels by developing lower level health services for coping with endemic disease and emergency care. In order to reduce the heavy utilization of hospitals in major cities, they are developing the provincial hospitals and improving the efficiency of the referral system and staffing community hospitals with at least one physician. Other items of the Plan include ensuring that people in all walks of life have access to medical care and that the

quality of life is improved. Currently the population growth rate is 1.2 per cent per year and life expectancy of 71.74 years for females and 67.36 for males. The death rate is expected to decline to 4.4 per 1000 people per year. During the First and Second National Development Plan (1961-1971), the emphasis in health manpower was on the production of physicians and nurses. The goal was to achieve a doctor in a population ratio of 1:2700 by the end of Second National Health Development Plan. Even now there is a demand to produce more doctors per year than the present capability allows.

In the past ten years, during the Sixth and Seventh National Economic and Social Plans, Thailand has changed rapidly from agricultural-based to an industrial-based country. The average GNP has increased seven to ten per cent yearly and the current income per capita is around US$1800. People have migrated from the rural areas to work in the city and the health of the population is now threatened by both the environment and behavior of the people. The pattern of health problems in the country has changed from that of diseases characteristic of the poor (such as malnutrition, infectious and parasitic diseases) to that of diseases characteristic of the wealthy (such as heart disease, hypertension and trauma). Health services are in demand from both the government and private sector; while the distribution, performance and attitudes of physicians are changing according to the social demand. These issues are the cause of the rapidly increasing health expenditure. The government and other concerned organizations are fully aware of these problems as well as the Ministry of Public Health. The Ministry of University Affairs and the Thai Medical Council have established policy to reorient medical education by increasing the number of medical schools as well as student admissions and reorienting the medical curriculum. The medical curriculum is geared towards community-oriented and student-centred or problem-based learning. Now in Thailand there are eleven government medical schools and one private school. Only four medical schools are situated outside the Bangkok area: one in the north, one in the east, one in the north-east and one in the south of the country. Due to rapidly increasing economic and social demand for private health care, politicians and economists agree to increase the number of physicians to meet this demand. For that reason, the new medical schools, including the private school, were established over tens years. The number of new admissions has increased yearly, and currently new admissions are around one thousand per year.

2.2 Medical Curriculum

Approximately twenty years ago, education leaders in Thailand became concerned about the mal - distribution of doctors in the country. There was shortage of rural physicians relative to the total population in the country. To solve the problem, the medical schools, with the cooperation of the Ministry of Public Health, introduced a community-based medical curriculum. The medical schools outside Bangkok, namely Chiangmai, Khonkaen and Prince of Songkla added community-based studies to the curriculum. Chulalongkorn University launched a community-based curriculum know as the Medical Education for Students in Rural Areas Project (MESRAP).

In 1964, the Second National Conference on Medical Education (Varavithya, 1982) aimed at producing the basic doctor. Upon graduation, he / she would gain adequate knowledge and practice. In addition they would become an intern for one year then progress to become a general practitioner. The objectives of the curriculum were:

1) The graduate had to understand the basic principles of medical science and to acquire the arts of medical practice including the performance of physical examination, diagnosis, curative and preventive medicine in general.
2) He / she would gain an adequate general education that would develop his personality and he / she would be able to confirm to society. He / she would also develop the ability to solve basic problems confronting him.
3) He / she would have good conduct, morality, medical ethics, and a good attitude towards medicine, patients, colleagues and people.
4) He / she would be encouraged to acquire the habit of an ability for self – education as a life-long process.

In comparing the four medical schools, three schools in Bangkok have their objectives relevant to the whole country. The objectives of Khon Kaen are relevant to schools especially in Northeast Thailand. Khon Kaen also emphasizes the affective domain in community health.

The Thai policy is now geared towards Health for All and Basic Minimum Needs of the people. The medical schools have responded to the policy by reorienting the medical curriculum towards the community-based and problem-based education. All medical schools in Thailand have developed Medical Education Centres (MECs). These centres serve administrators by providing educational services and acting as change agents. Staff development, with regard to educational policy, education aims, curriculum development, innovative curriculum design, teaching and learning, and evaluation, is very active at the moment.

Khon Kaen Medical Education Centre adopted the new medical curriculum developed in 1997 by the faculty of Medicine at Khon Kaen University. The medical student, under the CPIRD project of Khon Kaen MEC, study at the faculty of medicine during the 1^{st} – 3^{rd} year, then move to Khon Kaen MEC for further study in clinical practice in the 4^{th} – 6^{th} year. (See MEC medical curriculum attach in appendix I, II)

2.3 The Cost of Education

Based upon the definition of economics and education, a definition of the economics of education emerges (Elchanan & Terry, 1989). The economics of education is the study of how men and society choose, with or without the use of money, to employ scarce productive resources and to produce various types of training. The development of knowledge, skill, mind, character and so forth. The economics of education is concerned with (1) the process by which education is produced. (2) the distribution of education among competing groups and individuals and (3) questions regarding how many school years be spent by society (or any of its component individuals) on educational activities, and what types of educational activities should be selected.

Since education is not a private good, and is not subjected to the full rigor of market competition. It has been argued that there is a need to institute on educational syllabus to insure the optimal use of resources. The major economic determinant of an investment in a medical education is the expected rate of return (Feldstein, 1993) and one component of the rate of return is the price, or tuition, of a medical education. The

supply side of the medical education sector then would consist of many firms, economies of scale. This may result in the library and clinical facilities not being large enough or being sufficiently lower in cost to preclude competition from other firms. Further, it would be expected that the schools would take advantage of any economies of scale that would improve their competitive position. Each school, in addition to moving to that size of operation that was of lowest per unit cost (for the size of product it was producing) would also attempt to minimize its own costs of operation. The incentives for cost minimization would come from the school's desire to increase its revenues. Tuition, under the current system of medical education does not serve as a equilibrating mechanism, since medical schools are not very reliant on tuition as a source of revenue. Medical schools receive large relatively unrestricted government subsidies. The large educational subsidies receive permit the schools to set tuition levels below actual cost of production.

Wibulpolprasert et al (1997) estimated a figure of 1.8 million baht to train a medical school graduate in a public university, slightly lower for a dentist (1.6 million baht). For the cost of production of one medical doctor, the government could produce twice as many pharmacists and eleven as many nurses. Government universities are heavily subsidized by general tax revenues (NEC, 1985). Tuition fee and the direct private costs borne by the trainee, play a minute role, and demonstrate personal costs borne by the trainees is a small fraction (average 6.8 per cent) of the government operating budget. This proportion is highest, 19.2 per cent, among universities that mainly produce social science graduates i.e. Thammasart and Prasarnmitr Universities, where the cost of production is lowest. In contrast, a similar tuition fee rate was charged to trainees in medicine and health related categories in Mahidol University where cost of production is highest . Medical Students paid a sum of 10,000 Baht for annual tuition fees in public universiiesy whereas total cost of production was 300,000 Baht. Students at Private Medical Schools paid a full fee of 250,000 Baht per annum. So it could be concluded that the cost of production of health manpower was borne by the tax payer.

Tangcharoensathien et al (1993) estimated the cost of nursing production in the 23 MOPH Nursing Colleges in fiscal year 1990 to 1992. The total cost was 17,954 Baht per student per year during this period, consisting of labor costs 53 per cent, material

costs 43 per cent and capital depreciation 4 per cent. Tuition fees are 9.7 per cent of the total costs of production and the budget subsidy is 90.3 per cent. The instructor student ratio is too low at 1:13 as compared to the standard set by the Ministry of University Affair of 1:8. This inadequate budget, high teaching load, and little opportunity for the staff development are among factors for lower quality nursing output.

The National Council of Education (1985) produced fertile evidence on cost and benefit of tertiary education in Thailand. Benefits were measured in terms of economic and other social external benefits (externalities) to the society and to the graduates themselves (private benefit). They found that the social rate of (economic) return is under – estimated for medical doctors, nurses, pharmacists and dental doctors.

Wannawake (1991) studied the unit cost of the Out-patient in Chulalongkorn University Hospital. The researcher classified the cost into three cost centres and using the Simultaneous equation method to allocate the costs. The result of this study found that the unit cost of the Out-patient department at Chulalongkorn Hospital was 241.73 Baht, and the ratio of labor cost : material cost: capital cost was 3:6:2. And Kongsawatt (1991) had also studied unit cost of the Out-patient Department in the Faculty of Medicine, Chulalongkorn Hospital by using the Simultaneous equation method for cost allocation. All departments of the OPD were classified as one of the three cost centres, i.e. non-revenue producing, revenue producing and patient services cost centres. The result found that the unit cost of the out-patient in the Department of Medicine was 253 Baht, labor cost, material cost and capital cost was 59%, 28%. and 13%, respectively. The unit cost of the general medicine clinic, dermatology clinic and specialty clinic were 266,217 Baht and 251 Baht, respectively.

Another study about unit cost is the study of Charatsingha (1996) studied unit cost of production of physicians at the clinical level of the faculty of Medicine, at Chulalongkorn University from the perspective of the providers. The researcher classified the cost centre into four cost centre categories; administration unit, education unit, curative unit and education supporting unit. The cost was calculated from labor cost, material cost and capital cost in each centre, then allocated by the Simultaneous equation method using appropriated allocation criteria. The student credit hours were

performed to allocate the total cost in each department to students in the clinical year. The result found that the average cost for production of physicians in the 4th, 5th and 6th academic year were 281,677.40 Baht/person/year, 281,509.95 Baht/ person/ year and 187,008.01 Baht/person/year, respectively.

Carrin and Evlo (1995) developed a methodology for calculation of health care costs and their recovery. This methodology is a tool that can be used by the Ministry of Public Health to elaborate a cost recovery strategy, and is flexible, general and capable of application to all types of public sector hospitals.