CHAPTER 6
SUMMARY AND CONCLUSIONS

6.1 Summary and Conclusions

Cost-effectiveness analysis (CEA) is a methodology for evaluating the costs and outcomes of interventions designed to improve health. CEA evaluates a given health intervention through the use of a "cost-effectiveness ratio" in which all health outcomes of the intervention are captured in the denominator, and all resources used are captured in the numerator. CEA is an aid to decision - making, but not a complete procedure for making resource allocation decisions in health, because it cannot incorporate all the values relevant to such decisions.

A static group comparison of experimental study followed by retrospective evaluation design was suitable in this study because the New Deal is considered as experimental project and tried to search for its costs and outcomes in the past. The calculation of annual economic costs was done especially for capital cost items. It was necessary to use specific formula in calculating capital costs that include cost of buildings, equipment, and vehicles and machinery. The necessary information in capital cost calculation such as purchase or receiving value, discount rate, useful life span, time that capital items were purchased or received were included in this analysis.

The finding demonstrated that Sotnikum hospital consumed total resources more than 2 times higher than Kralanh hospital. But one cost element must be noted is labor cost. Sotnikum hospital spent almost 7 times higher than Kralanh hospital (Table 5.7). Furthermore, for IPD service, Sotnikum hospital was more effective than Kralanh hospital both in terms of number and proportion of service volumes. The difference shows more than 3 times (3.7 and 3.5) and almost 2 times (1.7) in terms of number and coverage rate between Sotnikum and Kralanh hospitals. But, for OPD service, Sotnikum hospital seemed to be less effective than Kralanh hospital (Table 5.9).

It was also found that the average cost per number of service volume for both running cost and total cost per discharge and per patient day in Sotnikum hospital was more cost-effective than Kralanh hospital. The ratios of cost-effectiveness between these two hospitals were 0.8

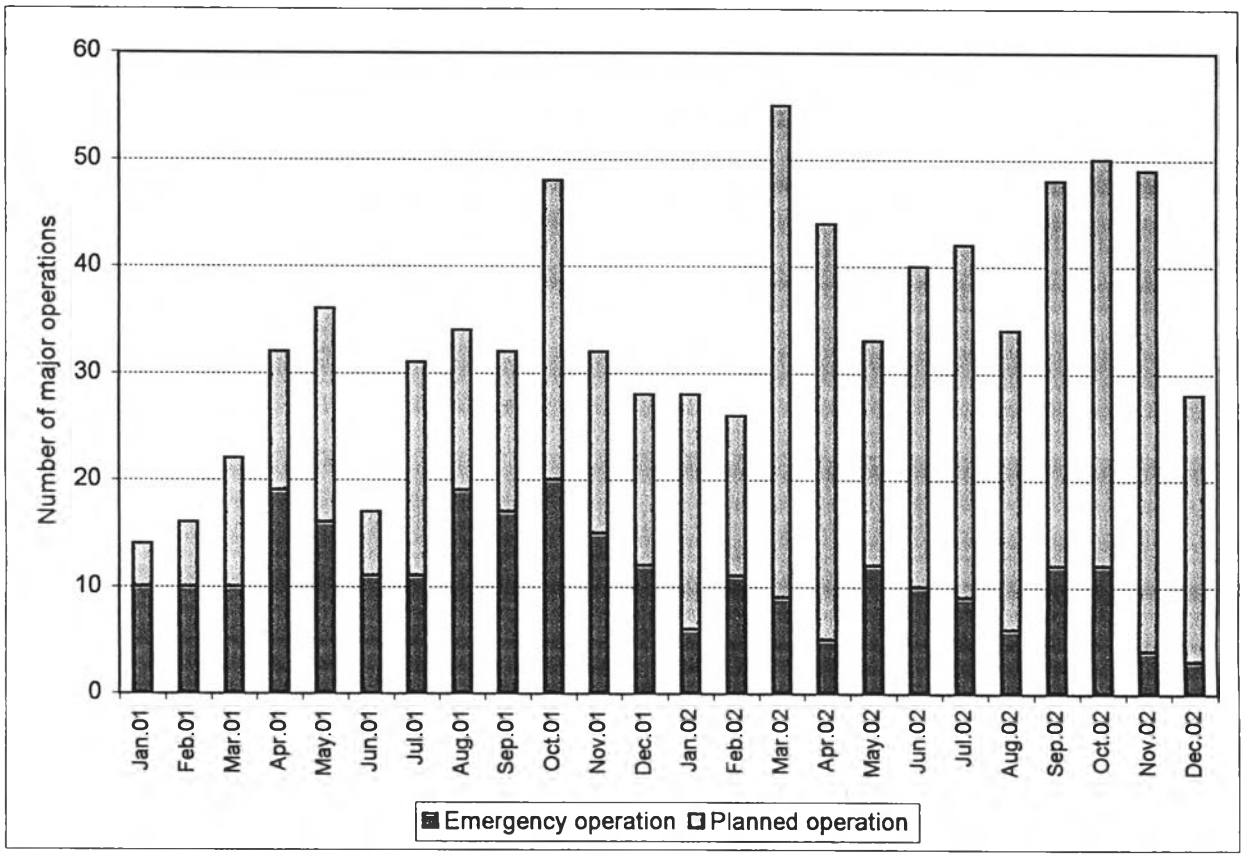
and 0.6 as shown in Tables 5.10 and 5.11. These results seemed to be an economic soundness and were in accordance with government policy, health care providers, and all stakeholders that have tried to use available resources efficiently.

Quite the opposite, the finding shows that Sotnikum hospital was less cost-effective than Kralanh hospital for OPD services both in terms of recurrent cost and total cost represented by the ratios of 2.25 as shown in Table 5.10, and around 1.7 as shown in Table 5.11. Similar results showed that cost-effectiveness using cost per proportion of hospital's service volumes was evidence for low efficiency at Sotnikum hospital through all of the cost components, and also through all of the four effectiveness dimensions (Tables 5.10 and 5.11). These were clear that they were more high cost per effectiveness in relation to high labor cost spent at Sotnikum hospital. But these evidences were not enough for effectiveness measures using discharged patients and number of consultations because some more quality dimensions of the New Deal were not included into effectiveness measures.

We should note that Sotnikum hospital is taking care of a growing number of a complex and advanced cases. There are, of course, an increasing number of surgical interventions (Figure 6.1). For internal medicine, the total number of severe malaria cases dropped dramatically, a result of the introduction of combined therapy under New Deal in health centers, and those arriving at Sotnikum hospital were considerably more severe. Some more service qualities should be considered such as better hygiene, better delegation of tasks when director was absent, follow-up of vital signs, etc. contributed more effective among patients under the New Deal compared with the conventional one.

The finding showed that labor cost played an important role in providing health care services with high quality through respecting strict internal regulation. In accordance with the results of patient satisfaction survey, 3% was undecided and 28% satisfied, this means that the quality of the services was not good enough. Furthermore, average total personal monthly income per staff just reach the minimal living condition ($85,989/62/12 = $115.6) for Sotnikum hospital and only $29.5 for Hralanh hospital, 4 times less than ($12,392/35/12 = $29.5) Sotnikum hospital.

Figure 6.1 Major Surgical Operations in Sotnikum Hospital: 2001 – 2002



Source: Meessen and Van Damme (2002).

By comparing the gross amount spent on labor cost, recurrent cost and total cost between the two hospitals, we observed that Sotnikum hospital spent almost 7 times on labor cost, almost 3 times on running cost, and only 2 times on total cost compared with Kralanh hospital. Together with annual managerial evaluation conducted by MSF team showed that the effectiveness of health care service delivery at Sotnikum hospital depended mostly upon labor cost and after recurrent cost.

Even in the absence of data to calculate the demand elasticity in this study, the positive relationship among ***bonuses – quality of care – ability to pay and service volumes*** was clearly demonstrated (Figure 2.5). This Figure explains that quantity demanded or service volume increased if labor cost and ability to pay of the patients increased. Finally, It could be said that the service volume or the effectiveness of the hospital was sensitive to labor cost as the first priority followed by recurrent cost.

6.2 Limitations of the Study

This study was conducted by selecting Sotnikum and Kralanh hospitals that located in the same province as a case study. The following facts are the weakness of this study, because of some constraints in the real situation and times were limited, some assumptions were made. Thus, the limitations were as follows:

Firstly, the time was short that could not allow the interviewers to select more sample size. Also we could not go to interview patients who stay far away from the hospital, and could not allow the interviewers spent their long enough time to explain and test the respondents.

Secondly; since data collection time was limited, some data and information were not available as per needed, especially for capital items; some assumptions were made for data calculation and analysis. Some equipment inventory records had no original prices and received date while the recurrent cost data were almost complete. The working or useful life of the capital items was not been available in general in Cambodia. Thus the lifetimes of those capital items used in this study were the assumption based on the experience of the local users.

Finally, regarding to effectiveness measurement, the full capacity of both Sotnikum and Kralanh hospitals were not considered in this study. On the other hand, this study was constrained by lack of morbidity rate in both catchment areas to use as the target of the study. Thus, the total population was used as a proxy to calculate the effectiveness of the program.

6.3 Policy Implications

Providing health care at least cost is the primary aim of every health care provider. But due to absence of sound policy, the aim is not being translated into reality. This study could be used as a basic concept and guideline for health policy maker, hospital director, hospital management commission members (HMCM) as well as all stakeholders to allocate resources to hospital. This study may guide HMCM in modifying the design or in improving the implementation of activities to get more effectiveness or less expensive in the hospital. From the finding, the main challenges for further implications are as follows:

Regarding the quantitative increase or effectiveness of the services provided, the New Deal has remarkably achieved its first objective wrote to give the population of Sotnikum district access to quality of care. Both in terms of number and proportion of patients treated, the New Deal helped greatly to solve some major bottlenecks (increase staff income and service utilization). Thus policy maker should consider and devote more resources to the New Deal rather than keep conventional system. This means that expansion of the New Deal to other health facilities should be done.

Because of low salary among government staff, any hospital can work by relying mostly on bonuses. As regards the labor cost, the hospital should consider carefully personal recruitment; especially more workers in Sotnikum hospital (16 workers) may cause high labor cost and less effective by using bonus from hospital user charge. Anyway, Sotnikum hospital should reduce some workers and recruit more technical staff that only can strengthen the quality of care. Additionally, Sotnikum hospital should contract out some tasks such as security, cleaning and garden maintenance, etc. This may cause lower running cost and better quality.

Concerning the material cost, Sotnikum spent on drugs and medical supplies less than non-drugs and medical supplies by 41% against 59% whereas Kralanh hospital spent on the same items by 54% against 46%. Both hospitals should devote more on drugs and medical supplies to make quality of care stronger and try to limit the usage on the non-drugs and medical supplies as much as possible.

To get more cost-effective, central medical store should limit some drugs and medical supplies items and decentralize them to hospitals to purchase those items by themselves. However, if we combine labor cost and material cost, it still seems to be more cost-effective run by the New Deal. So the hospital that operate the conventional system should try to minimize the material cost as much as possible, otherwise they should try to test the New Deal system.

The analysis of both patients' satisfaction and cost-effectiveness analysis can also imply that if we want to increase the utilization rate, especially for IPD outputs in Sotnikum hospital that cover relatively high coverage rate compare with Kralanh hospital, more quality dimensions should be put into real practice such as presence of hospital director and his commitment in his role as well as other staff are the main tasks.

For the New Deal; complete complementary package of activities[6], good referral system, good technical skills both in diagnosis and treatment, good paraclinical services (laboratory, ultrasound and X-ray examinations), better hygiene and cleanliness, better delegation of tasks when absence of director, regular follow-up of both general health improvement and vital signs, quickly respond to patients need for help during their hospitalization, friendliness and courtesy of staff to patients, and other management models; are very important to improve and maintain the continuous quality improvement of the hospital.

The quality of cares determinants mentioned above lead to improve more utilization rate (more IPD) and more effective than the conventional hospital. This means that people will enjoy their healthy life, reduce their opportunity cost spend for health, and more cost-effective regarding the final health outcome, will be clear if we compare with the conventional system.

[6] Complementary Package of Activities (CPA): Guidelines for the Referral Hospital, MoH, Cambodia, 2001.

6.4 Recommendations for Further Study

From the results and analysis, the following recommendations for further study are put forwards:

If we want to reduce the average cost per proportion of service volume in terms of coverage rate in Sotnikum hospital, more utilization rates must be increased by improving continuous quality improvement as described in the policy implications. Moreover, total quality management should be implied in that hospital. Anyway, we should reconsider any unnecessary cost items that can be reduced. But these tasks need experts in economics, finance, accounting, and management fields.

Morbidity rate in each catchment area and full capacity of the two hospitals that can accept the specific volume of inpatients should be included in further study to see which hospital is really more effective. Further study should be focused more on one hospital and on specific program or specific disease with different alternative because it provide more specific target in effectiveness measurement.

The results showed that Sotnikum hospital was less efficiency than Kralanh hospital in terms of OPD services. So Sotnikum hospital should focus more on tertiary care rather than primary care because the hospital invests more expensive resources than health center. Such resources include personnel, drugs and medical supplies, materials, equipment, and vehicles, etc.

If we have enough time, the time series data should be included because it can show clearly the trend over the years of the study. The trend is the important argument to make reasonable final conclusion. Furthermore, it is better to focus on societal cost if possible.