

CHAPTER III

THE PROPOSAL

Action Research Study on Improvement of Laboratory Services in Baaray-Santuk Referral Hospital

3.1. Introduction

This study is an action research proposal in order to reorganize laboratory services in Baaray-Santuk Referral Hospital to support the quality for individual patients in terms of diagnosis and treatment services. Furthermore, the availability and quality of laboratory services will also contribute to provide safe blood products for transfusion, especially in the case of emergencies in the Referral Hospital.

In order to upgrade laboratory services we have to know first what laboratory tests are done and what laboratory tests will be provided according to the common health problems in the Referral Hospital. In addition, the deficiencies and shortcomings in the section of laboratory services should be studied so that there is the baseline information in order to provide corrective measures to improve laboratory services in the Referral Hospital.

The group of medical doctors, medical assistants, and laboratory staff who are working in Baaray-Santuk Referral Hospital will be studied in order to find out their perceptions in terms of common health problems, and needed

laboratory tests, and the deficiencies and shortcomings in the section of laboratory services in the Referral Hospital.

Based on the findings, laboratory services in the Referral Hospital will be organized according to needed laboratory tests in the Referral Hospital. Also, a committee will be set up in order to choose laboratory equipment for needed tests, and develop a laboratory-training curriculum.

Laboratory staff will be organized in team work at Baaray-Santuk Referral Hospital and laboratory training program will be provided by the National Reference Laboratory (NRL) in collaboration with the National Blood Transfusion Center and laboratory section of the National Pediatric Hospital (NPH).

The research design proposed for this action research study is a cross sectional descriptive study with qualitative and quantitative methods, using primary and secondary data.

3.2. Rationale for the Proposed Study

This study is part by a research and development activity. Action-based research study is particularly suitable to identify common health problems and to assess laboratory test needs, as well as deficiencies and shortcoming in the section of laboratory services. It involves the recognition and analysis of

problems by clinicians and laboratory staff in the Referral Hospital, and by the researcher.

The discussions, interviews, and observations of the study will bring mutual understanding between the laboratory staff, doctors and medical assistants working in the Referral Hospital and the researcher in order to find a basis for priority setting of needed laboratory tests and of resource allocations in terms of equipment and supply. This is needed because laboratory equipment and supplies are expensive, and we can not provide all of laboratory tests suggested by World Health Organization to upgrade laboratory services in the Referral Hospital (see Appendix E).

Although the Ministry of Health has been reforming the health care system in Cambodia since 1995, health service facilities in Referral Hospital including laboratory services have not been upgraded as yet. Laboratory services are one component of the complete package activities (CPA) of the Baaray-Santuk Referral Hospital. Only a few laboratory tests such as malaria, mycobacterium tuberculosis, blood cell count, and stool examination have been provided to support quality of care in the Referral Hospital. This issue contributes to limit diagnosis and treatment services within the Referral Hospital.

Due to lack of laboratory services in the Referral Hospital, medical doctors and medical assistants who are clinicians have to provide health care for individual patients without accurate diagnosis and appropriate treatment.

Sidemen and D. BenDak (1997) indicated that: "Medical technology plays a crucial role in maintaining a high level, modern health care system. Even highly qualified physicians are seriously hampered by the lack of supportive technology for better diagnosis and effective therapeutics".

In addition, the lack of accurate diagnosis and appropriate treatment leads to ineffective treatment, increased costs, and lost time for patients and health care services in the Referral Hospital. Sometimes, this issue leads to the death for patients due to late diagnosis because doctors and medical assistants can not provide appropriate treatment on time.

Martha (1998) said that: "The cost-effectiveness of the health services is highly dependent on the quality of the diagnosis of diseases and monitoring of treatment. Correct and timely diagnosis and treatment are of utmost importance to health services budgets as well as to the economic situation of individuals and families".

The other reason to improve the quality of laboratory service support in the Referral Hospital is that laboratory services will contribute to improve diagnosis and treatment services in Baaray-Santuk Referral Hospital.

"The quality of laboratory services will lead to improve diagnosis and treatment service, an accurate diagnosis in a patient, institution of appropriate treatment, assessment of prognosis, confirmation of successful treatment, early diagnosis of an outbreak or epidemic, selection of appropriate chemoprophylaxis for individual patient and community". (WHO 1996)

Furthermore, it is important to use laboratory services in Baaray-Santuk Referral Hospital in order to provide safe blood products for transfusion, which is also one sub-component of the complete package activities (CPA), especially in emergency cases in the Referral Hospital. A Blood Bank Center has only been established in the provincial town, as the result, safe blood products often are

not available, and also the blood supply may be influenced by the prevalence of infectious diseases.

3.3. The Purpose of the Proposed Study

Firstly, the purpose of proposed study is to reorganize and improve laboratory services in order to support diagnosis and treatment services according to the common health problems in Baaray-Santuk Referral Hospital.

Secondly, the result of this study is expected to be used to formulate recommendations to the Ministry of Health through the National Institute of Public Health so as to develop "guideline for upgrading laboratory services" in Referral Hospitals that can be further studied by the National Institute of Public Health and National Reference Laboratory.

3.4. Research Questions

The research questions are focused on the common health problems, laboratory test needs in Baaray-Santuk Referral Hospital, and the deficiencies and shortcomings in the section of laboratory services. Equipment and supplies, and laboratory training curriculum will be provided and developed according to the needed laboratory tests to support treatment and diagnosis services in the Referral Hospital.

Therefore, the following research questions were formulated:

- (i). What are the common health problems in Baaray-Santuk Referral Hospital?
- (ii). What laboratory tests are needed to support diagnosis and treatment services according to the common health problems in Baaray-Santuk Referral Hospital?
- (iii). What laboratory tests are currently provided to support diagnosis and treatment services in Baaray-Santuk Referral Hospital?
- (iv). How laboratory services are currently provided to support diagnosis and treatment services in Baaray-Santuk Referral Hospital?
- (v). What is the gap between the existing laboratory tests and needed laboratory tests in Baaray-Santuk Referral Hospital?
- (vi). What additional tests should be provided in order to support diagnosis and treatment services according to the common health problems in Baaray-Santuk Referral Hospital and availability of human resources in the operational district level?

3.5. The Objectives of the Proposed Study

3.5.1. Short-term objectives

(i). To find out the common health problems and to assess laboratory tests required so as to upgrade the quality of care for individual patients in order to reorganize laboratory services in Baaray-Santuk Referral Hospital.

(ii). To determine the deficiencies and shortcomings in the section of laboratory services in order to know baseline information and to provide corrective measures to upgrade laboratory services in Baaray-Santuk Referral Hospital.

3.5.2. Medium-Term Objectives

(i). To have guidelines for upgrading laboratory equipment and facilities in the section of laboratory services in Baaray-Santuk Referral Hospital.

(ii). To develop a training curriculum for a laboratory training program

(iii). To upgrade knowledge and skills of laboratory staff through laboratory training program.

(iv). To introduce internal quality control in order to maintain and improve the quality of laboratory services in the Referral Hospital.

3.5.3. Long Term Objectives

(i). To introduce external quality assessment so as to maintain and improve the quality of laboratory services in the Referral Hospital.

(ii). To improve laboratory services in order to support diagnosis and treatment services in the Referral Hospital.

(iii). To provide a rationale and recommendation in order to develop guideline for upgrading laboratory services in Referral Hospitals.

3.6. Research Methodology

3.6.1. Sample Population

This is an action research study. The population sampling is done on the basis of non-probability sampling method. The sample population is based on the purpose to obtain information from major stakeholders "purposive sampling technique" who play roles as laboratory service providers, and from health care providers who are laboratory users in order to support diagnosis and treatment for individual patients in the Referral Hospital.

The sample population for the study will consist of medical doctors, medical assistants, and laboratory staff who are working in Baaray-Santuk Referral Hospital.

The sample population will be divided into two different groups. The first group will consist of five medical doctors and nine medical assistants so as to find out the common health problems and to assess laboratory test needs in the Referral Hospital. There will be seven clinicians working in the Referral Hospital, three medical assistants and four medical doctors, participate in focus group discussion and fourteen clinicians participate in personal interviews.

The second group, there will be two laboratory staff participating in an in-depth interview, in order to determine the deficiencies and shortcomings in the section of laboratory services of the Referral Hospital.

3.6.2. Sample Size

All of medical doctors, medical assistants, and laboratory staff who are working in Baaray-Santuk Referral Hospital will be included in this action research study.

Therefore, the sample size for study will include five medical doctors, nine medical assistants, and two secondary laboratory technicians working in the Referral Hospital.

3.6.3. Research Techniques

Triangulation will be used in this action research study. It is the use of a variety of methods, lead to more full and rounded picture of the subject being studied by approaching it from a different angles. The angles may be those of different researchers, different methods, different research population, or a combination of these. This methodological eclecticism may add validity to research findings because they are based on more comprehensive evidence. Therefore, there are three different methods of data collection techniques used for this study.

Observation and in depth interview with laboratory staff will be used to check cross with the records in order to determine the deficiencies and shortcomings in the section of laboratory services in the Referral Hospital.

Personal interview with all medical doctors and medical assistants, focus group discussions with the group of medical doctors and medical assistants, and also records on health care activity in the Referral Hospital will be used to find out common health problems and to assess laboratory test needs in Baaray-Santuk Referral Hospital.

3.6.3.1. Observation

The observation study will be undertaken in the section of laboratory services in Baaray-Santuk Referral Hospital in Kampong Thom province.

The issues that we have to observe are the deficiencies and shortcomings within the section of laboratory services regarding equipment and supplies, laboratory tests, manpower, laboratory instructions and procedures, physical facilities such as space, furniture, cleanness.

3.6.3.2. In Depth Interview

The in depth interview will be conducted in the Baaray-Santuk Referral Hospital in khmer language. It will be used for interviewing two laboratory staff of the Referral Hospital.

The purpose of an in-depth interview with laboratory staff is to determine the deficiencies and shortcomings in terms of laboratory equipment and supplies, manpower, staff performance, laboratory instructions and tests procedures. And also the problems in the present laboratory services in order to support diagnosis and treatment services in Baaray-Santuk Referral Hospital.

3.6.3.3. Focus Group Discussion

Focus group discussion will be carried out in the Baaray-Santuk Referral Hospital in khmer language. The focus group discussion session will be done with three medical doctors and four medical assistants (there are seven respondents).

The focus group discussion among this group of people will be conducted to find out their perception in terms of the common health problems, and to assess laboratory test needs to support diagnosis and treatment services in the Referral Hospital.

3.6.3.4. Personal Interviews

Personal interview will be conducted in Baaray-Santuk Referral Hospital. A questionnaire will be used to interview all medical doctors and medical assistants working in the Referral Hospital in order to find out their perception in terms of the common health problems in the Referral Hospital.

Based on the information about the common health problems, the interview will be continued to assess laboratory test needs according to each common health problems in the Referral Hospital. The level of satisfaction with the present laboratory services also will be measured in this interview.

3.6.3.5. Tools for Data Collection

Observation study in the section of laboratory services in the Referral Hospital will use field notes. In depth interviews with laboratory staff and focus group discussion with medical doctors and medical assistants will be recorded by using both tape recorder and notes.

An observation guide, an interview guide for the in depth interviews, guidelines for the focus group discussion, and a questionnaire for personal interviews are developed (see Appendix A, B, C, D).

3.6.3.6. Secondary Data Collection

The secondary data include the records or any reports on health care activities in the Referral Hospital, existing laboratory tests, and the laboratory inventory list.

The main goal of the secondary data collection is to find out the common health problems in Baaray-Santuk Referral Hospital and to determine the deficiencies and shortcomings in the section of laboratory services in the Referral Hospital in terms of equipment and supplies, and existing laboratory tests.

Therefore, the secondary data on health care activities in the Referral Hospital, existing laboratory tests, equipment and supply inventory lists in the section of laboratory services, will be collected from either the Referral Hospital or Kampong Thom Provincial Health Department. The records can be reported monthly and yearly from those places.

All this data will be collected so that we can analyze the shortages and shortcomings in the current activities of laboratory services, the common health problems and laboratory test needs in the Referral Hospital.

3.6.3.7. Data Analysis

Data analysis will be started immediately during and after completion of data processing.

For observation:

The analysis will be based upon the observation notes. The observation within the section of laboratory services will make use of field notes.

The deficiencies and shortcomings in the section of laboratory services in terms of equipment and supplies, laboratory tests, manpower, any laboratory instructions or procedures, physical facilities such as space, furniture, cleanness will be noted.

The number of equipment and supplies and existing laboratory tests available in the section of laboratory services in the Referral Hospital will be listed.

In depth interview:

The transcription of cassette or and field notes and preliminary data will be done on the same day. Equipment and supplies, and existing laboratory

tests available in the section of laboratory services in the Referral Hospital will be listed.

Furthermore, the data analysis will be done according to the main variables in the question guidelines for in depth interviews with laboratory staff (and sub-questions from interviewee during the interview process).

Focus group discussion:

The data analysis begins in the discussion process itself. The information about common health problems will be ranked from the most to the least common health problems in the Referral Hospital by members in focus group discussion, and the needed laboratory tests will be selected and listed. Because the type of needed laboratory tests can be the same even though health problems are different. In case of overlap of needed laboratory tests for different health problems, only one test will be selected.

At the end of the focus group discussion with doctors and medical assistants, the information about the common health problems and needed laboratory tests raised by members will be summarized in tables.

Personal interviews:

The data will be analyzed by using computer software of EPI-INFO in order to calculate common health problems and needed laboratory tests, and

also the percentage, means, and mode of experience of medical doctors and medical assistants in the Referral Hospital.

The secondary data collection will be reviewed and listed in order to find out the common health problems in Baaray-Santuk Referral Hospital, the existing laboratory tests, and equipment and supplies in the section of laboratory services to support health care activities in Referral Hospital. Information from other data collection will be supplemented by these secondary data.

3.7. Management Issue

The Referral Hospital Committee (RHC) will manage the action research study through a participatory approach in collaboration with researcher. All laboratory staff and all health staff from the group of medical doctors and medical assistants in the Referral Hospital will be involved either directly or indirectly in the action research process. The development of communication between laboratory service providers and users may help to improve the quality of laboratory services in the Referral Hospital.

The Referral Hospital Committee will be responsible for assigning the responsibilities and supervise the activities over the period of the action research study. On the completion of data collection, the committee will be responsible for data analysis and draw up the conclusions in collaboration with the researcher.

We need one staff from the National Institute of Public Health as moderator so that he can help during the focus group discussion with medical doctors and medical assistants working in the Referral Hospital in order to find out common health problems and assess laboratory test needs. The selection of this resource person will be based on experience with the focus group discussions.

The budget of this study will be made available from both the Ministry of Health and GTZ Health Project for the data collection activities and laboratory training program. Kampong Thom Province is one of the three provinces in Cambodia that has the financial support from the GTZ Health Project in order to rehabilitate and improve health care services in this province. The travel allowance can be made available from GTZ Health Project and the transportation from the Ministry of Health.

3.8. Activity Plan

The action research study will start with a meeting in order to introduce the study with the Referral Hospital Committee (RHC) so as to organize laboratory staff, medical doctors, and medical assistants before starting action research in Baaray-Santuk Referral Hospital. The activity of study will be conducted in four months from April to July 2000.

But the whole project to improve laboratory services in Baaray-Santuk Referral Hospital will be undertaken over a one year period starting from April 2000 to March 2001.

The focus group discussion and personal interviews with medical doctors and medical assistants working in Baaray-Santuk Referral Hospital will be conducted in the second month of activity plan during May 2000.

The observation study in the laboratory service section and in-depth interviews with laboratory staff will be conducted in the third month of the activity plan during June 2000. The observation and in-depth interviews should be completed in the third month of activity plan during June 2000. Further, the secondary data collection will be done in June 2000 so that analysis of the data together can take place with primary data gathered.

The preliminary data analysis has to be done after completion of each research techniques. Therefore, the process of data analysis will be started from May 2000 until the data collection period is over in June 2000. The final data analysis and report writing will be done in July 2000.

Based on the research findings, Laboratory Technical Committee has to be set up by the committee director of the National Institute of Public Health in July 2000 and then the development of training curriculum will be developed by the Laboratory Technical Committee from August to October 2000. Moreover,

The training curriculum has to cover all needed laboratory tests in the Referral Hospital, quality control, and basic care and maintenance of equipment.

The training program should be conducted from November to December 2000 by the National Reference Laboratory (NRL) and Laboratory Technical Committee members (LTC). During laboratory training process, standard operating procedures manual (SOPM) should be started to organize by Laboratory Technical Committee so that laboratory staff can follow in order to perform laboratory tests correctly in the Referral Hospital after training.

In addition, the upgrade of laboratory equipment and facilities should be done from November 2000 to February 2001 by GTZ Health Project, Laboratory Technical Committee, and Baaray-Santuk Referral Hospital Committee.

The evaluation of laboratory services in Baaray-Santuk Referral Hospital through external quality assessment and impact evaluation will be done by National Reference Laboratory and researcher in collaboration with the Referral Hospital Committee at the end of March 2001 of activity plan.

The summary of activity plan in order to improve laboratory services in Baaray-Santuk Referral Hospital is shown in the table 3.1 as

Table 3.1: Activity Plan

Activity	Period	April 2000										March 2001			Resource Persons
	Month	A	M	J	J	A	S	O	N	D	J	F	M		
1. Introduce action research with RHC		■													Director of RH, Researcher
2. FGD with MD/MA			■												RHC, Researcher
3. Personal interview with MD/MA			■												RHC, Researcher
4. Observation				■											RHC, Researcher, Moderator
5. In depth interview with laboratory staff				■											RHC, Researcher
6. Secondary data collection				■											RHC, Researcher
7. Final data analysis & report writing					■										RHC, Researcher
8. Set up Laboratory Technical Committee					■										NIPH' s director committee, GTZ
9. Develop training curriculum						■	■								LTC
10. Training program.								■	■						LTC, NRL
11. Upgrade of laboratory equipment/facilities									■	■	■				LTC, GTZ, RHC, NIPH
12. Evaluation													■		NRL,RHC, Researcher

* RHC = Referral Hospital Committee

* NIPH = National Institute of Public Health

* LTC = Laboratory Technical Committee

* MD/MA = Medical doctor/medical assistant

* NRL = National Reference Laboratory

* GTZ = GTZ Health Project

3.9. The Budget Estimation

3.9.1. Salary Rate

The salary supplement for laboratory technical committee members in order to develop the laboratory training curriculum and for the researcher is estimated based on the fee as defined by the agreement between the Ministry of Health and GTZ Health Project in 1996.

Laboratory training curriculum in each specialty of medical laboratory such as hematology, serology and blood transfusion, clinical biochemistry, microbiology and parasitology will be developed by all committee members working together and report writing will be done by researcher. It expected that laboratory-training curriculum development will take about three months and the report writing about one month. All resource persons will be paid 150 USD per month.

3.9.2. Per Diem Rates

Researcher, moderator, laboratory technical committee members, and driver participating in the field visits will be entitled to receive a daily per diem. Researcher, moderator, and laboratory technical committee members will be paid 20 USD per day and the driver 15 USD per day. Payments for lunches, dinners, and accommodations are covered under the per diem rates and will not be paid separately.

Although the action research study will be conducted in the Referral Hospital and the hospital staff is expected to contribute their efforts in order to improve laboratory services in the Referral Hospital, some incentives should be provided to the Referral Hospital Committee. They will be paid 3 USD per day for the final data analysis.

In addition, Laboratory technical committee members who have to conduct laboratory training program will be paid a daily per diem 7.5 USD per day because the training will be provided according to the specialty of medical laboratory and in each session will be taken less than one month. And also laboratory staff who has to attend laboratory-training program will be provided 100 USD per month.

3.9.3. Transportation

The transportation costs for this study will not be included in the budget because transportation can be made available from the National Institute of Public Health and the Ministry of Health such as car and fuel without reimbursement.

3.9.4. Budget Details

1. Introduce action research study to Referral Hospital Committee

Researcher: 1 person × 2 days × 20 USD = 40 USD

Driver: 1 person × 2 days × 15 USD = 30 USD

Sub Total: 70 USD

2. Observation and in depth interview:

Researcher: 1 persons \times 5days \times 20 USD = 100 USD

Driver: 1person \times 5 days \times 15 USD = 75 USD

3. Focus Group Discussions:

Researcher and moderator: 2 persons \times 3 days \times 20 USD = 120 USD

Driver: 1 person \times 3 days \times 15 USD = 45 USD

One tape recorder = 60 USD

One tape = 20 USD

Refreshments for participants 10 persons \times 1 days \times 2 USD = 20 USD

4. Personal Interview:

Researcher: 1 person \times 4 days \times 20 USD = 80 USD

Driver: 1 person \times 4 days \times 15 USD = 60 USD

5. Final data analysis:

Researcher: 1 persons \times 20 USD \times 5 days = 100 USD

Referral hospital committee: 5 persons \times 3 USD \times 5 days = 75 USD

Driver: 1 person \times 15 USD \times 5 days = 75 USD

6. Report Writing

Researcher: 1 person \times 150 USD \times 1 month = 150 USD

Subtotal for research activities = 980 USD

7. Develop Laboratory training curriculum

Laboratory technical committee: 4 persons \times 150 USD \times 3 months = 1800 USD

Subtotal = 1800 USD

8. Laboratory Training Program

a. Hematology, serology and blood transfusion

Laboratory technical committee: 2 persons × 10 days × 7.5 USD = 150 USD

b. Clinical biochemistry

Laboratory technical committee: 2 persons × 10 days × 7.5 USD = 150 USD

c. Microbiology and parasitology

Laboratory technical committee: 2 persons × 20 days × 7.5 USD = 300 USD

d. Per diem for laboratory staff:

4 persons × 2 months × 100 USD = 800 USD

Subtotal = 1400 USD

9. Evaluation

Researcher: 1 person × 3 days × 20 USD = 60 USD

Laboratory technical committee: 2 persons × 3 days × 20 USD = 120 USD

Driver: 1 person × 3 days × 15 USD = 45 USD

Subtotal = 225 USD

3.9.5. Budget Justification

Introduction of the action research study includes per diem required for researcher and driver to meet costs related to lunches, dinners, and overnight stay in the provincial town. This budget is needed so that they can organize laboratory staff, medical doctors, and medical assistants before starting the action research study in the Referral Hospital.

For data collection activities and final data analysis; per diems need to be paid for the researcher, the moderator, and the driver for lunches, dinners, and overnight stay in the provincial town. The moderator from the National Institute

of Public Health will help the researcher during the focus group discussion with medical doctors and medical assistants and the driver will pick up the researcher between the National Institute of Public Health, the Referral Hospital and the provincial town. Furthermore, one tape recorder and tape will be used in the focus group discussion and some incentives should be provided for the Referral Hospital Committee, especially during the final data analysis.

Report writing will take about one month and the development of laboratory training curriculum is expected to take about three months. The budget is needed to meet the salary cost for researcher and the Laboratory Technical Committee members.

The laboratory training program is also estimated to take about two months. Two weeks for hematology, and serology and blood transfusion, two weeks for clinical biochemistry, and one month for microbiology and parasitology in order to upgrade knowledge and skills of laboratory staff. Two laboratory technical committee members will be responsible for each session of the laboratory training program and they will be paid on a daily per diem base.

Evaluation will be undertaken by two laboratory technical committee members from National Reference Laboratory and the researcher in order to conduct the impact evaluation and assess the performance of laboratory staff working in the Referral Hospital. Per diems will cover costs paid for lunches, dinners, and overnight stay in the provincial town.

3.9.6. Disbursement Schedule

Table 3.2: Disbursement Schedule

Budget Category	Relation to Activity in Work Plan	1-4 Months	5-12 Months	Total (USD)
1	Introduce action research study to the Referral Hospital Committee	70		70
2	Data collection activities, data analysis, and report writing.	980		980
3	The development of laboratory training curriculum		1800	1800
4	Laboratory training program		1400	1400
5	Evaluation		225	225
Sub-total		1050	3425	4475
Miscellaneous (10%)		105	340	445
Total		1155	3765	4920

3.10. Evaluation

The evaluation will be done in March 2001, two months after the laboratory training program. In order to evaluate the quality of laboratory services in Baaray-Santuk Referral Hospital, we have to study both laboratory staff and the perceptions of medical doctors and medical assistants who are laboratory users in the Referral Hospital.

Therefore, the evaluation will be done through two measures external quality assessment and impact evaluation.

3.10.1. External Quality Assessment

The National Reference Laboratory through two measures will do external quality assessment in laboratory services in Baaray-Santuk Referral Hospital:

(i). The National Reference Laboratory has to prepare samples of specimen and send them to the staff of laboratory services in the Referral Hospital so as to perform all tests and report the results to the National Reference Laboratory. Staff of the National Reference Laboratory have to compare between the results from laboratory services in the Referral Hospital and the results of the National Reference Laboratory so that they can evaluate the performance of laboratory staff working in the Referral Hospital.

(ii). The senior staff from the National Reference Laboratory have to visit the section of laboratory services in the Baaray-Santuk Referral Hospital in order to check the performance of laboratory staff through observation and interviews using standard operating procedures as measurement.

3.10.2. Impact Evaluation

The impact evaluation will be done through a survey in order to measure the level of satisfaction in terms of their perception relating to laboratory

services among laboratory users and focus group discussion in order to get feedback from clinicians working in the Referral Hospital. The study population will be the medical doctors and medical assistants who are working in the Referral Hospital.

The self-administered questionnaire will be developed in order to find out the level of satisfaction about the laboratory services in Baaray-Santuk Referral Hospital. This study will be conducted at the end of project in March 2001.

3.11. Limitation of the Study

The sample size for the proposed study is small and the study is conducted in only one Referral Hospital in Kampong Thom province. Therefore, the findings of study can not be generalized and represent the problems of laboratory services of Referral Hospitals in the whole country. We need further study for the development of guidelines so as to upgrade laboratory services in each Referral Hospital.

This study does not cover all factors affecting the poor quality of laboratory service support in the Referral Hospital. Basically, we focus on needed laboratory tests, upgrade of laboratory facilities, and laboratory training in order to organize laboratory services in the Referral Hospital.

Due to limited time and resource the sample size is used in the pilot study is small to present the population of the proposed study. As a result, the

instruments of data collection methods need to be further tested in Cambodia before doing the actual action research study.