CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Discussion

The discussions will be focused on the following five issues:

1. Costs of diagnosis and treatment in the malaria control project.
2. Roles of technology for diagnosis of malaria
3. Factors influencing willingness to pay for diagnosis and treatment of malaria.
4. Interactions between public and private sector for malaria control.
5. Financial reform in the malaria control project.

5.1.1 Costs of Diagnosis and Treatment in the Malaria Control Project

Malaria costs substantial sums of money, if the objective is reduction of morbidity and mortality. To reduce both morbidity and mortality of malaria, early diagnosis and prompt treatment is crucially important. At the present moment, limited resources comprise one of the major constraints for the achievement of the set objective. There is, needless to say, an urgent need to determine which technology will do the job more cheaply and with better effectiveness.

Based upon available data and hypothetical data (real data to be collected in the near future), this study supports the idea that current technology has better cost-effectiveness if the level of accuracy are same. Actually, the new technology has better accuracy level than that of current one plus it is simple and rapid. This will call attention to evaluate the accuracy of two technologies by study in the MCP. At this moment RDT has high unit cost which will be a potential

constraint for application to the MCP. There are many necessary and essential factors yet to consider in relation to its application. One of the obvious factors in this study is reduced waiting time with RDT comparative to that of traditional microscopy. Waiting time reduction is crucially important outcome of rapid diagnosis which is also a major contribution to prompt and correct treatment.

Not only its costs but also its potential advantages are important for consideration of new technology. The financial issue as well as the technical issue are to be equally placed in the bird's-eye-view of the innovative technology. The administrator and the technical expert are not to divorce but to wed firmly for making the decision to choose effective and efficient control measures of malaria in Myanmar.

Malaria is neither equally prevalent nor distributed in all regions of Myanmar. Thus, the selection of regions should be made for introduction of new and expensive but effective technology. According to a study by Ettling(1991), the larger, regular clinics in Thailand, particularly those located in a sector office, are clearly more efficient because of the ease of supervising staff and their flexibility in assigning idle staff to other tasks within the clinic; however, to attend centralized clinics such as these, patients must commit more of their money and time. In Myanmar, the people who live in remote areas are more prone to get disease. Also malaria is a disease among the people from low socioeconomic class; therefore, cost is a significant barrier for seeking diagnosis and treatment away from their residences. This is particularly important in Myanmar to establish the public clinics nearer to the vulnerable group of people. The alternative is just to establish mobile malaria clinics in the risk areas. According to WHO(1995a), RDT is suitable to use for mobile malaria clinics. To draw the attention of the expected donors(e.g. WHO/UNDP and NGOs) to contribute to this new technology to be applied in some areas, like border areas and forest areas make for a sense of urgency in the MCP. The reason for this is to reduce waiting time

as well as to adopt innovative technology so as to strengthen the capability of the staff. The technology which has better accuracy is necessary for reduction of false positives and false negatives, which are important for both the provider and patients. If there is a guarantee of accuracy, the economic input must be one determinant of the said technology, not a tail-end addition.

According to Indaratna and Kidson(1995b), the most critical need: on-site rapid diagnosis in remote areas where immediate radical treatment correct for the species concerned will save lives, reduce morbidity, eliminate much of the lost productivity, reduce drug wastage and bring the up-to date technology closer to the village. Microeconomic issues alone are not enough to consider the selection of technology. Macroeconomic perspective must contribute to the solution as Indaratna and Kidson(1995b) mentioned in their overview. When our consideration is focused seriously on money for investment, the opposite side of the coin of"do-nothing approach" will be answered the consequential disease burden to the community, especially in an endemic country like Myanmar. The would-be consequence is the so-called "vicious circle" which links poverty-disease-poverty. Thus, for overall growth and development of our nation, investment for malaria control activities should be considered for adjustment with human face.

The following points should be considered and exercised in the decision either to accept or reject the new technology in the MCP: The high unit cost depends heavily on market volume worldwide, a factor which depends in turn on product promotion. The reduced waiting time will also lead to reduced loss of income and hence can be seen as doubly beneficial to the patient and family; again this will be clearly so if the test contains both Pf and Pv components.

5.1.2 Roles of Technology for Diagnosis of Malaria

Among specificity, sensitivity and positive predictive value of the malaria rapid diagnostic test,

sensitivity may be taken as a crucial characteristic for case detection in an endemic country like Myanmar. RDT is expected to be highly sensitive according to the available studies in different countries(WHO 1995). The less sensitive the test, the more false negatives, which will lead to inappropriate treatment, consequently more chance to incur costs of further investigations and correct treatment. The worst to be expected is premature death due to lack of early diagnosis, and prompt and correct treatment of malaria. These unnecessary outcomes are to be seen as both tangible costs and intangible costs of missed diagnosis of malaria. These will be costs of false positives and false negatives. The third scenario or scenario-3 will be the appropriate one to reflect the real situation in Myanmar. In this case despite the high initial costs of training for RDT and high unit cost , the cost-effectiveness ratio are close to each other(kyats 72 for RDT and 71.5 for microscopy). This result is based upon our high assumption in the costs of RDT. If we get the real data for costs of RDT, we would expect the better cost-effectiveness in RDT.

As for the specificity issue, the lower the specificity of the test the more false positive cases and the more unnecessary treatment of malaria is to be expected. Thus, the emergence of multi-drug resistant Plasmodium falciparum will be increased, together with cost of false diagnosis and treatment incurred by both the MCP and the patients.

There are five factors to be considered regarding the appropriate selection of diagnostic tests :(i) purpose for ordering the test, (ii) test's performance (specificity, sensitivity, predictive value),(iii) pre-test problem of the study disease,(iv) safety and efficacy of available treatment after the result, and (v) financial and psychological costs involved in arriving at correct or incorrect diagnosis.

(i) purpose for using diagnostic test in the MCP is for early case finding so to ensure prompt treatment.

(ii) In case of test performance, RDT may have better sensitivity than microscopy.

(iii) Malaria is a common endemic disease in Myanmar with a high prevalence rate. Thus, the test with high sensitivity is to be preferred to detect the case as far as possible.

(iv) Safety and efficacy of available treatment for malaria for the moment is still possible. It is a curable disease with available potent antimalarials. Thus, to detect correctly is crucially important to provide prompt treatment for life-saving, something which must be done quickly without long waiting time.

(V) Financial and psychological costs incurred in arriving at false positives is not too harmful compared with HIV/AIDS where such a diagnosis conveys the expectation of eventual lethality.

5.1.3 Factors Influencing Willingness to Pay for Diagnosis and Treatment

In this study regression analysis for WTP for diagnosis and treatment show that some of the independent variables have a significant relationship either positively or negatively: perceived severity of illness, perceived quality of service and household income of patient have positive relationships while the traveling time has a negative relationship.

The patient has more willingness to pay when he/she suffers from severe illness. This is also true in the study of Ryan(1995) in which WTP is related to the commodity of the value to him/her. Regarding quality of service rendered, the patient is more willing to pay for better quality of it. This finding is supported by a WHO study in Kenya where the patients insist on quality of care than those who receive it free. This is crucially important when there is a need to introduce a user-charge to the previously free-of-charge service in the public sector.

In case of traveling time, patients have more willingness to pay for the less time to reach the service points, because the time factor is particularly important to shorten their suffering from illness as well as to reduce costs of transportation. Establishment of malaria clinics nearer to those who urgently need them is the prime need for reduction of morbidity and mortality of malaria in Myanmar. This issue relates to integration of so-called vertical malaria control program to Basic Health Service(BHS) through primary health care approach. The transfer of technology to the BHS staff is, needless to say, an essential component for an effective and efficient integrated approach.

According to Donaldson and others(1990), there is a point to assess whether the respondents clearly understand the WTP questions. In this study, despite their response to WTP for RDT in relation to reduced waiting time, it is necessary to make sure that the patients have a clear understanding of the said technology to be introduced.

In real interviews, there may be findings contrary to our assumptions at the present time. For example, if the real findings in the future study suggest that traveling time to the service point has a positive association to WTP, this should be explained on the basis that the longer the distance to the clinic, the more willing patients are to pay for the service. This may be possible if they believe in the quality of service: they will go there whatever the distance. This should be borne in our mind when our consideration is to focus on the establishment of a service nearer to the community while forgetting its quality, since both efficiency and equity are equally important for consideration of service points.

5.1.4 Interactions between Public and Private Sector for Malaria Control

In Myanmar, the role of private sector in diagnosis and treatment of malaria is obvious. The private clinics (GPs) are widely distributed throughout

Myanmar. The costs of treatment in private, profit-based clinics are expensive. But because of availability of 24 hour service, the patients are able to seek treatment on a need basis. Malaria is, of course, a time-consuming disease. So the people seek treatment from the nearest private clinics when they suffer from perceived severe illness if they can manage to pay for the service rendered.

There must not be divorce, but a firm wedding between these two sectors for reduction of morbidity and mortality of malaria in Myanmar. There is no boundary for malaria parasites. Transfer of technology such as national drug policy, innovative diagnostic technology and sharing of research findings from the public sector to the private sector is as important as the private sector's willingness to adopt the said technology. The ways and means for interactions between these two sectors should be formulated in the National Health Plan.

5.1.5 Financial Reform in the Malaria Control Project

Limited budget resources and introduction of advance technology has raised questions about future financial sustainability of the MCP. At the present time, services rendered in the MCP are still free of charge to the community. Needless to say, the MCP is partially donor-related which is non-sustainable in the long term. At the same time, the Ministry of Health allocates its lion's share of the budget to the national malaria control activities with expectancy of advantage in the macroeconomic equation: overall growth and development of the nation. Now is the right time to consider financial reform in the MCP for equity and efficiency as well as effectiveness of the control measures, with particular attention to early diagnosis and prompt treatment, in the national as well as the global strategy.

The current national economic reform process has an urgent need to assess both external and internal pressures. The external pressures include demography, technology and economy. The internal pressures include the need for increased efficiency, e.g. more productivity

from existing resources in the MCP, pressure for increased effectiveness, which may be understood as achieving better outcomes and the third is responsiveness to patients: trying to meet the logistical and treatment preferences of patients as well as the broader epidemiologically defined needs of populations.

In Myanmar, integration of malaria control services with Basic Health Services (BHS) involves a structural reform as well as a partial financial reform for adjustment. Yet there are still many options to be considered for financial reform in the MCP. In Myanmar, community cost sharing(CCS) schemes are still in early chapter. It is just as a litmus paper test in some pilot areas as user-charges for laboratory service and user-charges are being trialled. To maintain the already achieved targets and to expect further achievements, financial reform in the MCP is a crucial point to ponder. Further study related to this issue is an urgent need for the MCP for improvement in efficiency, effectiveness and equity.

This study points out how to collect the patient's WTP for diagnosis and treatment in the MCP. This is a baseline information required for introduction of user-charges to the previously free-of-charge service in the MCP. The structured questionnaire for patient interview and its interpretation are designed for future application. There may be additional information as well as some improvement to be expected in the real situation. But this methodological study will facilitate to collection and interpretation of the variables relevant to WTP.

5.2 Conclusion

Here, a brief conclusion will be drawn from this study and then try to find out its limitations associated with study design and its application.

(i) This study is a methodological study for future application in Myanmar. The study attempt to answer the

question of whether the rapid diagnostic technology(RDT) is more cost-effective than the existing microscopic diagnosis and treatment of malaria in the malaria control project.

(ii) This study shows cost analysis of the MCP focusing on its diagnosis and treatment component. Among the various schools of thought, the cost classifications by Creese and Parker(1994) are adapted in this study. Itemized cost and its sources are considered together with its appropriate measurement. The percent share of budget allocation to different items are also mentioned for analysis of its expected efficiency in the MCP. Here, how to calculate annualization cost and what is the difference between economic cost of microscope and its financial cost are also described in detail. This will be a ready-to-apply format in the MCP, Myanmar.

(iii) The second type of economic analysis in this study is a cost-effectiveness study of two diagnostic technologies for diagnosis and treatment of malaria. The sweet essence of this analysis is based upon different scenarios developed in this study which might be expected in the real situation. The backbone analysis of cost-effectiveness is based upon the level of accuracy. Yet there is no doubt that to evaluate the said technologies requires emphasis on their specificity and sensitivity values. Using hypothetical data and sensitivity analysis shows that the sensitive indicator for RDT are its unit cost and level of accuracy.

(iv) In this study, perceived severity of illness, perceived quality of service and household income are positively associated with patient's WTP for the service rendered in the MCP. Traveling time to the service point is negatively associated to patient's WTP for the services. This issues emphasizes the importance of the point that patients prefer to the better quality of public service and the more nearer to them. Reduced waiting time with RDT is an essential factor for introduction to the MCP based upon reduction of costs incurred by the MCP with a strong hope to reduce aggregate costs. From patient's perspective, reduced

waiting time is an essential and necessary determinants to reduce the time cost and subsequent aggregate costs.

5.3 Limitations of Study

Because of the some constraints in the real situation, the following facts are the weakness of this methodological study.

(i) Private sector involvement in diagnosis and treatment of malaria is obvious in Myanmar. But in this study it is not yet included.

(ii) Value of primary data is good enough for data analysis. Yet there is time constraint and resource constraint to collect it. Only hypothetical data are applied to analyze for the missing data.

(iii) The experimental study design will be more appropriate for assessing the effectiveness of two technologies in the same country. But it is not feasible to separate the study areas with reference to its applied technology.

(iv) This study does not include patient's ability to pay(ATP) for diagnosis and treatment of malaria in the MCP. The determinants for ATP are yet to identified in the real situation before any decision related to charge in the services can be made. Because of time constraint, this component, ATP, is not feasible to be included in this study.

5.4 Recommendations for Further Study

The following studies are to be recommended to fill the gap of knowledge and to strengthen research capability.

(i) Economic analysis of diagnosis and treatment in the private clinics, Myanmar will be appropriate to conduct as a supplementary study. The private sector perspective may be different from that of the public sector. This study plus recommended study will provide data on public-private mix which in turn will give rise to further consideration of financial reform in the MCP.

(ii) It will be appropriate to explore a study including both willingness to pay and ability to pay for diagnosis and treatment of malaria in one specific area in Myanmar.

(iii) Financial reform in the malaria control project, Myanmar is suitable to explore in the near future so to be in line with the national and global economic changes.