



CHAPTER VI

DISCUSSION, CONCLUSION AND RECOMMENDATION

6.1. Discussion

Providing health care at least cost is the primary aim of health care providers. But due to absence of sound policy the aim is not being translated into reality. This is the main drawback of the health system of many developing countries including Indonesia. This chapter will focus with a discussion about the cost of a training program, effectiveness measurement and cost-effectiveness measurement.

6.1.1. Cost of Training Program

In general, there is a significant difference of the operational cost between two kinds of trainings; CBT and CT. The total cost for the CBT program was much higher, that is, CBT is Rp. 739,246,044 compared with CT as Rp.194,228,000. The factors influencing this difference included the different methodology applied by these two training programs. CBT used the sandwich system which resulted in the total material cost for CBT being higher than that for CT. The reasons for this are :-

- i) the period of training for CBT is longer than that of CT.
- ii) there is a general or basic ratio between the number of trainers and trainees in CBT, i.e 1:3, there was not such ratio in CT.
- iii) the honoraria for resource persons
- iv) the transport costs are double because the trainee attends twice in the sandwich system
- iv) there is supporting material given when the trainee does field practice

The unit cost of CBT program was three times as high as that of CT (Rp.3,422,435 and Rp.1,129,232 respectively). However, with regard to the output and the effectiveness of the two types of trainings, CBT was more effective (indicated by

percentage or effectiveness) than CT – 92.8 % and 17.8 % respectively, CBT is about more than five times as effective as CT.

6.1.2. Characteristic of the Midwives

By means of ‘Paired Sample Test’ statistical analyses of the data, the result obtained was significant. Under the null hypothesis, there is no difference in characteristic; t-count was $5.644 > 2.067$ (t-critical). This means that the hypothesis - that there was a difference between the characteristics of midwives that followed the CBT and C T training program. is rejected (see appendix D table D.6).

On the basis of the “paired sample test” it can be concluded that there was a significant difference between the characteristics of those midwives attending CBT and those attending CT. But it cannot be said that these characteristic differences were due to CBT or CT. But this difference in characteristics can influence their competency (the output). The data showed that there was a difference of the midwives’ characteristic values, this was shown by table’s (appendix D) which demonstrates the midwives characteristics. It is classified on average age accounted to 35. 6 year-old for CBT while CT accounted to 31.1 year-old. Whilst, the work experience on average for CBT is 10.1 year and CT was 8.1 year. The level of education for CBT was D1 is 68.5% and D3 is 31.5% whereas CT was D1 is 92.4% and D3 is 7.6%. However, on the percentages of civil servant status, CBT is 51.9% whereas CT is 75.0%

The data indicated that CBT and CT programs were of different in terms of participants’ average ages (by 2 years). CBT was characterised by older training participants, on average, compared to CT. Also, the work experience of the CBT training participants was longer, and thus may influence the achievement of competency more positively than that of CT training participants. These differences in age, work status and years of work experience factors can influence the understanding of the material being taught, the motivation of trainees to put into practice what was taught and perhaps the output and effectiveness of the training program. When output of CBT was 130 and

effectiveness was 92.8% while that of CT was 23 and 17.8% one can say the differences may have had some positive contributing effect to CBT.

Hasrullah (Universitas Indonesia, 1993) reported that the skill of employees in Labuang Baji Hospital, South Sulawesi Province was determined by age, work experience and the level of education.

6.1.3 Effectiveness of Training Programs

On the basis of the results on cost calculation above, it is obvious that the unit cost of CBT program was higher than that of CT – CBT's was two times as high as CT's. However with regard to the output and the effectiveness of the two types of trainings, CBT was more effective (indicated by percentage or effectiveness) than CT – 92.8% and 17.8% respectively, CBT was about more than five times as effective as CT.

The main possible reason for the difference of CBT might be that the materials and modules of CBT were designed according to the competency standard or the need of local midwives. The methods used were discussion and role-plays in the classroom. The exercise of evaluation, at the beginning of each day, of the material dealt with during the previous day to check the participants' understanding gave trainers opportunity to clarify or fill in the gaps before new material was covered. This did not occur in convention training.

The evaluation of CBT indicated both its strengths and the weaknesses. Based on the evaluation, feedback on the performance of the trainees was provided by the facilitators to the participants and their views obtained. This helped to share the knowledge of facilitators with the participants of training program and helps them to enhance their skills. To avoid the participants becoming bored or fed-up with the training program some games have been included. Further, in designing training programs adults learning principles have been considered so that the trainees feel easy to understand the concepts of the training program. The sandwich system in CBT allowed trainees to experience the implementation of knowledge and skills they have got in the training. This included the knowledge of how to solve problems and constraints faced in the field. This

real experience and the ability to solve problems equipped midwives with knowledge and skills they could implement in the real world after the training.

On the basis of the percentage of the effectiveness results of the two training programs, CBT is more effective than CT because its percentage is more than five times higher than CT's. Moreover, the result of analyses indicates that the number of competent midwives in work place after assessment post training amounted to 130 for CBT, whereas CT is 23. This also indicates that CBT is more effective compared to CT in the workplace.

6.1.4 Cost-effectiveness of the Training Programs

Based on the section 5.4 (table 5.14) and section 5.5 (table 5.16) the difference between the cost effectiveness of CBT and CT can be seen, with CBT much lower than CT. That was CBT as Rp. 939,328,663 and CT Rp.1,091,168,539 while total cost for CBT is Rp.871,697,000 and CT was Rp.194,228,000. Also when comparing cost effectiveness plus controlling for distance it was seen that CBT is lower than CT, that is, for CBT Rp.796,601,340 while CT is Rp.1,091,168,539 with a total cost for CBT as Rp.739,246,044 and CT as Rp.194,228,000. This data was based on the target determined by the programmer in the strategy plan for provincial and district health offices that is, CBT would be 65% and CT 75% as seen in Table 5.13. Also the analyses with a target of 100% regarding the input of CBT as 216 and CT as 172 and the output of the two programs as the total number competent after assessment being CBT 130 and CT 23, therefore the cost effectiveness is far lower for CBT compared with CT, with costs of Rp.1,227,983,461 for CBT and Rp.1,449,462,686 for CT. Based on this it could be said that cost effectiveness from two analyses indicates that CBT is more cost effectiveness than CT.

In addition to the above, one can say in the long term, CBT was also more effective than CT. This is primarily due to the training cycles of CBT, which include refreshing training programs, and on-the-job training. This allows those trainees who have not been competent from the earlier cycles to be further trained in these cycles

through refresher or on the job training. Another superiority of CBT is that the training materials in the two specific cycles were designed in accordance with the trainees' needs. (for more information on the Cycles of CBT, refer to Chapter 3 section 3.6 figure 3.1). Also, the design of refreshing training in CBT cycle required only short time because the material was based on the gaps in competency identified during the post training assessment of the trainee in their workplace. Also the numbers requiring refresher training would be less so the number of trainers could be reduced. As more midwives are competent, this reduces the need for training and the cost of CBT

The cost for CBT in the future will be lower, because the cost will only relate to the maintenance of the midwives competence in the long term. Thus making CBT economically effective and efficient compared with CT.

In comparison when a trainee is not competent after a CT training program, the trainee would be invited again to attend the same training with similar method of instruction, materials, modules, period and with same facilitators of the previous CT program. As previously stated, there was no need analyses for the training, no modules and materials specifically designed for certain purposes. At the end, the cost unit of the new and previous CT programs were similar, or the new one might be more costly. However, the output and the effectiveness might not improve and the repetition of CT training could be just a waste of time and money. In conclusion, it can be said that from the point of view of cost effectiveness, CBT cost effectiveness is than CT.

It is important to note that this study is a specific to the conditions of Southeast Sulawesi Province only, and more particularly to Buton Regency where this pilot study and new method was carried out having been developed during the era of decentralization, a period of uncertainty and great responsibility for district managers when comparing with the previous centralized health system. The transition to a decentralized government system could probably account for possible inefficient use of budgets as well as inaccurate calculation of the cost. Therefore, in the future, care should

be taken in implementing CBT in other regencies with respect to the concept and method of CBT.

6.1.5 Maintaining the Competency Based Training Standards

The CBT methodology was used by the district and provincial health office in Southeast Sulawesi because it was expected to improve capacity of health service providers to deliver high quality health services. Users of the CBT methodology, however, should be careful not to try to reduce the total training time. The sandwich approach, and other techniques used are important adult education and training methods. They build on the trainee's own experiences to develop new skills. Similarly, small class sizes ensure there are appropriate levels of interaction between all the training participants. Reduction of the total training time, and increasing class sizes will reduce the operational costs but are likely to have a serious and negative impact on the quality of CBT training.

Follow-up activities, such as assessment, refresher training and work-place training and supervision, are also very important features of properly implemented competency based training. Users may be tempted to reduce these inputs in an effort to reduce operational costs. However, as in the case of training time and class size, reduction of the CBT follow-up methods are likely to have a negative impact on achievement of competency in the workplace.

It needs to be recognized that CBT, when compared to conventionally trained health service providers, results in the availability of competent health workers in the workplace. And also the development of competent trainers who are available to implement training activities based on the CBT approach is a further advantage.

6.1.6 Competency Based Training and Mortality Rates

A long term impact or outcome of a training program is the contribution it could make to decrease of both infant mortality rate (IMR) and maternal mortality rate (MMR).

However, it is rather difficult to claim that the decrease of IMR and MMR was brought about by the CBT and CT training programs since there are many other factors that influence mortality rates.

According to the study by Mardiaty Nadjib (2003) the Infant Mortality rate (IMR) in Buton district decreased slightly to 50 per thousand live birth in 2003 compared to IMR in 1998 (60 per thousand live births). This decrease may be caused by the improvement of program interventions and wider coverage of health services to the community, especially the efforts of the mother and child health program and/or family planning program. The spread of physicians and paramedics which was relatively equal over the whole district has also supported the achievement of the health programs. It could be noticed that the placement of a midwife to almost of all the Villages may have a potential impact to decreasing of the IMR.

On the other hand, the infant mortality rate in Muna was 45 per 1000 live birth, the under five mortality rate was 43 per 1000 live birth and maternal mortality rate was 292 per 1000 live birth. This rate did not change up to year 2003 (*Source: Dinkes Kab. Muna*). Maternal Mortality Rate (MMR) has been used to determine the mother's health and nutritional status, accessibility to health services especially for pregnant woman, delivery, and post partum care, as well as the economic status of community.

6.2. Conclusions

The objective of this thesis is to compare the cost and effectiveness between Competency Based Training (CBT) in Buton district and Conventional Training (CT) in Muna district in Southeast Sulawesi Province, Indonesia. Data collected for the study lasted for three weeks from 16th February to 9th March 2005.

The Government policy in implementing CBT program a pilot project in Buton district is considered new and a full evaluation has not as yet been undertaken. Therefore, this research applies an evaluation model of the effectiveness of using CBT for

maintaining the competency of midwives and the quality of primary health care services, with special reference to the district of Buton, Southeast Sulawesi province.

Total costs were analysed by comparing the operational cost of Competency Based Training (CBT) and Conventional Training (CT) based on the provider's perspective. The data of costs were gathered from budget requests, and cost expenditures included a detailed breakdown of all cost categories such as transportation, accommodation, honoraria, meals, training materials, rent for classrooms and equipment.

This cost analyses provides information about the unit cost for Competency Based Training and Conventional Training. The analyses provided information about the component costs and operational costs within those components. It was found that the average cost or unit cost for competency based training (CBT) was higher than that of conventional training (CT) that is Rp.3,422,435 and Rp. 1,129,232 for CBT and CT consecutively. This was due to a difference in duration (number of days spent training), ratio of facilitators and trainees, and the implementation of sandwich approach in CBT.

In relation to the discussion on trainee characteristics it is possible to concluded that the differences between the characteristics of midwives attending CBT and CT could influence their attainment of competency. The data showed that the Buton based midwives CBT trainees on average were older (35.6 years compared with 31.1 years), more midwives with D3 level professional training (31.5% compared with 7.6%), had more work experience (10.1 years compared with 8.1 years) but less numbers were permanent civil servants (51.9% compared with 75%) when compared with the midwives from Muna who attended conventional training. These factors may have influenced positively to a certain extent the output of competency in CBT (130) and could have contributed in a negative way to the lower competency output for CT (23). This indicates that CBT was more effective as more trainees apply what they have learnt from the training, on return to their workplace.

The data from the TNA of the midwives before the two training programs (CBT and CT) showed that 100% of the midwives were not competent. With the input data, 216 midwives for CBT and 172 midwives for CT were trained. The target determined by the programmer as stated in the strategy plan provincial and district health office had the objective that 65% (140 midwives) would be competent post CBT and for CT 75% (129). The actual output result of the work place assessment post training was CBT 92.8% or 130 midwives competent and for CT it was only 17.8% or 23 midwives. From this one can conclude that CBT was more effective than CT.

The reasons for CBT being more effective lies in the fact that it is a cycle beginning with a local training needs analyses, training and workplace assessment followed by refresher or on the job training. The training materials are prepared based on the gaps in the standard competency of the health worker. The refresher training is shorter and only focuses on those aspects where the health worker had not achieved competency and thus cheaper than the initial course. This is a more efficient way compared with Convention Training which is more rigid with a fixed module whether for the initial training or for refresher training. The trainee may end up attending the same training course in terms of number of days and material covered, as when first trained. So the cost is the same.

Looking at the previous discussion in section 6.1.4 - cost effectiveness under controlling for distance, was that CBT was lower than CT. That is, for CBT Rp.796,601,340 while CT is Rp.1,091,168,539 with a total cost for CBT as Rp.739,246,044 and CT as Rp.194,228,000. Based on the target data of CBT 65% and CT 75% to be competent post training, and with analyses using the target as 100% of the input data (216 midwives for CBT and 172 midwives for CT) plus the output of the two programs in terms of midwives assessed as competent post training, that is 130 midwives through CBT and 23 through CT, the cost effectiveness for CBT was found lower than that of CT. (Rp.1,227,983,461 for CBT and Rp.1,449,462,686 for CT). So again it can be concluded that CBT was more cost-effectiveness than CT.

Also bearing in mind that if there was improvement so that funds for transport, accommodation and food were used more efficiently, there was accurate recording and if staff carried out their administration and management tasks competently then this would lower the present total current cost for CBT. Also, as more midwives are trained using the CBT package then the unit cost for CBT would be lower. CBT was an appropriate training system for a health management system that has moved from just thinking about total cost without thought to cost effectiveness or output in term of numbers, without reference to how effective the health worker is in terms of service delivery.

It is important to acknowledge that this finding is specific to Southeast Sulawesi Province whose geographic, economic, and socio-cultural condition is specific. It is also important to mention that CBT program was a pilot project in this decentralisation era so that its implementation was suited to the local need and condition. Therefore, in the future, there need to be cautious in managing the implementation of CBT in other regencies.

6.3. Implications Based on Study Findings

Based on the empirical data results and discussions preceding, the results indicated that CBT, although initial training costs are high compared with Conventional Training, was found more effective. In the long term CBT was likely more efficient because the results in terms of output were good in terms of competent health workers and the programmer could see an improvement in service delivery within their program. As such the following implications are made:-

It is important to develop the CBT program in other districts and for other programs. In fact since the present study results indicate that CBT is more effective than CT, it is recommended that CBT is adopted as the primary training model. The Provincial and District health offices should consider the establishment of a policy stating that CBT methods be used for all training.

If CBT is to be implemented effectively several things are of importance need to be taken into account. Trainers need to implement the CBT packages as it has been designed. It is recommended to maintain the same duration and class sizes because reduction in the number of training days or increasing class sizes is likely to have a negative impact on competency achievement.

It is further recommended that the Department of Health in each district, and the province, prepare annual budgets for training using the cost information provided by this study

For the improvement of health workers' competency in health service provision it is recommended to use the existing CBT packages and training system as a benchmark, or guide. Implementation of the existing CBT packages in other districts in Southeast Sulawesi Province could be done because all the trainers and programmers now have enough experiences to handle this kind of training program. In the future, the use of CBT packages can also be extended to other programs of Provincial and District Health Office in Southeast Sulawesi.

In addition, it will be better if planning and budgeting for future training programs be arranged, based on the CBT cycles as a complete training budget package. In recommending that CBT be used in other districts or for other programs it is important to ensure effective and efficient use of the funds, and the recording of costs to be more accurate and those responsible for administration and management do so in a very good or professional way.

With respect to the expansion of CBT in the coming days, its maximum results and optimum quality, particularly in terms of efficiency and effectiveness will not depend only on technical issues but also on the accurate administration and financial support.

6.4. Limitations of the Study

This study was conducted by selecting the Competency Based Training (CBT) program conducted in Buton district and Conventional Training (CT) conducted in Muna

district as a case study. Although these two districts used to be well-known as areas with high MMR and IMR, the present study indicates that there the rates of the two have gradually declined. The current rates even drop below the national level.

However, it is of importance to acknowledge that the results of the present study need to be provisionally interpreted because only one training package was used as a data set for CBT and CT. The package was a non clinical package. Meanwhile, with regard to economic cost, the data on opportunity cost were not available and this made the calculation difficult. Consequently, the analyses of financial cost, was purely based on provider's operational cost perspective.

With respect to the scope, it is also necessary to state that the present study only analysed the cost of the CBT phase one within three to six months after training. Nevertheless, if the trained midwives have not reach full competence after the first assessment post first phase of CBT; there will be refresher training in form of "on the job training" which will complete the first cycle of CBT. Consequently, the cycle assessment and refresher training continues until the trainees reach full competency according to the competency standard used. Therefore, it is of advantage to use this study as a reference for further research on the basis of the cost effectiveness of CBT training with complete cycle