REPORT

INTERCOUNTRY WORKSHOP ON CONTROL OF MALARIA AS PART OF PRIMARY HEALTH CARE

Madang, Papua New Guinea
28 October - 1 November 1985

Manila, Philippines
March 1986
INTERCOUNTRY WORKSHOP ON CONTROL OF MALARIA
AS PART OF PRIMARY HEALTH CARE

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Not for sale

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Manila, Philippines
March 1986
NOTE

The views expressed in this report are those of the participants in the Workshop and do not necessarily reflect the policy of the World Health Organization.

This report was prepared by the World Health Organization Regional Office for the Western Pacific for governments of Member States in the Region and for participants in the Intercountry Workshop on Control of Malaria as part of Primary Health Care.
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   REFERENCE TO PRIMARY HEALTH CARE
1. SUMMARY

The Regional Office for the Western Pacific of the World Health Organization (WHO) organized an intercountry workshop on 'Control of Malaria as Part of Primary Health Care' in Madang, Papua New Guinea from 28 October to 1 November 1985. Sixteen participants from five countries and eight members of WHO and temporary advisers attended the workshop.

The malaria situation in the Western Pacific Region has remained, by and large, stable in recent years. However, there are unique features of the situation in each country with endemic malaria. Malaysia has been maintaining a very low malaria incidence, and a status of eradication in many areas. This situation has been achieved through a traditional vertical eradication organization. A high incidence of epidemic proportions exists in many parts of Solomon Islands, Vanuatu, Papua New Guinea and the Philippines. In these latter countries the organization of malaria control activities in recent years has been plagued with numerous constraints.

The main technical problems are:

1. Some vectors have become less responsive to insecticide spraying owing to the exophilic tendency;
2. Some parasites are resistant to antimalarial drugs, giving rise to difficulty in selecting alternative drug regimens.

The operational constraints include shortages of manpower and funds, security issues and difficulties with less accessible terrains. Social problems are also more acute, such as increasing population movements and general dissatisfaction in many communities with the previous malaria programmes.

With this situation—beset with old and new problems and constraints—most countries have now recognized the need for solving these problems through the implementation of malaria control as part of primary health care.

The purpose of the Madang workshop was to explore ways to make more effective use of the technology against malaria through a primary health care approach. It was accepted that the existing malaria technology is the only effective means to combat malaria and, even with the pending introduction of a vaccine, these measures will still need to be widely used. The workshop, therefore, attempted to analyse why the malaria technology has not been completely effective in reducing malaria, with particular reference to those solutions thought to be using a primary health care approach.

The conclusion was reached that there is a fundamental problem with the existing strategies to implement malaria technology through primary health care. This problem stems from the assumptions upon which the malaria technology is based, namely, that the malaria measures would be implemented through a reasonably rigid, centrally controlled organization: the traditional vertical eradication programme. In contrast, quite different assumptions form the basis of the support organizations in a primary health care approach. The primary health care approach, for example, assumes that there will be involvement and participation of the community and health workers during all phases of an activity. The workshop, therefore, concluded that the present situation with regard to the integration of malaria control as part of primary health care can best be described as 'attempting to put a square peg in a round hole'.
Recognizing the implications of this dilemma, the workshop then proceeded to develop new approaches for implementing malaria control activities using the primary health care approach. These new approaches formed the basis of project proposals that were prepared by each team of the workshop. It is anticipated that these project proposals will be used as a stimulus for a new initiative in countries to further expand the knowledge and experience on more effective ways to control malaria through primary health care.

2. PURPOSE

2.1 Objectives

The objective of the workshop was to study the implementation of specific programmes for control of malaria as part of primary health care.

The workshop:

(1) reviewed the current experience of countries in control of malaria as part of primary health care;

(2) determined specific activities in the control of malaria which could be a part of primary health care;

(3) identified support requirements for primary health care to carry out control of malaria; and

(4) developed proposals for the control of malaria as part of primary health care.

2.2 Expected outcomes

By the end of the workshop, it was anticipated that country project proposals would be prepared to illustrate how malaria could be controlled as part of primary health care. These proposals would take into consideration what had been learnt from past experiences with malaria control as part of primary health care, and what was determined (from the workshop) as being the most likely aspects of a malaria control programme that could be handled through a primary health care approach.

3. ORGANIZATION

3.1 Location and participants

The workshop was held at the College of Allied Health Sciences, Madang, Papua New Guinea, from 28 October to 1 November. The workshop was very efficiently administered by staff of the host College.
There were sixteen country participants to the workshop representing Malaysia, Papua New Guinea, Philippines, Solomon Islands and Vanuatu. These were all senior managers of various aspects of malaria control in their respective countries. In addition, there were six WHO staff members and two temporary advisors participating in the workshop. A list of participants can be found in Annex A.

3.2 Outline

The workshop was divided into three principal components:

The first component was designed to obtain a consensus description of the malaria problem with emphasis on control measures that could be implemented through a primary health care approach. This component was completed in the first two days of the workshop.

The second component was a field visit. The field visit provided the participants with an opportunity to test their assumptions and an understanding of a community in relation to priority factors that impact on implementing malaria control measures. These assumptions were based on the results of discussions from the first two days.

The last two days of the workshop involved the design and preparation of project proposals to study the priority issues that emerge in implementing malaria control through a primary health care approach.

The opening and closing ceremonies were organized and chaired by staff from the College with speakers from the College of Allied Health Sciences, the Government of Papua New Guinea and WHO.

The detailed agenda for the workshop is included in Annex 2.

3.3 Method of work

The workshop was organized in such a way that there were no lectures or other conventional means of providing known or new knowledge. The team of resource persons was responsible for providing the objective and method of work for each session and assisting discussions by providing a synthesis of ideas from time to time.

Participants expressed themselves openly throughout the workshop, exchanging ideas, arguments, and experiences in relation to the real situation found in their own countries. The few documents that were distributed served only as a catalyst to stimulate the participants' own ideas and experiences.

The format of most sessions consisted of (1) a brief introduction to the session outlining the purpose and expected outcome, (2) a period of small group work, and (3) a plenary session when the small group discussions were reported and a summary of the session was made. The participants, including resource persons, were organized into four working groups which formed the basis for technical discussions and analysis.
4. OUTCOME OF DISCUSSIONS

4.1 Describing the malaria problem

The first major exercise of the workshop was to describe the malaria problem. The purpose of this exercise was to stimulate the participants to jointly organize their collective knowledge and experience on malaria control. The organization of this information needed to be in a form which produced a consensus understanding of malaria and could be used to reach decisions on ways to improve malaria control operations. This picture—a description of the malaria problem—also needed the key relationships between malaria technology and its application through primary health care.

Each working group was asked to prepare a description of the malaria problem. The process used to prepare a group picture consisted of first allowing each individual to list what he/she felt were the main difficulties in the control of malaria through primary health care. Then, it was the group task to synthesize all the individual pieces of information into a comprehensive picture. Emphasis was placed on arriving at a comprehensive picture as a technique to stimulate the group to come up with a method of analysis which would include all the individual items of information. Consequently, to prepare only a revised list of problems was simply not an acceptable tool for purposes of this workshop.

The results of this exercise were quite encouraging. It was a difficult exercise since it required individuals to thoroughly review and explain their own ideas and understanding in such a way that their information could be organized into a common/group description of the malaria problem. It was an important exercise since the results would become the basis for all other the tasks of the workshop.

The results of one group are used in this report to illustrate the process of the exercise and to show the type of output that was produced.
FIGURE 1. PROBLEMS THAT AFFECT THE CONTROL OF MALARIA THROUGH PRIMARY HEALTH CARE

- community participation
- community resources
- operational problems
- information support systems
- development of a strategy
- poor past operations
- changing behaviour of anopheles (exophilia, zoophilia)
- migration
- cultural acceptance of fever
- transport difficulties
- manpower shortage
- limited finances
- vector breeding sites
- lack of support from national levels

Figure 1 shows the list of problems that were generated by the first step of the exercise: each individual was asked to indicate what he felt to be the main problem of malaria control as part of primary health care. At this initial stage, just from a list, it is obvious that the statement of problems is so vague that very little in the way of meaningful information has been produced.

Figure 2 illustrates how the group took the individual pieces of information and organized them into a comprehensive picture. This description of the malaria problem has the following positive features:

- It shows relationships, the most significant being the relationship between typical malaria operations (application of technology) and the community.

- It shows levels of information, for example, information which deals with the biology of the vector and parasite up to information related to national policy and customs.
It allows for boundaries to be drawn, in this case, the dashed line indicates that part of the problem which is most directly related to the primary health care approach.

The actual picture developed by the group was in greater detail than what has been reproduced for this report. Not all groups produced the same level of work that is illustrated in Figure 2. For example, one group used the traditional man-parasite-vector cycle to describe the malaria problem. This is the model of relationships upon which most of the malaria technology has been developed. However, this model does not readily facilitate the incorporation of community relationship. Consequently, this group - being constrained by their initial model - was never able to escape from the traditional malaria technology interventions in their proposals.
FIGURE 2. THE MALARIA PROBLEM

Policy

Development projects
Planning, management supervision
Pay training job security
Customs
Cultural socioeconomics

Attitude of health worker
Traditional acceptance of illness

Migration

Aversion to spraying
Behaviour

Technical/Operational Failures
Lack of community awareness and support

Insecticide Resistance
Poor Spray Coverage
Poor Drug Compliance

Vector Breeding

Parasite
Chloroquine resistance
Genetics

Malaria morbidity and mortality

(Boundary of Primary Health Care)
4.2 Country experiences

The purpose of this exercise was to clarify and further develop the group's description of the malaria problem through the sharing of specific country experiences.

The workshop participants represented a wide range of experience in the control of malaria under a variety of differing situations. To gain the most from this exercise, it was important to focus the individual knowledge on specific topic(s). In order to do this, the description of the malaria problem (model) was used to facilitate the group discussions. The most successful groups were those that guided their discussion by referring to their initial model of the malaria problem.

The group illustrated in Figures 1 and 2 focused their discussion on what they had defined as the boundary of primary health care — see Figure 2. As a result, they produced a summary table which helped to organize the information that was generated from country experiences. This information is illustrated by Figure 3.
### FIGURE 3. SUMMARY OF COUNTRY EXPERIENCES

**Malaria Control Activities**

<table>
<thead>
<tr>
<th></th>
<th>Papua New Guinea</th>
<th>Solomon Islands</th>
<th>Vanuatu</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Vector control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Spraying</td>
<td>Highlands</td>
<td>Most areas</td>
<td>High risk areas</td>
</tr>
<tr>
<td></td>
<td>Economic areas</td>
<td>(coastal)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHC areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Source reduction</td>
<td>PHC areas</td>
<td>Some areas</td>
<td>Some areas</td>
</tr>
<tr>
<td></td>
<td>Economic areas</td>
<td>(coastal)</td>
<td></td>
</tr>
<tr>
<td>C. Personal protection</td>
<td>Urban</td>
<td>Urban</td>
<td>Urban</td>
</tr>
<tr>
<td>D. Biological</td>
<td>Some urban</td>
<td>Tilapia</td>
<td>Gambusia</td>
</tr>
<tr>
<td></td>
<td>Gambusia(BTI)</td>
<td>BTI</td>
<td>rice plants</td>
</tr>
<tr>
<td><strong>II. Parasite control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Drugs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. MDA/Prophylactics</td>
<td>Pregnant women</td>
<td>Pregnant women</td>
<td>Pregnant women</td>
</tr>
<tr>
<td></td>
<td>Plantations</td>
<td>women during</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economic areas</td>
<td>transmission</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Epidemic</td>
<td>(PHC)</td>
<td></td>
</tr>
<tr>
<td>2. Care detection and treatment</td>
<td>All areas, standard</td>
<td>Yes, standard</td>
<td>Yes, standard</td>
</tr>
<tr>
<td></td>
<td>regime, voluntary</td>
<td>regimes</td>
<td>management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PHC in villages</td>
<td></td>
</tr>
<tr>
<td>B. Research</td>
<td>Vaccine, fish nets</td>
<td>Nets, BTI</td>
<td>Health education,</td>
</tr>
<tr>
<td></td>
<td>drugs, BTI, health</td>
<td>health</td>
<td>PHC</td>
</tr>
<tr>
<td></td>
<td>education, PHC</td>
<td>education,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PHC</td>
<td></td>
</tr>
</tbody>
</table>
4.3 Assumptions

The third exercise of the workshop was to examine assumptions that must be true in order to have effective involvement of the community in a malaria control activity. These assumptions involved facts that must be known about a community before specific tasks can be undertaken in that community.

The participants first reviewed the main failures with past experiences of working with communities. From these failures, it was possible to deduce the assumptions that had been made and upon which specific community activities had been based.

Each group, subsequently, made up a list of new assumptions which they felt must be correct before further efforts are made to improve community involvement in malaria control. A field visit was arranged for the participants to test their assumptions. The field visit was not meant to provide all the necessary information for testing assumptions; however, it provided a sufficient experience for the participants to see how such a task could be accomplished.

Figure 4 shows the list of assumptions that was prepared by each group. The groups were able to obtain some information on each assumption in order to make a comment as to the validity of the assumption. In general, the comments indicated that some of the assumptions were correct. The Group B (Figure 4) assumptions are a good example of the type of understanding that health workers must have in order to develop an effective primary health care approach.
FIGURE 4. ASSUMPTIONS ABOUT THE COMMUNITY

Group A

1. People will resist any introduced health service that requires them to change their lifestyle.

2. People believe that the government should provide health services to the community.

3. People do not consider malaria as a health problem.

4. People will accept a health intervention if it is good for their children.

Group B

1. A community can describe the structure of its community and how decisions are made.

2. (a) The community understands the difference between illness and health and the symptoms and transmission of malaria

   (b) The community cannot prioritize its health problems but can recognize the main symptoms (cough, fever, headache, diarrhoea)

   (c) Health care is the responsibility of the government; distrust of government at present.

3. The community will share knowledge and understanding and accept assistance; probably will not show much initiative.

Group C

1. The community accepts that malaria is a problem.

2. The community is ready to take full responsibility for malaria control.

3. The community is able to participate financially, with manpower, etc.

Group D

1. Males and females differ in their perception of the malaria problem.

2. People do not consider malaria as a major problem.

3. Treatment and control of malaria is the responsibility of the government.
4.4 Project proposals

The final task of the workshop was to prepare project proposals. The purpose of this exercise was to prepare a draft proposal in the form of a demonstration project. These proposals were to focus on the priority problems of implementing malaria control through primary health care that emerged from the workshop discussions. The projects would also include new strategies for resolving these problems as a result of the analysis done during the workshop. A significant aspect of the project proposal was to include specific components which would aid in managing the project as well as ensure that the results of the project would contribute to a better understanding of the development issue: integration of malaria and primary health care.

The detailed project proposal prepared by each group is shown in Annex 4. All the proposals were reasonably comprehensive for this stage of preparation and included the essential elements of a sound project proposal. All the projects have some new elements which could contribute to the development of malaria control using the primary health care approach. The proposal of Group B, however, is the most explicit in terms of directly focusing on the key issues that emerged from the workshop. The Group B proposal, for example, illustrates the key feature of a primary health care approach; developing with the community the appropriate relationship between malaria technology and community organization. That is, the specific tasks to be performed in a community should not be pre-determined and forced on or sold to the community. This latter approach is still reflected in the other proposals and is most apparent in the Group C proposal.

In summary, the proposals illustrate the positive result that can be achieved by following a structured process which (a) defines a problem in such a way that everyone's ideas can be included, (b) tests some basic assumptions about individual perceptions of the problem before plunging into solutions, and (c) addresses - in the project proposal - the concerns for managing and learning as an integral part of the project.

With refinement for specific country settings, the strategies illustrated by these proposals can be used to prepare final national proposals that will contribute to further improvement in malaria control as part of primary health care.
5. CONCLUSION

Assuming that the implementation of 'malaria control as part of primary health care' involves something more than selling malaria technology to a community, the workshop brought out a number of issues on how to work with a community. The key issues that evolved from the workshop discussions included:

(1) The application of traditional malaria technology - control measures - is based on support systems (training, logistics, supervision, etc.) that are not readily incorporated by a typical community setting.

(2) The health system often does not have an accurate understanding of the community.

(3) Health workers typically perceive the community as an extension of the health service.

(4) The primary health care approach implies an equal weight to the health service/worker and community relationship.

(5) The above assumptions imply that malaria workers need to use different approaches than from the past in their future relations with the community.

The results of the workshop indicate that it is possible to organize information from the knowledge and concerns of health workers in such a way that innovative solutions emerge to resolve the basic problems that are felt by these workers. The outcome of the workshop - in terms of project proposals - illustrates specifically what can be achieved through this process.

Feedback from the participants indicated that the process used during the workshop was new to most of them. As a result, for many, the early sessions of the workshop were confusing. With only a few exceptions, however, the participants did realize by the end of the workshop how the method contributed to the final results. The participants expressed that the positive results for them included:

- an appreciation of the importance and techniques of group participation in reaching a consensus understanding of complex issues and problems;

- understanding the relationship of malaria technology and the community;

- clarification of the meaning of the primary health care approach; and

- realizing the important role of management in developing malaria control as part of primary health care.
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N.C.D.

Dr Paul Garner
Research Officer
Institute of Medical Research
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<table>
<thead>
<tr>
<th>TIME</th>
<th>SESSION</th>
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**28 October: Monday**

<table>
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<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>0830 - 0930 Hours</td>
<td>1. Opening and introduction to workshop</td>
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<tr>
<td>0930 - 0945 Hours</td>
<td>Tea/Coffee break</td>
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<tr>
<td>0945 - 1200 Hours</td>
<td>2. Team building exercise</td>
</tr>
<tr>
<td>1200 - 1300 Hours</td>
<td>Lunch</td>
</tr>
<tr>
<td>1300 - 1600 Hours</td>
<td>3. Mapping the malaria problem</td>
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**29 October: Tuesday**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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</thead>
<tbody>
<tr>
<td>0800 - 1200 Noon</td>
<td>4. Country reports</td>
</tr>
<tr>
<td>1200 - 1300 Hours</td>
<td>Lunch</td>
</tr>
<tr>
<td>1300 - 1500 Hours</td>
<td>5. Description of present constraints in malaria control measures</td>
</tr>
<tr>
<td>1500 - 1600 Hours</td>
<td>6. Community involvement in malaria control</td>
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**30 October: Wednesday**

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<tr>
<th>Time</th>
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<tr>
<td>0800 - 1600 Hours</td>
<td>7. Field visit</td>
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**31 October: Thursday**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>0800 - 1100 Hours</td>
<td>8. Management exercise on supervision</td>
</tr>
<tr>
<td>1100 - 1200 Noon</td>
<td>9. Role of primary health care in malaria control</td>
</tr>
<tr>
<td>1200 - 1300 Hours</td>
<td>Lunch</td>
</tr>
</tbody>
</table>
Annex 2

1300 - 1500 Hours
Continuation of Session 9

1500 - 1600 Hours
10. Preparation of project proposals on the control of malaria using primary health care approach

1 November: Friday

0800 - 1200 Noon
Continuation of session 10

1200 - 1300 Hours
Lunch

1300 - 1500 Hours
Review of workshop

1500 Hours
CLOSING
On behalf of Dr Hiroshi Nakajima, Regional Director of the WHO Regional Office for the Western Pacific, allow me to extend a warm welcome to all participants in this workshop on control of malaria as part of primary health care. I should also like to express my gratitude to the government of Papua New Guinea for agreeing to host the workshop.

The commitment of your governments to health for all by the year 2000 is reflected in the strong efforts you are making to organize your health systems on the basis of primary health care, many activities are being conducted in line with the basic tenets of the health-for-all movements, namely, the reorientation and strengthening of the health infrastructure, the expansion of community involvement, the improvement of intersectoral coordination and reinforcement of the capacity to conduct research on important aspects of primary health care.

The existing health care systems, if they are to give an effective lead in the drive towards health for all, must themselves undergo reorientation. The principal activities involved in the process include organizational changes, staff reorientation and the strengthening of institutions to support developmental health activities at the primary level so that the essential elements of primary health care can be brought as close to the people as possible.

I know that in most of your countries, you have opted long-term malaria-control strategies emphasizing the primary health care approach and with the prevention of mortality and the reduction of morbidity as their primary objective, we also know, however, that there is a gap between what should be happening with these strategies and what is actually happening in the majority of communities in your countries. Why does this gap occur?

On the one hand, malaria programmes have a long history and are well known for their emphasis on getting things done in the field - in the communities themselves. This is a record to be proud of. From the very inception of malaria programmes, control measures, such as spraying, case detection, larviciding, etc., have involved the community in carrying them out. Nevertheless, despite the best of intentions, the malaria problem is still with us and in some cases has again reached a very serious point. We all know the many explanations that are given for this situation.

The purpose of this workshop is to analyse some of your recent achievements in the control of malaria through primary health care and to determine what additional ways might be used to improve the carrying-out of malaria control measures based on the concept of primary health care.
Annex 3

I suggest that during your discussions this week, you keep in mind the significant difference between the way past malaria control programmes thought of the community and the current approach of primary health care. This difference can be illustrated by the attitude to the community implied in the following statements:

A. "We have this well-developed malaria control plan. Now let us see how the community can help us", or

B. "The community feels that malaria is a problem. Now how can we cooperate with them in overcoming it?"

My point is that we can no longer take the community for granted. We must now work with the community from the beginning of any process that will eventually have an impact on the lives of its members. In order to begin changing our ways of working with the community, we may need to know more about it and how to work with it more effectively. I believe that is why you are here today.

There is a great deal of accumulated experience available here today with a tremendous potential for making some significant progress towards reducing the impact of malaria. I wish you all the best in your work this week. I am looking forward to hearing about what you achieve.
PROJECT PROPOSALS

I. Group A: Project proposal

Malaria control through primary health care

Objectives

(1) Prevent death due to malaria.
(2) Reduce duration of illness due to malaria
(3) Reduce hospital admission due to malaria
(4) Reduce the number of children under 5 years having malaria parasite by 5%/3 month

Relevance

Attaining the objectives of the project will contribute to the realization of the goal of health for all by year 2000.

Potential application

The PHC organization utilized by the Malaria Project, if successful, may serve as a nucleus, to be improved and expanded for use of other community based health programmes. This is essentially a community based project, so that progress of the process and the results of actions will be fed back to the health committees at quarterly interval for their evaluation.

Hypothesis

(1) The community is aware of the problem and provided adequate knowledge and support is given, they will undertake a sustained malaria control programme in their own community;

(2) People will communicate with the volunteers as soon as they get sick and submit to blood filming and accept anti-malaria drugs.

Methodology

Following malaria control measures will be implemented through optional community participation.

- Drug treatment for all clinical malaria
- DDT spraying 2 times per year (provided people accept)
- Biological control
- Environmental management
- Personal protection measures
  - Prophylaxis
  - mosquito net
A health committee shall be organized for each locality/community. The health committee will be responsible for all malaria control measures within its area. The committee shall appoint volunteers to cover approximately 20 houses. These volunteers shall perform the following:

(1) Visit houses every two days and take blood smears from suspected fever cases and administer presumptive treatment (chlorquine + primaquine). Once blood examination results are received, priorities are given radical treatment;

(2) Conduct appropriate biological and environmental management measures - where feasible;

(3) Assist in residual spraying. Spraying shall be conducted by health personnel when indicated and accepted by the people; and

(4) Implement personal protection measures.

The malaria team leader based in the project area will enlist the support of school teachers, community leaders and other suitable persons to carry out health education and community organization. Cooperation of other health extension services together with other government and private enterprises will be obtained to other health related need of the community.

- Team leader + 6 field office + 1 laboratory technician

Study variables

(1) Knowledge on malaria and its control methods in the community
(2) Progress of the community; Health Committee formation, membership, number of meetings/month; qualitative description of the decision making process, problems encountered, enthusiasm of committees
(3) The regularity of the performance of village health volunteer (VHV)
(4) Duration of illness in malaria; number of hospitalizations and deaths due to malaria (records of VHV)
(5) Number of breeding places where biological measures are applied
(6) Reduction of malaria transmission

Instruments

Variable I  - Sample interviews and questionnaire every 6 months
Variable II - Interviews and participating observation
Variable III - Records of VHV; Interview of community
Variable IV - Records of VHV
Variable V  - Records of VHV; Discussion with CHC members
Variable VI - Under 5's mass blood survey results, expressed o/oo under 5's pop., together with monthly case detection reports (monthly parasite incidence)
Plan of work

(1) Meeting with community
(2) Committee organization
(3) Vol. selection training
(4) Treatment + BF
(5) Mass survey
(6) Vector control
(7) C.H.C. meetings
(8) Evaluation (By community and malaria technical personnel)

Budget

(1) Salaries -

1 - Team leader -
6 - F. O. -
3 - Lab. Tech. -

(2) Lab. equipment

(3) Transport:

1 car, 6 motorcycles -

(4) Travel expense -

(5) Training -

(6) Drugs -

(7) DDT/insecticides -

(8) Supplies -

(9) Others -
II. Group B: Project proposal

Malaria control through primary health care in a pilot area

Objectives

(1) Reduce malaria morbidity and mortality in a rural area through combined community and governmental efforts.

(a) describe population in terms of geography, culture, demography, socio-economic variables and health status.
(b) establish the relative importance of malaria as perceived by the community
(c) investigate how malaria control/measures can be effectively managed through community organization and participation.
(d) develop (implement and evaluate) a malaria control strategy commensurate with the principles of primary health care.

Relevance

The project is in line with national and local goals as described in the national development plan.

Potential application

The result of this project will:

(1) indicate the feasibility of malaria control through primary health care in a defined population.
(2) act as a model for similar disease control programmes.

Hypothesis

Malaria control/measures may be effectively implemented and sustained by combined community and governmental efforts.

Methodology

Summary

The objectives will be achieved by:

(1) defining those aspects of the community, including its structure and resources, which may usefully be utilised for malaria control;
(2) identify technology and national resources which are appropriate for malaria control through primary health care in the selected rural area; and
Annex 4

(3) identify possible interactions between malaria control and other activities that will promote community organization and participation.

Study variables

(1) (a) Political, social, cultural and economic structure of the community
(b) Demographic variables
(c) Geographic variables
(d) Present and past perceptions of community/i.e. interactions with outside, formal organization
(e) Community perceptions of
   (1) major problems affecting them
   (2) illness and health with specific reference to malaria, and how it views its responsibility towards these problems.

(2) (a) Previous malaria control activities and their effectiveness.
(b) baseline malaria metric and entomological data.
(c) Community perception of past & present malaria control activities, including their interactions with the community activities.

(3) (a) Community ideas and resources for participating in other activities if they are successful in controlling malaria.
(b) define government priorities and potential resources for community development

Instruments

(1) research team comprising:
   (1) malaria/PHC
   (2) scientist and social scientist
   (3) community/rural development specialist - driver/interpreter

(2) sampling - basic unit is household, survey forms, ongoing.
   periodic surveying at community/village level.

(3) feedback from community groups and organizations.
Annex 4

Organisation

VILLAGE

Women and Children Youth L.G.C. Church
Development Health Education

Project Team

- Malaria PHC scientist
- Social scientist
- Community/rural development specialist
- driver

Steering committee/MOH

- PHC coordinator - OIC Health Centres
- Projects coordinator - MO
- Primary Health Officer - Council
- CBC malaria - Primary Industry

- Education - DPI
  - UPNG - NPO
  - IASED

Secretary of Health

Minister for Health

National Parliament
Plan of work

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**ITEMS** | **KINA** | **SPECIFICATIONS**
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1 | 50 000 | - Public servants salaries (48 p.m.)
2 | 10 000 | - Travel and travel allowances
3 | 5 000 | - Utilities (stationery, electricity, water)
4 | 20 000 | - Stores and supplies
5 | 20 000 | - Transport
6 | 5 000 | - Community based interaction
7 | 20 000 | - Capital equipment
8 | 10 000 | - Others (community development)
9 | 10 000 | - Casual/Overtime, leave fares

Total 150,000
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Budget Total: 150 000 k
Population: 40 000
Per Capita Exp.: 375 k
III. Group C: Project proposal

Malaria control as part 3 Primary Health Care

Objective

To reduce malaria incidence in the study area by 15% within 1 year

Relevance

The current approach to malaria control is not working partially due to the lack of community support. By involving the community in the process, better results may be achieved.

Potential application

The project will demonstrate the feasibility of community based disease control that can be applied to other diseases.

Hypothesis

1. That the community recognizes malaria as a problem and is willing and able to assume responsibility for malaria control

2. That community based malaria control can effectively reduce malaria cases.

Methodology

Summary

Primary health care committees will be formed in each village to decide on what control measures are needed and to supervise implementation.

Study variables

1. parasite incidence
2. action and continuity of community health committees

Instruments

Baseline surveys to determine initial parasite incidence
Regular monitoring of "indicator" villages for parasite rate
Monthly reports (may be verbal) from health committees
Reports on cases detected by health services
Annex 4

Organization

village governing committees
religious leaders
political leaders
youth groups
health workers
local government officers
women's organizations
"labour groups"

Plan of work

(1) Initiation – 3 months

(a) Health education

Introduction and explanation of PHC concept first to community leaders and politicians then through them to all villagers

(b) Organization of Village PHC Committees

To include all community factions: women, youth, elders, merchants, health personnel

(c) Organization of coordinating committee made up of representatives of each village PHC committee to coordinate activities among nearby villages, supplies, etc.

(d) Baseline data collection
(by technical staff)

(1) For evaluation of progress

parasite - MBS drug sensitivity
entomology - density
longevity
insecticide resistance
breeding habits

(2) to provide alternatives for consideration by village PHC committee
(e) Selection of control technologies based on:

- goals set by PHC committee
- parasitological and entomological data
- resources available in community

(f) Implementation - 9 months

(2) Training of volunteers

(3) Application of selected technologies with "guidance" from malaria staff.

(1) Selection of volunteers, supervisors and monitors by PHC committee

(g) Evaluation

- 4 monthly surveys in selected villages to measure parasite rates and entomological indices
- Data from health services on malaria incidence

Feedback

Report results of surveys and PCD data to PHC committees by technical staff.

Staff

**Village level**

**PHC committee**

6 members

Volunteers (at least 1 per village) number required based on technologies selected

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IV. Group D: Project proposal

Pilot project: Malaria control in primary health care

Situation

- Population: 20 - 40 000
- CI 100/1000 (1984) 2000 - 4000 cases
- Ass. STD Mix .) H.f.
- Nothing happens - will get worse. API: 1/1000
- No organised programme exist - malaria
- All cases widespread throughout community
- There is some organised health care services
- Community is not very mobile
- Community is rural; subsistent
- Community is willing to assist
- There is some developments; water supply, roads, trading, etc.
- 25% of older members especially men had some education
- All children attend school at least elementary school

Hypothesis

Malaria cases can be reduced through organised community efforts

Objectives

(1) improve understanding of malaria problem through application of health education
(2) improved case detection by VHW
(3) proper treatment of all cases by VHW
(4) effective vector control measures by villagers
Potential application

If pilot project is a success, community based malaria control programmes will be implemented throughout the country. Use of baseline data to strengthen political backing for PHC. Malaria programme can be used as a model for other community based disease control programmes as an extension of existing health services.

Organization

I. Organize community

A. Series of community meetings to assess community understanding of problem and explain programme

B. Help village select project leaders and VHWs (committee)
   1. Team leaders
   2. VHWs for case detection, treatment and follow-up
   3. VHWs for spraying operations

II. Enlist support of other government organizations

1. Provincial health department
   - malaria service
   - health facilities
   - sanitation teams
   - laboratory services
   - spraying operation
   - health education

2. Non-government organizations
   A. Religious leaders and groups
   B. Women's groups
   C. Civic groups
   D. Sports clubs
   E. Scouts guides
   F. Red cross

3. Communications and Information (use local resources)
   Publicity, radio, information drama, exhibition (spray equip. mosquito)

4. A. Public works - roads, wells, ordering supplies
   B. Education - school programmes, posters, drama, incorporate public health into curriculum
   C. Agriculture & drainage information water - irrigation, fish breeding, new pesticides
Annex 4

Methodology

Epidemiological information

(1) Collect baseline data from existing records
   A. Positivity rate
   B. Number of fever cases
   C. Type of treatment

(2) Vector source reduction (if any) used previously

(3) Preproject attitude survey within community

Protocol

1. Assist community team leaders VHWs in developing plan of action in antimalaria activities

2. Training

   A. Team leaders
      1. Supervision and management skills
      2. Basic knowledge of antimalarial activities

   B. VHWs - case detection, etc.
      1. Basic symptoms of malaria
      2. Slides
      3. Treatment + protocol
      4. Record keeping
      5. Referral
      6. How to follow up
      7. Personal protection

   C. VHWs - Vector control measures
      1. How to assess mosquito breeding grounds
      2. Simple drainage, land fill, clearing of bush
      3. fish - gambusia and tilapia
      4. house spraying

Education programme

1. Community health education
   A. Training of volunteer workers
   B. Announcement in church - discussions
   C. Radio messages
      1 - 2 minute skits, talks, sing songs
D. Traditional drama
E. Individual interaction
F. Posters – pictorial

2. School programme

A. Public health/malaria
   module as part of science curriculum
B. Skits, drama, songs, speeches
C. Art projects & competition
D. Parent association interaction

Monitoring & Assessment

1. Instruments

A. VHW case records
B. Pre & post attitude surveys
C. Background information on activities from records
D. Surveys
   i) Direct observation
   ii) Mass blood
   iii) Vector (mosquito) study
       - density
       - resistance
       - species

Resources

1. Manpower
   i) Project manager
   ii) Technical staff
   iii) Administrative
   iv) VHWs – 1 per 50 – 100 population for case detection
       - source reduction
       - sprayman 5 – 10 houses/day

2. Logistics

1. Anti malaria drugs
2. Insecticides
3. Spraying equipments
4. Laboratory equipments
5. Transport equipments
6. Supplies
Annex 4

Funds

i) Salary/Allowance 3 kina per head
ii) Operating expenses
iii) Training expenses

Time frame (one year)

1. Planning/management
2. Organization of the committee - 1/52 per village
3. Training - Team leaders 20/session (1/52)
4. Implementation
   - case detection all year round
   - treatment all year round
   - spraying 6/12
5. Source reduction (when applicable)
6. Biological - fish (if necessary)
7. Health education
   - all year round
8. Evaluation
   - continuous process
1. Programme development

Malaria situation in the Western Pacific Region remains, by and large, stable in recent years. However, there are some unique features to be noted in the nine countries with endemic malaria. China has been reporting a steady, marked decline in the estimated number of malaria cases since 1977. The progress in China strongly influenced the number of reported malaria cases for the Region. China and Malaysia have been maintaining a very low malaria incidence and/or a status of eradication in many areas. On the other hand, a high incidence of epidemic proportions has occurred in parts of Solomon Islands, Vanuatu, Indochina countries (Viet Nam, Lao People's Democratic Republic, Kampuchea), Sabah state of Malaysia and Philippines. In general, antimalaria operations were stagnant in Kampuchea, Lao People's Democratic Republic, Papua New Guinea and Philippines for various reasons. The main technical problems are: some of the principal vectors becoming less responsive to insecticide spraying due to increased exophilic tendency; and parasite resistance to antimalarial drugs giving rise to difficulty in selecting appropriate alternative drug regimens. The operational and administrative constraints include difficulty or slow process in the development of malaria control in the primary health care system of the countries, shortage of resources in manpower and funds, security problems, increasing population movements and operational difficulties in less accessible terrains.

Under the situation beset with old and new problems and constraints, most countries have now recognized the need for solving these problems through the development of malaria control as part of primary health care, and efforts are being made to realize the primary health care concept in operational terms.

There are two major patterns in the development of primary health care in the Region: (a) Primary health care is developed and strengthened as the guiding principle within the existing general health services; (b) Primary health care is operated as an institution in the country's political framework.

China and the Indochina countries fall in the second category while the rest belong to the first. In either pattern, the structures of the health administration, in particular the local health facilities, are similar, in that the health centre (or equivalent) deployed for a population of 50 000 - 100 000 is the frontline health unit, under which there are sub-health centres and health posts. In the community, community health workers or volunteers are primarily involved.

In Malaysia, under the rural health services schemes, the traditional community participation (e.g. passive case detection) used to be with the
malaria eradication/control programme, but is now being expanded in the context of primary health care. Full use is being made of the local medical and health care facilities for malaria control operations especially case finding and treatment. Each rural health unit has a community health centre (for 50,000 population) which has sub-health centres of clinics. In some isolated areas with high malaria endemicity (e.g. in Sabah), a "malaria treatment post" is deployed to serve the people. Under these provisions of government services, community participation is being promoted and facilitated.

In Kelantan State of Malaysia, for example, a Village Development and Security Committee (VDSC) has been organized in all villages. The committee is sometimes called the village malaria committee as it is doing mainly malaria control work. One field canvasser of the malaria programme is assigned as an adviser to each sub-sector of 500 - 1000 houses, where he carries out surveillance and health education activities in collaboration with VDSC. The committees keep a register of fever cases to aid the field canvasser. Religious leaders and school teachers are also mobilized in health education and case detection activities.

In the Philippines, the health activities have been decentralized and integrated into the general health services at all levels. The erstwhile malaria eradication workers have been absorbed into the new setup; at the regional level, the chief malarialogist is a regional technical officer of the malaria control programme; in the province, the malaria unit chief is a malaria consultant; in the district, the malaria technician is a field health officer; and at the community (barangay) level, the malaria canvasser is a barangay health officer. In the initial process, there were some difficulties and confusions, in particular at the local levels on such matters as personnel re-deployment, budget allocation for malaria control, lack of directions for malaria activities. However, these problems have gradually been solved, and the tasks and activities to motivate people in the community have been defined; these include health education, case finding, presumptive treatment, simple source reduction, participation in insecticide spraying, and promotion of personal protection.

In China, with the technical guidance of the Institute of Parasitic Diseases, the antimalaria operations are carried out under the authority of the Health Bureau in each province, which has the Sanitation and Anti-epidemic Station at the prefectural and county levels. People's commune with a health centre (with laboratory) is the frontline operational unit. In the communes, there are usually three tiers of organization: the antimalaria leading group composed of members from the cadres of the commune, the production brigades and the departments concerned; the anti-epidemic group headed by the director of the health centre; and the medical network consisting of one or two "barefoot doctors" for one production brigade and one medical aide for one production team. The antimalaria activities include surveillance (case detection, treatment and epidemiological investigations of cases and foci, regular and focal spraying). The operational groups are given epidemiological guidelines and operational coverage norms by the antimalaria leading group.

Annex 5
Annex 5

In Indochina countries, by and large, there are similar setups and functions operating as in China. In Viet Nam, the antimalaria frontline unit is the district hygiene-epidemiology-malaria team with laboratory. In each district, health centres operate with the support of various communal organizations.

In Papua New Guinea, efforts are being made to develop health care work including malaria control in primary health care system. The main thrust is to redeploy and strengthen the aidposts, the frontline health units; to upgrade health centres; and to promote community participation. In 1984, the malaria control programme has revised its strategies with its primary objective being the reduction and prevention of malaria mortality. As an approach, the programme is developing a prompt malaria diagnosis and treatment facility in all health centres (total of 184) in addition to the existing laboratories in the provincial hospitals. Pilot projects for promoting community participation have been initiated in some island provinces (New Ireland, Manus), in which a village development community was formed and the committee members plan community-based development projects. A notable feature of the projects is DDT house spraying by locally trained volunteers under the supervision of the malaria staff. More pilot projects are being planned in areas with different eco-epidemiological situations.

In Solomon Islands and Vanuatu, malaria control using the PHC approach has been initiated. In Solomon Islands, the Malaita province, an area of high malaria incidence, has launched an intensive malaria control campaign including mass drug administration by mobilizing local volunteers, the "village health workers". In this project, while reduction of malaria cases is being effected, importance of the increased awareness of the community on the disease problems and the sense of participation in the health activities by themselves is being appraised; the experience will lead to the development of other community-based health care activities in the country.

2. Problem of drug resistance

Chloroquine resistance in Plasmodium falciparum had been reported in all countries of the Region with endemic malaria since 1961 (from Viet Nam) through 1980 (from Vanuatu). The chronology of events in the Region correlates with the magnitude of the problem currently being faced by the countries in its intensity and geographical extent, i.e., the countries having met the problem earlier are more affected than the others. China, mainly the south, has reported an increase in the proportion of high-graded resistant falciparum malaria observed in vitro. In Viet Nam, the tests conducted during 1979-80 showed a proportion of R cases as 50% in vivo and 63% in vitro and in 1982, the reports gave 12% - 46% in vivo on the samples from the field and 50% - 93% in vitro observed in the hospitals. These data indicate a range of the resistant levels with some immune effects in the country. The report from Lao People's Democratic Republic indicates more or less similar situations as existing in Viet Nam. In Malaysia, the problem varies in its degree and areas affected. The State
of Sabah reported 54% - 80% of the chloroquine-resistant falciparum cases among those tested in vitro in 1981-1983. A high frequency of high-graded chloroquine-resistant falciparum malaria has been reported from the northern part of Peninsular Malaysia. The Philippines during 1982-1983 carried out 785 in vitro tests on the falciparum specimens collected from major endemic provinces, of which 427 cases (54%) were chloroquine resistant. In Papua New Guinea from 1979 to 1983, a total of 247 cases from 78 schools selected throughout the country were tested in vivo and in vitro, of which 134 cases (55%) were found to be chloroquine resistant in both in vivo and in vitro, 69 (28%) susceptible both in vivo and in vitro, and 41 (17%) susceptible in vivo but resistant in vitro. The results indicate an overall picture of the country and some immunity being exerted in response to the drug. In the Solomon Islands and Vanuatu, the reports indicate the chloroquine-resistant falciparum to account for about 50% of the cases but the majority being at low level resistance.

In most areas where chloroquine-resistant falciparum malaria occurs in high frequency and degree, sulfadiazine-pyrimethamine combinations, mostly the sulfadocine-pyrimethamine combination, are being used. In China, piperaquine (13228R.P.) is being used in the areas affected with chloroquine-resistant falciparum. Falciparum resistant to the sulfadocine-pyrimethamine drugs has been reported in the Indochina countries, but the epidemiological details are not well known. In Viet Nam, various combinations of chloroquine, sulfadoxine, sulfalene, sulfamethoxypyridazine, pyrimethamine and quinine were tested in some areas. The overall results indicated that P. falciparum resistant to sulfadocine-pyrimethamine combination (e.g. Fansidar) was superior to that of sulfalene/sulfamethoxypyridazine + pyrimethamine; and the best cure rates were obtained in the triple combination of sulfadoxine + pyrimethamine + quinine.

Mefloquine in vitro baseline is yet to be established in the countries, while reports from some countries have already indicated the occurrence of falciparum strains low sensitive to the drug (Philippines, Lao People's Democratic Republic, Solomon Islands, Malaysia (Sabah)).

Regarding P. vivax, the sensitivity to primaquine and the polymorphysum in the exoerythrocytic stages of the species occurring in this part of Asia have long been an interesting and important subject. At the moment, however, the problem of falciparum malaria with drug resistance strains take precedent over the vivax problem in most national control programmes.

The information and figures given above are mainly from unpublished reports and communications which give an overall picture of the countries in this Region. It is to be noted, however, that owing to the technical, operational and financial difficulties, the monitoring activities have been recently concentrated mainly on patients seen at large hospitals: shortage of data from the field does not give a true epidemiological picture which prevents the use of proper operational measures.
The development of malaria control as part of primary health care with its primary objective of prevention/reduction of malaria mortality calls for a greater role in the use of antimalarial drugs. Chloroquine is still the mainstay in this Region; however, some countries/areas as Indochina countries need to schedule alternative drug regimens but are facing difficulties in their proper selection and use in the operational levels due to various constraints.

These situations strongly indicate a need to reorganize and regularize the drug sensitivity monitoring activities in most countries. From the practical point of view, clinical and in vivo tests should be propagated more in the medical and health facilities situated at strategic points through training. The in vitro micro test follows the in vivo tests to verify the occurrence of the resistance strains and to quantitatively measure its frequency and the drug responsive patterns. However, the in vitro methods have still many constraints in such aspects as difficulty in adequate geographical coverage of the population, requirement of the technical skills, logistics, costs and operational use of the results. The regular and sufficient data from the in vivo and in vitro tests be made available to the programme authorities to facilitate their decision in the drug policy. In this connection, it is felt that operational guidelines for introduction of alternative/new drug regimens with special reference to the epidemiological and operational criteria/standard need to be developed. It has been noted in some countries that the value and utility of chloroquine and amodiaquine need to be critically reviewed through in vivo and in vitro tests on the 4-aminooquinolines.

3. Anopheline resistance to insecticides

Resistance of malaria vectors to insecticides has not been a serious problem in the Western Pacific Region, although there have been some reports of its occurrence: An. sinensis to DDT in China, An. flavirostris to dieldrin in Philippines, and An. sundaicus to dieldrin in Sabah, Malaysia. The more serious problems are rather with the vector's behaviour to residual insecticide spraying. Exophilic tendencies of vectors such as An. balabacensis s.l. and An. farauti are the cause of major concern. The problems are being looked into through species complexes studies with special reference to intra- or inter-species genetic changes, susceptibility to insecticides of sibling species and their epidemiological/operational implications. In general, most countries have been reducing residual insecticide spraying (mainly DDT) in the recent years. There needs to be a critical assessment in the light of the programme objectives and strategies for the value, minimal requirement and feasibility of effective coverage as well as the criteria for its application (e.g. Viet Nam, Sabah State of Malaysia, Papua New Guinea).