CHAPTER 1

INTRODUCTION

1.1 Background

Being a preventable and curable disease, malaria is still on the top list of health problems in Myanmar. This is a crucial question and needs an appropriate answer. Based upon various studies the factors for malaria mortality have been identified as length of illness, host factors, diagnostic accuracy, parasite species/stages/strain/density, plasmodium falciparum resistance to antimalarial drugs, treatment protocol, interval between admission and treatment started, severity on admission, level of coma, duration of coma, associated conditions, and nursing care(Appendix 1). Even from a cursory glance at the risk factors all will be agreed that correct diagnosis and prompt treatment is one of the possible solutions for reduction of malaria mortality in Myanmar (VBDC,DOH, Myanmar, 1994). A country working group meeting to implement the revised malaria control strategy (RMCS) in Myanmar was held in Yangon in early 1993. The Minister for Health delivered an opening address in which he stressed the need for the laboratory services to be strengthened so as to be able to facilitate early diagnosis and prompt treatment.

Since early 1992, the malaria control project (MCP)has gradually been changed to be in line with that of RMCS. Among the four basic technical elements of the said strategy, early diagnosis and prompt treatment(EDPT) is one of the basic and important activities (VBDC, DOH, Myanmar, 1993b).

1.2 Rationale

Regarding the disease management component, there is a need to improve diagnosis and prompt treatment (EDPT) by focusing on those most at risk. To ensure that laboratory diagnosis is related to patient care and therefore to save resources by reducing unnecessary collection of slides, and to ensure, where possible, that

with the general health services in the management of malarial disease, is crucially important. With the increasing problems of drug resistance in most areas in the case of falciparum malaria, the need for laboratory diagnostic services nearer the periphery of the health services is increasing (WHO, 1993).

The definitive diagnosis of human malaria should be based on clinical criteria supported by laboratory confirmation of parasitaemia. For many years, light microscopic examination of blood slides has been the only available technology for such diagnoses in Myanmar. The average time for slides to reach the township laboratory is 16.9 days(1-60 days), the average duration of time from receiving to examination of slides is 11.2 days (1-30 days)and the average duration for feedback of laboratory results to the patient takes 17 days (1-99 days)(VBDC, DOH, Myanmar, 1996). Waiting time is one of the causes of irrational use of drugs leading to spread of antimalarial resistance and wastage of money. Incorrect diagnosis has the same consequences of potential drug resistance problems and wastage of money. Drug resistance of *P.falciparum* malaria by now is widespread all over the country in Myanmar with the degree of resistance varying from place to place(Appendix 2).

There will be two major advantages if a quick and reliable method of diagnosing malaria in the field can be developed. The first is that the diagnosis of malaria will become more accurate. As those who are most at risk from malaria live in rural communities remote from standard clinic-based laboratory facilities, the presumptive diagnosis of malaria is necessarily made on clinical grounds. Therefore patients run the risk of being treated with antimalarials for a wide range of illnesses other than malaria. Even when the presumptive diagnosis is correct, treatment may be less than optimal because it cannot be tailored to deal with particular species of malaria parasites. When detailed information eventually arrives from the laboratory it is often too late to contribute to treatment. The patient may have moved on , have recovered, or he may have died. A second and more important advantage to field diagnosis is that it could reduce the chances of the emergence and spread of drug resistance(Collier and Longmore, 1983).

Amongst the variety of recent diagnostic techniques ,the malaria control project is considering Parasight F test which is simply known as dipstick technology as a potential complementary and or supplementary method based on theoretical knowledge: the equipment is minimal, simple and durable, requiring little space and no electricity (WHO, 1995). With such advantages, the MCP has to ponder the application of this method in certain situations, such as:areas where the existing laboratory service is inadequate, where an unacceptable standard or the time lag for diagnosis is excessive and in the mobile clinics where the quality of routine microscopy is difficult to maintain. A critical limitation is the potentially high unit cost. The MCP has considered, as far as possible, the upgrading of diagnostic facilities in endemic areas, with particular attention to provide correct treatment and also to limit the problem of increasing parasite resistance to antimalarials.

Because of the limited resources, government may no longer be the only or even predominant source of financing for the MCP. In Myanmar, the lion's share of financial support for case management is the sum of Government's malaria budget and external inputs (e.g.WHO, UNDP). At present, all the services provided by the MCP are free of charge to the consumer. Yet there are still many factors to be considered for the utilization of malaria clinics. Now is the appropriate time to ponder possible alternative diagnostic strategies and prompt treatment as well as alternative or additive financial mechanisms for long term financial sustainability.

Firstly, this study will provide baseline information for consideration of new, innovative rapid diagnostic facility (e.g.dipstick) pertinent to both quality assurance and to investment of resources. Secondly, this study will provide useful information regarding the willingness to pay (WTP) for diagnosis and treatment services of the MCP. Willingness to pay is one of the basic, crucial characteristics of the patient's response for assessing the feasibility of introduction of alternative financing mechanisms(e.g. user-charges for laboratory services).

1.3 Research Questions

Primary Question

Is rapid diagnostic technology (RDT) more cost effective than the existing microscopic diagnosis and treatment of malaria in the malaria control project?

Secondary Questions

1. What are the costs and effectiveness of existing microscopic diagnostic services and new rapid diagnostic technology(dipstick) for diagnosis and   treatment of malaria in the malaria control project?

2. What is the cost-effectiveness of the two types of diagnosis and treatment of malaria in the malaria control project?

3. How much is the patient willing to pay for case diagnosis and treatment of malaria in the malaria control project?

1.4 The Objectives of the Research

General Objective

To assess the costs and effectiveness of existing microscopic and expected new diagnostic technology, and of related treatment in the malaria control project.

Specific Objectives

1. To assess the provider costs and patient costs for diagnosis and treatment of malaria in the malaria control project.

2. To measure the effectiveness of existing microscopic and expected new diagnostic technology, and of treatment in the malaria control project.

3. To assess the patient's willingness to pay for diagnosis and treatment of malaria in the malaria control project.

1.5 Scope

1. This study is an exploratory research focusing on the methodological approach expected to be carried out when the data collection is possible.

2. This study will be primarily undertaken only in relation to the public sector perspective in diagnosis and treatment of malaria.

3. This study is a preparatory situation analysis for introduction of a rapid on-site diagnostic technique in the malaria control project.

4. This study will attempt to provide baseline information on the willingness to pay for the present free of charge services provided by the malaria control project, leading to consideration of possible options for policy development.

5. This study will follow after the experimental evaluation of the specificity, sensitivity, positive predictive value and negative predictive value of the two technologies in Myanmar.