

LAND WC 765 H434 1990

Health education for malaria
control in the context of a

MS E-38
(404) 639-8042

THIS WORK WAS SUPPORTED AND MADE POSSIBLE BY THE AFRICA BUREAU, OFFICE OF OPERATIONS AND NEW INITIATIVES (ONI) AND THE OFFICE OF ANALYSIS, RESEARCH AND TECHNICAL SUPPORT (ARTS), THROUGH THE AFRICAN CHILD SURVIVAL INITIATIVE-COMBATING CHILDHOOD COMMUNICABLE DISEASES (ACSI-CCCD) PROJECT, AFRICA REGIONAL PROJECT (698-0421) WASHINGTON, D.C.

THIS GUIDE WAS PREPARED BY STAFF AND CONSULTANTS FROM THE FOLLOWING INSTITUTIONS COLLABORATING IN MALARIA TRAINING: THE AFRICAN REGIONAL HEALTH EDUCATION CENTRE (ARHEC), UNIVERSITY OF IBADAN, FEDERAL MINISTRY OF HEALTH, LAGOS, NIGERIA, OYO STATE MINISTRY OF HEALTH, UNIVERSITY OF NORTH CAROLINA SCHOOL OF PUBLIC HEALTH AND THE CENTERS FOR DISEASE CONTROL AND PREVENTION. ASSEMBLING AND EDITING THE FINAL VERSION OF THE GUIDE WERE DONE BY LAURA FERNEA AND KATHLEEN PARKER, CDC, AND WILLIAM BRIEGER, ARHEC.

THE DOCUMENT DOES NOT NECESSARILY REPRESENT THE VIEWS OR OPINIONS OF CDC OR OF THE UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

ANY PARTS OF THESE MATERIALS MAY BE COPIED OR REPRODUCED FOR NONCOMMERCIAL PURPOSES WITHOUT PERMISSION IF CREDIT IS PROPERLY GIVEN.

ADDITIONAL COPIES OF THIS DOCUMENT (CATALOGUE NUMBER 099-4047) ARE AVAILABLE UPON REQUEST FROM:

ACSI-CCCD TECHNICAL COORDINATOR
INTERNATIONAL HEALTH PROGRAM OFFICE
CENTERS FOR DISEASE CONTROL AND PREVENTION
ATLANTA, GEORGIA 30333
FAX (404) 639-0277

Acknowledgements

This training guide was developed by the following staff and consultants from the participating agencies:

African Regional Health Education Center, University of Ibadan

Prof. Joshua T. **Health Education for Malaria Control
in the Context of a Primary Health Care Approach**

Dr. Isaac O. Oshiname
Dr. Obdimeji Oludapo
Mr. Frederick O. Oshiname
Mr. Ademola T. Ayuba
A Training Program Guide

University of Ibadan

Prof. M. K. C. Sridhar (Department of Preventive and Social Medicine)
Dr. Michael C. Asizu (Department of Preventive and Social Medicine)
Dr. A. O. Bammeke (Department of Preventive and Social Medicine)
Dr. Lavi Egunjobi (Department of Geography)
Dr. O. Walker (Department of Pharmacology)
Mr. J. A. Anifalaje (Biomedical Communications Centre)
Mrs. K. B. Jegede (Fertility Research Unit, University College Hospital)

Oyo State Ministry of Health

Dr. Babatunde Adeyefa
Mr. J. F. Akinola
July - August 1990

Federal Ministry of Health
**African Regional Health Education Center
University of Ibadan, Nigeria**

Dr. O. I. Ekanem, Division of Malaria and Vector Control
Mr. A. M. Okechukwu, Division of Malaria and Vector Control

**School of Public Health
University of North Carolina
Chapel Hill, North Carolina 27514**

Mr. Leonard Dawson (Department of Health Behavior and Health Education)

Centers for Disease Control
**International Health Program Office
Centers for Disease Control and Prevention (CDC)
Atlanta, Georgia 30333**

Ms. Kathleen A. Parker
Mr. David Ramsey
Ms. Laura Fernea

119031

The final version of this guide was edited by Laura Fernea, William Brieger, and Kathleen Parker.

Acknowledgements

This training guide was developed by the following staff and consultants from the participating agencies:

African Regional Health Education Center, University of Ibadan

Prof. Joshua D. Adeniyi
Prof. Z. A. Ademuwagun
Dr. Issac O. Olaseha
Dr. Oladimeji Oladepo
Mr. Frederick O. Oshiname
Mr. Ademola J. Ajuwon

University of Ibadan

Prof. M. K. C. Sridhar (Department of Preventive and Social Medicine)
Dr. Michael C. Asuzu (Department of Preventive and Social Medicine)
Dr. A. O. Bammeke (Department of Preventive and Social Medicine)
Dr. Layi Egunjobi (Department of Geography)
Dr. O. Walker (Department of Pharmacology)
Mr. L. A. Anifalaje (Biomedical Communications Centre)
Mrs. K. B. Jegede (Fertility Research Unit, University College Hospital)

Oyo State Ministry of Health

Dr. Babatunde Adeyefa
Mr. J. F. Akinola

Federal Ministry of Health, Lagos, Nigeria

Dr. O. J. Ekanem, Division of Malaria and Vector Control
Mr. A. N. Okechukwu, Division of Malaria and Vector Control

University of North Carolina at Chapel Hill

Mr. Leonard Dawson (Department of Health Behavior and Health Education)

Centers for Disease Control and Prevention

Ms. Kathleen A. Parker
Mr. David Ramsey
Ms. Laura Fernea

The final version of this guide was edited by Laura Fernea, William Brieger and Kathleen Parker.

Table of Contents

1.	Overview	1
	1.1 Needs Assessment Phase	3
	1.2 Course Design and Team Building Phase	4
	1.3 Training Workshop Phase	5
	1.4 Follow-up Evaluation and Consultation Phase	7
2.	Malaria Modules	9
	M1 - National Malaria Policies	12
	M2 - Malaria Epidemiology	15
	M3 - Parasitology and Entomology	18
	M4 - Clinical Features	20
	M5 - Field Case Management	22
	M6 - Field Malaria Control	43
3.	Health Education Modules	59
	H1 - Health Education Overview	63
	H2 - Synthesis of Behavioral Issues	73
	H3 - Community Involvement and Participation	77
	H4 - Information Gathering	79
	H5 - Formulating Health Education Objectives	85
	H6 - Health Education Strategies	91
	H7 - Plan of Action	107
	H8 - Monitoring and Evaluation	113
	H9 - Resource Management	117

4.	Case Study: Mosquito Control Education in Ife Central Local Government Area of Osun State, Nigeria	121
----	---	-----

5. **Appendixes**

	Appendix A: Sample Needs Assessment Instruments and	
	Baseline Data Protocol	129
	Appendix B: Sample Weekly Schedules	153

9	Malaria Modules	3
12	M1 - National Malaria Policies	3
15	M2 - Malaria Epidemiology	3
18	M3 - Parasitology and Entomology	3
20	M4 - Clinical Features	3
22	M5 - Field Case Management	3
43	M6 - Field Malaria Control	3
59	Health Education Modules	3
63	H1 - Health Education Overview	3
73	H2 - Synthesis of Behavioral Issues	3
77	H3 - Community Involvement and Participation	3
79	H4 - Information Gathering	3
82	H5 - Formulating Health Education Objectives	3
91	H6 - Health Education Strategies	3
107	H7 - Plan of Action	3
113	H8 - Monitoring and Evaluation	3
117	H9 - Resource Management	3

1. Overview

Purpose

This manual provides guidelines for short-term training on the health education component of malaria control in the context of primary health care (PHC) for district level health and community development teams.

Participants

The training activity is designed primarily for people working with malaria control programs at local or district levels, although the same material could be used with national staff in the form of a training-of-trainers workshop. A team approach for selecting local or district level participants is suggested. The ideal team should consist of district level staff including the local government primary health care coordinator or manager, a health educator, a disease control worker, and a local government health councillor. In addition, a state or regional malaria control staff member should be included. Relevant community leaders who may be involved in providing structural support and continuity for the program may also be included as workshop participants. The maximum number of participants recommended is 30 (i.e., approximately six local or district teams), because of the participatory training approach used.

Trainers

These guidelines have been developed by and for trainers or facilitators who are experienced in health education planning and management and in using adult education methods. The number of trainers or facilitators will depend on the number of participants and the background of the trainers. At least one facilitator should be an expert in malaria control. The health education trainers should either have experience in health education or facilitating groups and in conducting experiential learning activities.

Organization

The training guide is organized into four sections. The first, or introductory section describes each of the four phases of the workshop: 1) Needs Assessment, 2) Course Design and Team Building, 3) Training Workshop and 4) Follow-up Evaluation and Consultation. The malaria modules are found in the second section, and the third section is comprised of the health education sessions. A brief case study of post-training implementation and follow-up in the Ife Central Local Government Area of Osun State, Nigeria, is presented in the fourth section. The guide concludes with

appendices containing relevant needs assessment forms and documents and sample weekly schedules.

Content

Generally, the content of this manual is given in outline form. Trainers using the materials should adapt and update them for use in their particular settings. Section Two contains six modules that provide information about malaria as a health problem and about malaria control methods. Section Three contains nine modules and focuses on health education areas for planning and managing the educational component of malaria control programs.

The 1990 Workshop

The SE guidelines were developed and field tested in Nigeria in 1990 with a workshop in Oyo town, Oyo State, Nigeria. This workshop was the fourth in a series that had been jointly organized by the African Regional Health Education Center (ARHEC), University of Ibadan; the School of Public Health, University of North Carolina at Chapel Hill (UNC), and the International Health Program Office of the Centers for Disease Control and Prevention (CDC).

These partners, operating under the United States Agency for International Development's Combatting Childhood Communicable Diseases Project, developed a model health education planning and management training workshop. In 1987, 1988, and 1989, with participants from various nations, workshops were conducted with a primary focus on the Expanded Program on Immunization.

The 1990 workshop took the lessons learned from the previous workshops, which had focused mainly on national and state level personnel and programs, and applied them to the priority problem of malaria and to local and district level situations. In the early months of 1990, staff from the African Regional Health Education Center conducted needs assessments in four Local Government Areas (LGAs) of Nigeria including Ife-Central in Osun State, Barkin Ladi in Plateau State, Idah in Benue State and Kaura Namoda in Sokoto State.

Each of these LGAs then sent teams to the four-week workshop in July and August and used the needs assessment data and training input to develop health education action plans. Three other African nations, including Swaziland, The Gambia and Kenya, sent small teams to participate in the 1990 workshop.

Workshop staff included faculty of the African Regional Health Education Center, the UNC School of Public Health, the University of Ibadan, the Centers for Disease Control and Prevention (CDC), the Nigeria Federal Ministry of Health, and the Oyo State Ministry of Health. The intention of the trainers was that each team should

implement its plan on return to its site. Trainers from three of the collaborating agencies (ARHEC, UNC, and CDC) conducted follow-up visits to provide consultation and encouragement to ensure plan implementation. After the training, specific malaria control activities were carried out in Ife Central and Kaura Namoda LGAs. A brief case study of the Ife Central LGA experience is at the end of this manual.

1.1 Needs Assessment Phase

Objectives and Overview

The workshop faculty and participants will:

- Identify participants' strengths and weaknesses in knowledge, attitudes, and skills related to planning and management of the health education component of a malaria control program.
- Identify priority areas of interest and needs of the participants.
- Collect information about participants' local area in terms of population, health care services, malaria control activities, availability of anti-malarial drugs, community member and health worker attitudes, and knowledge and practices about malaria and environmental conditions relating to malaria control.
- Identify human and organizational factors in participants' work environment that affect on-the-job performance of health education planning and management tasks.

The purpose of this phase is to collect information about the workshop participants, their learning needs, and the environment in which they work. Activities will be carried out up to 2 or 3 months before the workshop as well as during the first week of training. Methods that can be used to accomplish the objectives include questionnaires, observation checklists, small group discussions, and existing records.

Activities

Pre-Workshop

- Conduct on-site visits to participants at their locales to collect information using interviews, observation checklists, group discussions, and existing records (see Appendix A for sample data collection instruments).

Sample Weekly Schedules

Sample weekly schedules for a 4-week workshop demonstrate one way of allocating the activities of the training program. A sample of schedules for a 4-week training program is found in Appendix B.

1.3 Training Workshop Phase

Training Objectives

The training objectives are set during the planning week of the workshop with technical malaria resource personnel and health education trainers contributing. Below is an example of training objectives.

At the end of the workshop, participants will possess the skills to:

- Assess the magnitude of malaria morbidity and mortality in their respective locality and be motivated to take effective action.
- Recognize and appreciate the importance of multi-disciplinary teamwork in health education for malaria control.
- Apply appropriate health education methods to identified malaria control technologies that lend themselves to educational interventions.
- Communicate appropriate messages and transfer skills that will enable family members to recognize the signs and symptoms of malaria and seek early treatment.
- Delineate the health education implications of a national malaria control program and integrate them into primary health care at the local government area (LGA) or district level.
- Plan, implement, manage, and sustain at least one health education strategy for one malaria control method in one target group in their respective localities.

Methods

The methods used in this training guide emphasize applicability and relevance to the needs of the participants in their home localities. The different kinds of methods used are:

- Plenary sessions, with lecture presentation, followed by open discussion with contributions from both participants and other facilitators.
- Slide presentations.
- Small group discussions with facilitators usually the participants are divided by Local Government Area or country.
- Presentations by participants, usually based on completed group assignments, followed by questions and answers from the floor.
- Fieldwork at sites near the workshop premises (i.e., field testing a questionnaire or observation checklist).

In particular, fieldwork for the practical application of specific skills learned in the modules and for demonstrating the nature of the malaria control problems discussed during the technical presentations, has been found by participants to be useful. After each field visit, a presentation on the findings can be made in the plenary session, and the ensuing discussion can prove to be helpful for illustrating concepts presented in the module.

Training Modules

In section two, the first modules focus on the technical aspects of malaria. The six modules in this section provide information about national malaria policies and protocols, the epidemiology of malaria, malaria parasitology and entomology, clinical features of malaria, the case management of malaria, and various aspects of malaria control. Fieldwork is part of the last two modules and includes visits to village health workers, primary health care centers, patent medicine dispensaries, household members, and traditional healers.

Section three focuses on the health education implications of malaria control. After first selecting a target group and specific behavioral problems in their country or locality, each group of participants works through all the modules within the framework of the chosen problem. The problem chosen is used as the focus for each of the subsequent skills and capabilities developed in the various health education modules. After all the modules have been presented, the participants complete the

prototype action plans they will implement in their respective localities and present them in a plenary session during the final week of the workshop.

The standard format for all modules is as follows:

- Objectives
- Materials Required
- Estimated Time
- Content
- Training Methods

Handouts used for the modules, including specific materials or instruments needed for fieldwork, follow the module plan for easy reference and use.

1.4 Follow-up Evaluation and Consultation Phase

Follow-up visits are one key to measuring the outcomes of the workshop. Visits provide a monitoring and evaluation tool for implementation activities and encourage and continue the momentum of the malaria education program developed at the workshop. They provide support in terms of technical assistance to the participants and can also help solve problems that may arise during implementation of the plans.

Follow-up activities and evaluation of plan implementation activities should be carried out by workshop faculty members. The timing and duration of these activities will vary depending on the site location (i.e., other countries may be difficult to visit more than once) and the needs of the participants at their field sites. Most visits should probably last 7-10 days per site.

For sites within the same country where most of the facilitators are located, two visits are optimal. The first visit, within the first 3 months of the workshop, should focus on:

- Collecting additional baseline data.
- Integrating the action plans with the existing primary health care (PHC) program.
- Assisting in community mobilization geared towards malaria control.

• **Prioritizing and scheduling malaria control activities.**

The second visit, approximately 3-6 months after the workshop, should focus on:

• **Implementing activities.**

• **Monitoring and evaluating those activities.**

For other country sites, one follow-up visit, 3-6 months after the workshop, should assess the status of the malaria control plan developed at the workshop and provide any technical assistance requested by the participants or other personnel involved in the malaria control program.

1.4 Follow-up Evaluation and Consultation Phase

In particular, fieldwork for the follow-up evaluation and consultation phase should include modules and for demonstrating the nature of the malaria control problems discussed during the technical presentations, has been found to be useful. After the follow-up visit, one key to measuring the outcome of the workshop is to provide a monitoring and evaluation tool for implementation activities and encourage and continue the momentum of the malaria education program developed at the workshop. They provide support in terms of technical assistance to the participants and can also help solve problems that may arise during implementation of the plans.

Training Modules

Follow-up activities and evaluation of plan implementation activities should be carried out by workshop faculty members. The timing and duration of these activities will vary depending on the site location. In other countries may be difficult to visit more than once or twice a year. The first visit should be made within 3-6 months of the workshop. The first visit should focus on the epidemiology of malaria, malaria control strategies, the clinical features of malaria, the case management of malaria, and various aspects of malaria health education. The first visit within the first 3 months of the workshop should focus on the epidemiology of malaria, malaria control strategies, the clinical features of malaria, the case management of malaria, and various aspects of malaria health education. The first visit within the first 3 months of the workshop should focus on the epidemiology of malaria, malaria control strategies, the clinical features of malaria, the case management of malaria, and various aspects of malaria health education. The first visit within the first 3 months of the workshop should focus on the epidemiology of malaria, malaria control strategies, the clinical features of malaria, the case management of malaria, and various aspects of malaria health education.

Section three focuses on the health education approach to malaria control. After first selecting a target group and specific behavioral problems in their country or region, the health education approach will be discussed through the framework of the chosen problem. The problem chosen is used as a focus for each of the subsequent skills and capabilities developed in the various health education modules. The health education approach to malaria control is discussed in the context of the chosen problem.

Malaria Modules

The component of the training program was designed to ensure that all participants attain a basic and common understanding of the nature and control of malaria. The following modules are outlined in this section of the guide:

M1 - National Malaria Policies

M2 - Malaria Epidemiology

M3 - Parasitology and Entomology

M4 - Clinical Features

M5 - Field Case Management

M6 - Field Malaria Control **Malaria Modules**

Malaria Modules

This component of the training program was designed to ensure that all participants shared a basic and common understanding of the nature and control of malaria. The following modules are outlined in this section of the guide:

<p>M1 - National Malaria Policies</p> <p>M2 - Malaria Epidemiology</p>	<p>Objectives</p> <p>Upon completion of this module the participants will be able to:</p>
<p>M3 - Parasitology and Entomology</p> <p>M4 - Clinical Features</p> <p>M5 - Field Case Management</p> <p>M6 - Field Malaria Control</p>	<p>1. State the reasons for a malaria epidemic.</p> <p>2. Outline the stages in the preparation of a malaria control plan.</p> <p>3. List the components of the malaria control program.</p> <p>4. Describe the National Malaria Policy.</p>
<p>5. Describe the Current Malaria Protocol in The Gambia.</p> <p>6. Outline the National Malaria Policy in Kenya.</p>	<p>Materials Required</p> <p>National Malaria Policy Guidelines</p> <p>Estimated Time</p>
<p>Historical overview of malaria situation in Swaziland (geographical and seasonal variations, unstable malaria).</p> <p>Current strategies include:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Vector control. <input type="checkbox"/> Restricted chloroquine usage because of 70-80% chloroquine resistance. <input type="checkbox"/> Active case detection. <input type="checkbox"/> Health education. <input type="checkbox"/> Passive case detection. <input type="checkbox"/> Chemoprophylaxis for all pregnant women. 	<p>Didactic presentation</p> <p>Questions and answers</p> <p>1 hour 30 minutes</p>

M1: National Malaria Policies

Objectives

Upon completion of this module, the participants will be able to:

1. State the reasons for a national malaria policy.
2. Outline the stages in the preparation of a national malaria policy.
3. List the components of the National Malaria Policy in Nigeria.
4. Describe the National Malaria Policy in Swaziland.
5. Describe the Current Malaria Protocol in The Gambia.
6. Outline the National Malaria Policy in Kenya.

Materials Required

- National Malaria Policy Guidelines

Estimated Time

1 hour 30 minutes

M1: National Malaria Policies	
Content	Training Methods
<ul style="list-style-type: none"> · Importance of malaria. · Proper action and followup. · Systematic approach. · Uniformity of action. · Expression of philosophy (on malaria). · Record purposes. 	<ul style="list-style-type: none"> · Didactic presentation · Discussion
<ul style="list-style-type: none"> · Formation of a committee of experts (technical and administrative) should be multi-sectoral and include health leaders who will later implement policy. · Activities of the committee — definition of the problem, identification of risk factors, situation analysis, prescription of intervention, determination of resources, monitoring, and evaluation. 	<ul style="list-style-type: none"> · Didactic presentation · Discussion
<ul style="list-style-type: none"> · Early recognition and adequate treatment of cases of malaria. · Prophylactic use of effective anti-malarial drugs during pregnancy. · Periodic training of health workers. · Provision of adequate quantities of recommended anti-malarial drugs. · Community mobilization and health activities. · Maintenance of trained malaria control staff at the Federal and State Ministries of Health. · Support of operational research leading to the improvement of malaria control. 	<ul style="list-style-type: none"> · Didactic presentation · Slides · Discussion
<ul style="list-style-type: none"> · Historical overview of malaria situation in Swaziland (geographical and seasonal variations, unstable malaria). · Current strategies include: <ul style="list-style-type: none"> <input type="checkbox"/> Vector control. <input type="checkbox"/> Restricted chloroquine usage because of 70-80% chloroquine resistance. <input type="checkbox"/> Active case detection. <input type="checkbox"/> Health education. <input type="checkbox"/> Passive case detection. <input type="checkbox"/> Chemoprophylaxis for all pregnant women. 	<ul style="list-style-type: none"> · Didactic presentation · Questions and answers

M1: National Malaria Policies	
Content	Training Methods
<ul style="list-style-type: none"> • Currently no national policy in The Gambia but since 1985 a protocol is in place. • Protocol includes: <ul style="list-style-type: none"> <input type="checkbox"/> All fever cases during rainy season treated as malaria. <input type="checkbox"/> Chloroquine recommended as malaria treatment for all. <input type="checkbox"/> Use of impregnated bednets being currently tested in the country. 	<ul style="list-style-type: none"> • Didactic presentation • Questions and answers
<ul style="list-style-type: none"> • Historical overview of malaria situation in Kenya (geographical and seasonal variations, ranges from hypo to holoendemicity). • Current strategies include: <ul style="list-style-type: none"> <input type="checkbox"/> Vector control insecticide, larvicide; and environmental management. <input type="checkbox"/> Diagnosis and treatment. 	<ul style="list-style-type: none"> • Didactic presentation
<p><i>Materials Required</i></p> <p>National Malaria Policy Guidelines</p>	<p>Support of operational research leading to the improvement of malaria control.</p> <p>Maintenance of trained malaria control staff at the Federal and State Ministries of Health.</p> <p>Community mobilization and health activities.</p> <p>recommended anti-malarial drugs.</p> <p>Provision of adequate quantities of</p> <p>Periodic training of health workers</p> <p>during pregnancy</p> <p>Prophylactic use of effective anti-malarial drugs (artesunate)</p> <p>cases of malaria.</p>
<p><i>Estimated Time</i></p> <p>1 hour 30 minutes</p>	<p>Historical overview of malaria situation in Swaziland (geographical and seasonal variations, unstable malaria)</p> <p>Current strategies include</p> <ul style="list-style-type: none"> <input type="checkbox"/> Vector control <input type="checkbox"/> Restricted chloroquine usage because of 70-80% chloroquine resistance. <input type="checkbox"/> Active case detection. <input type="checkbox"/> Health education <input type="checkbox"/> Passive case detection <input type="checkbox"/> Chemoprophylaxis for all pregnant women.

M2: Malaria Epidemiology	
Objectives	<p>Upon completion of this module, the participants will be able to:</p> <ol style="list-style-type: none"> 1. Describe how malaria is transmitted 2. Explain three reasons why malaria is a disease of great public health importance. 3. List four factors responsible for malaria's occurrence in various communities. 4. Identify four factors that are amenable to simple health education intervention.
Materials Required	None
Estimated Time	1 hour

M2: Malaria Epidemiology	
Content	Training Methods
<ul style="list-style-type: none"> · Definition: Malaria is a communicable disease caused by a parasite called <i>Plasmodium falciparum</i>, and transmitted by a mosquito known as <i>Anopheles</i>. · Man-mosquito contact: Man contracts the disease when bitten by infected mosquito. After a latent period of 7 days, symptoms such as fever and body pains manifest. 	<ul style="list-style-type: none"> · Brainstorming: <ol style="list-style-type: none"> 1. What is malaria? 2. How is it transmitted? · Lecture and discussion
<ul style="list-style-type: none"> · Malaria affects people of all ages irrespective of sex, color, or race in endemic areas. · Malaria is a major cause of death among children and is responsible for absenteeism from school and work. · Resurgence of malaria because of: <ul style="list-style-type: none"> <input type="checkbox"/> Changing environmental conditions. <input type="checkbox"/> Drug-resistance of parasites. <input type="checkbox"/> Resistance of vectors to pesticides. 	<ul style="list-style-type: none"> · Discussion and presentation of global data on malaria · Participants present status of malaria in their respective areas · Lecture and discussion
<ul style="list-style-type: none"> · Levels of Endemicity: Malaria is endemic if it occurs at all times in a community. When the malaria parasite rate is: <ul style="list-style-type: none"> <input type="checkbox"/> Over 75% in children - INTENSE-ENDEMIC <input type="checkbox"/> Between 50% and 75% - HIGH-ENDEMIC <input type="checkbox"/> Between 10% and 50% - MODERATE-ENDEMIC <input type="checkbox"/> Less than 10% - LOW-ENDEMIC · Environmental Factors: Stable and unstable malaria. <ul style="list-style-type: none"> <input type="checkbox"/> Breeding habitat such as stagnant water. <input type="checkbox"/> Season. <input type="checkbox"/> Ecology. <input type="checkbox"/> Temperature between 15°C and 32°C. · Human Behavior: <ul style="list-style-type: none"> <input type="checkbox"/> Environmental sanitation practices. <input type="checkbox"/> Beliefs. <input type="checkbox"/> House siting and designing. <input type="checkbox"/> Occupation. <input type="checkbox"/> Culture such as water storage habits or food processing activities. · Insect Behavior: Discussed in the Malaria Parasitology and Entomology module. 	<ul style="list-style-type: none"> · Brainstorming · Lecture and discussion

M2: Malaria Epidemiology	
Content	Training Methods
<ul style="list-style-type: none"> Human-vector contact behaviors. Vector control behaviors. Treatment behaviors. Prophylaxis behaviors. 	<ul style="list-style-type: none"> Brainstorming Discussion

<p>1. State the cause of malaria.</p> <p>2. List two ways by which malaria is transmitted.</p> <p>3. Describe the life cycle of the malaria parasite and the effect of the different stages.</p> <p>4. Describe the life cycle of the malaria vector (Anopheles species) and identify five breeding sites of the vector.</p> <p>5. List three habits of the mosquito Anopheles.</p> <p>6. Identify factors which are amenable to simple health education intervention.</p>	<p>1. Upon completion of this module, the participants will be able to:</p> <p>2. List the cause of malaria.</p> <p>3. List two ways by which malaria is transmitted.</p> <p>4. Describe the life cycle of the malaria parasite and the effect of the different stages.</p> <p>5. Describe the life cycle of the malaria vector (Anopheles species) and identify five breeding sites of the vector.</p> <p>6. List three habits of the mosquito Anopheles.</p> <p>7. Identify factors which are amenable to simple health education intervention.</p>
<p>Cleaning of breeding sites.</p> <p>Prevention of man and mosquito contact by use of mosquito nets, etc.</p>	<p>Brainstorming</p> <p>None</p>

Estimated Time
2 hours 30 minutes

M3: Parasitology and Entomology

Objectives

Upon completion of this module, the participants will be able to:

1. State the cause of malaria.
2. List two ways by which malaria is transmitted.
3. Describe the life cycle of the malaria parasite and the drugs that effect it at different stages.
4. Describe the life cycle of the malaria vector (*Anopheles* species) and identify five breeding sites of the vector.
5. List three habits of the mosquito *Anopheles*.
6. Identify factors which are amenable to simple health education intervention.

Materials Required

None

Estimated Time

2 hours 30 minutes

M3: Parasitology and Entomology	
Content	Training Methods
<ul style="list-style-type: none"> · Names of parasites that cause malaria 	<ul style="list-style-type: none"> · Brainstorming · Didactic presentation
<ul style="list-style-type: none"> · Life cycle of the parasite in man and mosquitoes. · Mechanical means of transmission. 	<ul style="list-style-type: none"> · Lecture · Discussion
<ul style="list-style-type: none"> · The different stages of the malaria parasite in man: <ul style="list-style-type: none"> <input type="checkbox"/> Sporozoites. <input type="checkbox"/> Active and dormant liver stage. <input type="checkbox"/> Blood schizonts. <input type="checkbox"/> Gametocytes. · Side effects of drugs are an important consideration. · Differentiate between chloroquine and Fansidar. 	<ul style="list-style-type: none"> · Guided discussion · Slides and pictures
<ul style="list-style-type: none"> · Life cycle of the <i>Anopheles</i> mosquito. · Different breeding sites. 	<ul style="list-style-type: none"> · Guided discussion · Slides and pictures
<ul style="list-style-type: none"> · Important habits of the <i>Anopheles</i> mosquito include: <ul style="list-style-type: none"> <input type="checkbox"/> Feeding on blood meal. <input type="checkbox"/> Indoor and outdoor. <input type="checkbox"/> Flight range. 	<ul style="list-style-type: none"> · Guided discussion
<ul style="list-style-type: none"> · Clearing of breeding sites. · Prevention of man and mosquito contact by closing doors, using nets, etc. 	<ul style="list-style-type: none"> · Brainstorming

M4: Clinical Features	
Objectives	<p>Upon completion of this module, the participants will be able to:</p> <ol style="list-style-type: none"> 1. Recognize the signs and symptoms of malaria. 2. List four common symptoms of malaria and recognize at least three malaria-induced complications. 3. Carry out clinic and community-based health education to enable mothers to recognize the signs and symptoms of malaria in children.
Materials Required	None
Estimated Time	1 hour

Estimated Time

1 hour

M4: Clinical Features	
Content	Training Methods
<ul style="list-style-type: none"> · Early signs and symptoms of malaria in children: <ul style="list-style-type: none"> <input type="checkbox"/> Inability to play. <input type="checkbox"/> Lack of appetite. <input type="checkbox"/> Tiredness. <input type="checkbox"/> Body temperature above 37.5°C. <input type="checkbox"/> Vomiting. · Complications of malaria: <ul style="list-style-type: none"> <input type="checkbox"/> Convulsion. <input type="checkbox"/> Collapse. <input type="checkbox"/> Coma. <input type="checkbox"/> Anaemia. <input type="checkbox"/> Jaundice. · Knowledge level (entry) of participants based on needs assessment on malaria symptoms as provided by participating LGAs during focus group discussions and interviews. Symptoms such as: <ul style="list-style-type: none"> <input type="checkbox"/> Shivering. <input type="checkbox"/> High body temperature. <input type="checkbox"/> Weakness of the body. <input type="checkbox"/> Loss of appetite. <input type="checkbox"/> Headache. <input type="checkbox"/> Vomiting. · For treatment of malaria, use drugs with caution as they are toxic. 	<ul style="list-style-type: none"> · Lectures · Demonstration · Role playing · Group discussion
<p>(This section continued on next page)</p>	<p>Estimated Time 2 hours</p>

M4: Clinical Features	
M5: Field Case Management	
<p>Objectives</p> <p>Upon completion of this module, the participants will be able to:</p> <ol style="list-style-type: none"> 1. Recognize the early symptoms of malaria and what should be done at home before going to the health facility. 2. Describe the three levels of care at the LGA level. 3. Accurately describe the correct doses of chloroquine for all ages of patients. 4. Describe those things that should be discouraged in the management of malaria at home. 5. Recognize when to refer patients to the next level of care. 	<p>Materials Required</p> <p>None</p> <p>Estimated Time</p> <ul style="list-style-type: none"> • A Pictorial Standing Order Form for Malaria Treatment

Materials Required

Estimated Time

2 hours

M5: Field Case Management	
Content	Training Methods
<ul style="list-style-type: none"> · Early symptoms of malaria: <ul style="list-style-type: none"> □ For children: inactivity, loss of appetite, and vomiting in older children. □ For adults: fever, lassitude. · Things to do at home: <ul style="list-style-type: none"> □ For fever, removal of clothing, tepid sponging, fanning, and giving cold drinks. □ Keep silent over herbal medicines ("agbo"). If a mother says it works, the health workers should be taught to say that some of them are known to suppress the disease and "should be used with caution." Patients should be encouraged to take drugs of proven curative action. · Mothers should take children with malaria to the nearest health facility for chemotherapy, but if they have to treat them at home (or before going to the health facility), mothers must know and use the right regimen. (See example of illustrated treatment chart at end of module.) · Things to discourage: <ul style="list-style-type: none"> □ Placing the child near fire. □ Using cow's urine. □ Using balms and oil. □ Using additional (warm) clothing. · Warn mothers about the dangers of over- or under-dosage with chloroquine — eye problems, disease resistance, heart problems, even death. · Patent medicine sellers: <ul style="list-style-type: none"> □ Train them on the correct dosages of chloroquine for malaria for all age groups, and encourage them to inquire about intended users, so they can sell the current dosage to their buyers. <p>(This section continued on next page)</p>	<ul style="list-style-type: none"> · Lectures · Discussion · Field visits to: <ul style="list-style-type: none"> □ Village health worker. □ Traditional healers. □ A local health facility. □ Mothers of children under 5 years of age at home. □ Patent medicine sellers.

This is a sample from Nigeria. Trainers should substitute current charts from their own countries.

Participants are divided into five small groups, each accompanied by one trainer. After collecting information on the attached interview schedules and checklists, each team will summarize its findings to share with the whole group.

M5: Field Case Management	
Content	Training Methods
<ul style="list-style-type: none"> <input type="checkbox"/> Teach about the dangers of over- or under-dosage of chloroquine — eye problems, disease resistance, heart problems, even death. <input type="checkbox"/> Teach parents and buyers of the medicines the correct dosages, especially if there is evidence that they self-medicate. <p>Health workers within the LGA:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Train them on the correct dosage of chloroquine for all ages. <input type="checkbox"/> Train them to educate parents who are self-medicating to use the correct dosages of chloroquine. <input type="checkbox"/> Discourage their use of chloroquine injections except in cases of coma or convulsion. <input type="checkbox"/> Train them to recognize when to refer patients to the next level of care. 	<p>(Listed on previous page)</p>

Materials Required

Field Visit Guidelines

At least one week prior to the training session, trainers will organize the required field visits to:

- Village Health workers.
- Traditional healers.
- A local health facility.
- Mothers of children under 5 years of age at home.
- Patent medicine sellers.

Participants are divided into five small groups, each accompanied by one trainer. After collecting information on the attached interview schedules and checklists, each team will summarize its findings to share with the whole group.

A Pictorial Standing Order for Malaria Treatment*

		DOSES FOR MALARIA MEDICATIONS									
		DAY ONE			DAY TWO			DAY THREE			
		MOR.	AFT.	EVE.	MOR.	AFT.	EVE.	MOR.	AFT.	EVE.	
 ADULT		NIVAQUINE TAB.	●●			●●			●●		
		PANADOL TAB.	●●	●●	●●	●●	●●	●●	●●	●●	●●
		MULTIVITE TAB.	●			●			●		
		PHENERGAN TAB.	●			●			●		
 SCHOOL CHILD		NIVAQUINE TAB.	●●			●			●		
		PANADOL TAB.	●	●	●	●	●	●	●	●	●
		MULTIVITE TAB.	●			●			●		
		PHENERGAN TAB.	●			●			●		
 CHILD UNDER 5		NIVAQUINE SYR.	—			—			—		
		PANADOL TAB.	○	○	○	○	○	○	○	○	○
		MULTIVITE SYR.	—			—			—		
		PHENERGAN SYR.	—			—			—		
 CHILD UNDER 1		NIVAQUINE SYR.	—			—			—		
		PANADOL TAB.	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕	⊕
		MULTIVITE SYR.	—			—			—		
		PHENERGAN SYR.	—			—			—		

DEFINITION OF ABBREVIATIONS AND SYMBOLS

		DRAWING	DEFINITION
	MOR. Morning	●	= 1 tablet
	AFT. Afternoon	●●	= 2 tablets
	EVE. Evening	●●●●	= 4 tablets
	TAB. Tablet(s)	○	= ½ tablet
	SYR. Syrup	⊕	= ½ tablet
		—	= 5 ml. teaspoon
		—	= ½ teaspoon (2.5 ml)

* This is a sample from Nigeria. Trainers should substitute current charts from their own countries.

7. What symptoms and signs does VHW use to recognize and diagnose malaria?

Case Management Interview Schedule
and Observation Checklist
for Malaria Control Health Education Field Visit

Group 1: Member Names _____

For Village Health Worker Visit

- 1. a. Name of VHW _____
- b. Age (if known) _____ Yrs.
- c. Sex _____

2. When did VHW start this PHC work? _____ 19____ (____ years ago)

3. Who sponsored the VHW for training? _____

4. Who is the VHW responsible to for the present PHC work he/she is doing?
Nobody _____ Community _____ Local Government _____
Other (please specify) _____

5. What other occupation does this VHW have or do ordinarily?

6. What treatment services does the VHW render?
ORT _____ Aches and pains _____ Malaria _____ Family Planning _____
Others (list) _____

7. What symptoms and signs does VHW use to recognize and diagnose malaria?

(Please list.)

- 8. What drugs does the VHW use to treat malaria? (List names and dosages for each age group.)

	Name of Drug	Dosage
a. Infants	_____	_____
b. Other under 5 yrs.	_____	_____
c. School child	_____	_____
d. Adults	_____	_____

- 9. What limitations or problems does the VHW have or experience in the management and control of malaria? (Please list ALL.)

- a. _____
- b. _____
- c. _____
- d. _____

- 10. What types of records of patient management does VHW keep?

Home based records _____
 Self tally-sheets _____
 Others (specify) _____

- 11. Does VHW make any referrals? Yes _____ No _____

- 12. If yes, how and to whom? _____

- 13. On what illness grounds or conditions does VHW make referrals for malaria cases? (Please list.) _____

14. Does referral system work both ways (forth and back)? Yes _____ No _____
Comment: _____

Observations

1. Drug Kit: For antimalarial drug contents (list) and adequacy.

2. Referral form, if any, and its adequacy (two way?, etc.).

3. Record forms and their adequacy.

Others (specify) _____

4. How does she manage malaria in her child? (List including drugs if any)

1. Describe the name and dosage of drugs you use to treat malaria for yourself and your
child (under 5).
a. Self _____
b. Child _____

2. When (on what condition) does she decide to take her child to a hospital/clinic for
malaria treatment?

6. a. Has she experienced childhood convulsion in her family (children)?
Yes _____ No _____

b. How did or would she manage childhood convulsion? (List step by step what she
would do.)

Case Management Interview Schedule and Observation Checklist for Malaria Control Health Education Field Visit

Group 2: Member Names _____

For Household Visit

For mother of under-5-year-old child

- 1. a. Name _____
- b. Age (if known) _____

2. What is her occupation? _____

3. How does she recognize malaria in her child? (List signs and symptoms used.)

4. How does she manage malaria in her child? (List, including drugs if any)

5. When (on what condition) does she decide to take her child to a hospital/clinic for malaria treatment?

- 6. a. Has she experienced childhood convulsion in her family (children)?
 Yes _____ No _____
- b. How did or would she manage childhood convulsion? (List step by step what she would do.) _____

7. What **preventive measures** does she take against malaria for herself and for her children?

Self _____

Children _____

8. What drugs (if any) does she keep at home for malaria and for other diseases?

Malaria _____

Other diseases _____

9. What are her usual sources for these drugs? (Please check.)

Hospitals/clinic _____ Patent medicine shops _____ Pharmacy _____ Open Markets _____

Others (specify) _____

10. How are the drugs usually paid for?

By herself _____ By her husband or children's father(s) _____

Others (specify) _____

11. Describe the **name** and **dosages** of drugs you use to treat malaria for yourself and your child (under 5).

a. Self _____

b. Child _____

Observations

1. Drugs kept at home (request to be shown).

Case Management Interview Schedule

2. Drugs kept at home but not presented (native medicines, etc.) if seen.

3. Window mosquito screening.

For the man in the house (if any)

1. What native drugs are used for malaria?

For prevention _____

For treatment _____

2. What are the limitations of western medicine for malaria treatment and control?

(Please list) _____

3. How is malaria fever acquired?

(Please list) _____

4. Has she experienced childhood convulsion?

Yes _____ No _____

5. How did or would she manage childhood convulsion? (List step by step what she would do.)

**Case Management Interview Schedule
and Observation Checklist
for Malaria Control Health Education Field Visit**

Group 3: Member Names _____

For Local Government Health Facility Visit

1. Name and location (including LGA) of health facility.

2. What range of services is given at this health facility?
Out-patient services _____
House visit services _____
In-patient services (No. of beds _____) _____
Others (please list) _____

3. What symptoms and signs do you use in diagnosing malaria in this health facility?
 - a. In children (list) _____

 - b. In adults (list) _____

4. What drugs, methods and dosages do you use for treating malaria in this health facility?
 - a. For infants _____
 - b. For pre-school children _____
 - c. For school-age children _____
 - d. For adults _____

5.
 - a. Do you have any referral relationship with other junior or peripheral health workers in the treatment of malaria? Yes _____ No _____
 - b. If yes, please describe. _____

Case Management Interview Schedule
 and Observation Checklist
 for Malaria Control Health Education Field Visit

Group Member Names

For Local Government Health Facility Visit

1. Name and location (including IGA) of health facility

For the man in the house (if any)

2. What range of services is given at this health facility?

Out-patient services _____
 Home-visit services _____
 In-patient services (No. of beds) _____
 Others (please list) _____

3. What symptoms and signs do you use in diagnosing malaria in this health facility?

a. in children (list) _____
 b. in adults (list) _____

4. What drugs, methods and dosages do you use for treating malaria in this health facility?

a. For infants _____
 b. For pre-school children _____
 c. For school-age children _____
 d. For adults _____

5. Do you have any referral relationship with other junior or peripheral health workers in the treatment of malaria? Yes _____ No _____

b. If yes, please describe _____

- 6. a. Do you refer malaria patients to higher levels of care sometimes? Yes ___ No ___
b. If yes, on what conditions do you do so? (Please list.) _____

- 7. a. Have you experienced any problems with the treatment of malaria in this health facility? Yes ___ No ___
b. If yes, please indicate what these are. _____

- 8. What other anti-malaria activities do you carry out apart from clinical case management? (Please list) _____

Observations

- 1. Health records of the health facility especially related to malaria. (Evaluate for simplicity and surveillance service adequacy.)

- 2. Extract (if possible) the summary data on the occurrence of the top five diseases (total and by age and mortality) at this health facility for the preceding 6 months.

Diseases	June	May	April	March	Feb.	Jan.
1.						
Total						
Under 5-years						
Over 5 child						
Adult						
Deaths						
2.						
Total						
Under 5-years						
Over 5 child						
Adult						
Deaths						
3.						
Total						
Under 5-years						
Over 5 child						
Adult						
Deaths						
4.						
Total						
Under 5-years						
Over 5 child						
Adult						
Deaths						

Diseases	June	May	April	March	Feb.	Jan.
5. Total						
Under 5-years						
Over 5 child						
Adult						
Deaths						

Case Management Interview Schedule and Observation Checklist for Malaria Control Health Education Field Visit

Group 4: Member Names _____

For Traditional Healer Visit

1. a. Name of healer _____
b. Age (if known) _____
2. a. Does healer have any other occupation apart from healing? Yes ___ No ___
b. If yes, please indicate. _____
3. a. What diseases does healer treat? (Please list.)

b. Are there any health conditions or patient groups the healer never attempts to treat?
Yes ___ No ___
c. If yes, please list. _____
4. How does healer diagnose a case of malaria? (Please describe signs, symptoms, test, etc.)

5. How does healer manage malaria? (**Drugs and dosages** for the different age groups.)
a. Children _____

- b. Adults _____

6. a. Does healer ever have difficult cases of malaria? Yes ___ No ___
b. If yes, please explain: _____

7. a. Does healer ever refer difficult cases of malaria? Yes _____ No _____
b. If yes, to whom? _____

8. Does healer ever use chloroquine or any other western drugs to treat:
a. Malaria? Yes _____ No _____
b. Other diseases? Yes _____ No _____

9. Would healer like to be trained in the western (orthodox) ways of managing malaria patients? Yes _____ No _____

10. a. Are there any traditional drugs for malaria prevention as distinct from drugs for treatment? Yes _____ No _____
b. If yes, please indicate those drugs for prevention and how they are used. _____

11. How does the healer describe the cause of malaria? _____

12. a. Are there other things, apart from drugs, that can be used to control or prevent malaria? Yes _____ No _____
b. If yes, please explain. _____

11. Would the vendor like to receive training on the adequate dosages for anti-malarial drugs? Yes _____ No _____

Case Management Interview Schedule and Observation Checklist for Malaria Control Health Education Field Visit

Group 5: Member Names _____

For Patent Medicine Vendor Visit

1. a. Name of vendor _____
 b. Age _____
 c. Sex _____
2. a. Name of the proprietor of the shop _____
 b. Age _____
 c. Sex _____
 d. Occupation _____
3. Does the owner also sell drugs in the shop? Yes _____ No _____
4. a. Are there any limits to the drugs you can sell here? Yes _____ No _____
 b. If yes, please indicate. _____
5. a. Do you keep any record of the drugs that you sell here? Yes _____ No _____
 b. If yes, please let us see it. (Observe and note categories of drugs and adequacy and characteristics of records kept.) _____
 a. Children _____
 b. Adults _____
6. a. Does healer ever have difficult cases of malaria? Yes _____ No _____
 b. If yes, please explain: _____

6. a. Do people (apart from coming to buy drugs they had decided upon beforehand) sometimes only tell you their symptoms and ask you to treat them? Yes _____ No _____
 b. If yes, what are the most common symptoms or diseases? _____

7. a. Can you, and do you, treat people for malaria? Yes _____ No _____
 b. If not, why not? _____

 c. If yes, please describe **drugs** and **dosages** for different categories of patients.

	Name of Drug	Dosage
Infants	_____	_____
Other under 5 yrs.	_____	_____
School child	_____	_____
Adults	_____	_____

8. What brand names of chloroquine does the vendor know? (Please list.)

Materials Required

9. What brand names of chloroquine does the vendor sell or has sold here? (Please list.)

10. What is the vendor's experience with selling chloroquine tablets?
 _____ People may or do buy any number of tablets, including one or two tablets only.
 _____ People often buy specific numbers of tablets (e.g., 10 for adults, 5 for children).
 _____ People always buy specific numbers of tablets (e.g., 10 for adults, 5 for children).

11. Would the vendor like to receive training on the adequate dosages for anti-malarial drugs? Yes _____ No _____

12. Would the vendor be able to persuade clients who came for inadequate dosages of the drugs to buy and use the correct doses? Yes _____ No _____

13. Are the vendor's colleagues in this business likely to agree with 11 and 12 above?

a. 11: Yes _____ No _____

b. 12: Yes _____ No _____

1. Can you, and do you treat people for malaria? Yes _____ No _____ If not, why not? _____

2. If yes, please describe drugs and dosages for different categories of patients:
a. Name of Drug _____
b. Age _____
c. Dose _____

3. What brand names of chloroquine does the vendor know? (Please list)
a. _____
b. _____
c. _____
d. _____

4. Are there any limits to the drugs you sell here? Yes _____ No _____

5. What brand names of chloroquine does the vendor sell or has sold here? (Please list)
a. _____
b. _____

6. Do you keep any record of the drugs that you sell here? Yes _____ No _____
7. If yes, please let us see it. (Observe and note categories of drugs and characteristics of tablets)
8. People may or do buy any number of tablets, including one or two tablets only.
9. People often buy specific numbers of tablets (e.g., 10 for adults, 5 for children).
10. People always buy specific numbers of tablets (e.g., 10 for adults, 5 for children).

11. Would the vendor like to receive training on the adequate dosages for anti-malarial drugs? Yes _____ No _____

M6: Field Malaria Control

Objectives

Upon completion of this module, the participants will be able to:

1. **Personal Protection:** Specify the advantages and disadvantages of using bednets, window screens, mosquito coils, local plants, protective clothing, and horse whisks and brooms to prevent mosquito bites.
2. **Environmental Management:**
 - a. Identify those environmental planning and management elements associated with vector breeding.
 - b. Initiate household, community, and governmental actions required to manipulate environmental planning and management elements for the control of mosquito breeding.
3. **Chemical Control:** Discuss the correct use of kerosene, used engine oil, and "Abate" to control the mosquito breeding sites in drains and ponds.

Materials Required

- Handout M6.1 - Vector Control
- Handout M6.2 - Malaria Control: Environmental Planning and Management
- Handout M6.3 - Malaria Control Observation Checklist

Estimated Time

6 hours 30 minutes

M6: Field Malaria Control	
Content	Training Methods
<ul style="list-style-type: none"> · Overview of mosquito breeding sites in rural and urban areas. · Pregnant mothers and children under 5 years <ul style="list-style-type: none"> <input type="checkbox"/> Using bednets. <input type="checkbox"/> Screening windows. <input type="checkbox"/> Using mosquito coils. <input type="checkbox"/> Wearing long protective clothing. <input type="checkbox"/> Using horse whisks and brooms. · Policy Makers <ul style="list-style-type: none"> <input type="checkbox"/> Screen health facilities and institutions. 	<ul style="list-style-type: none"> · Slides · Discussion (Handout M6.1) · Exhibition of samples · Field observation (Handout M6.3)
<ul style="list-style-type: none"> · Policy makers <ul style="list-style-type: none"> <input type="checkbox"/> Need for the government to maintain public drains to motivate communities to maintain household drains, to supervise construction of drains, and enforce regulations regarding filling of burrows. · How do human activities contribute to mosquito breeding? · Community members <ul style="list-style-type: none"> <input type="checkbox"/> Encourage constructing and maintaining household drains and emptying of water containers and covering pots. <input type="checkbox"/> Communities within a range of 2-5 km should collectively work together in constructing and cleaning drainage, filling of burrow pits and pot holes and clearing of overgrown weeds (Including aquatic weeds). <input type="checkbox"/> Encourage communities to hold regular meetings on ways to improve the environment and to participate in planning housing sites with proper drainage, etc. 	<ul style="list-style-type: none"> · Lecture · Discussion (Handouts M6.1 and M6.2) · Field study (Handout M6.3)

M6: Field Malaria Control	
Content	Training Methods
<ul style="list-style-type: none"> · Policy makers - Provide funds for health workers to show practical examples of spraying recommended chemicals. · Health workers - Encourage the use of chemicals in their surroundings and mobilize community members to perform simple tasks, e.g., applying chemicals, oil, and "Abate", demonstrate practical examples. · Community members - Identify water pools in abandoned ponds, wells, rock pools, tree holes, burrow pits, etc. · Encourage individual households in applying available and affordable tools (e.g., kerosene, used oil, and a mixture of those [1:2 ratio] to drains and applying "Abate" to ponds. 	<ul style="list-style-type: none"> · Lecture · Discussion · Demonstration (Handouts M6.1 and M6.2) · Field Study (Handout M6.3)

Field Study

Handout M6.3 is a checklist for observing environmental conditions that influence mosquito breeding and human-mosquito contact. Trainers need to plan in advance a field trip to a nearby village. A sketch map should be prepared as part of the exercises. After the field visit, participants should summarize their findings for presentation and discussion.

Filling burrow pits:

Burrow pits harbor water where mosquitoes breed. There are some ways to regulate the amount of water in burrow pits. One way is to fill the pits with soil or sand. Another way is to use a mixture of kerosene and Abate to fill the pits. The mixture should be applied to the pits every 2-3 weeks.

Handout M6.1

Vector Control

1. Personal Protection

Personal protection to control malaria is an ancient practice. The common practices to avoid or minimize mosquito bites are:

- **Use of bed nets:**

They may be made of cotton or synthetic materials. Rectangular nets are better than circular. Openings in the weave should not be more than 0.0475 square inches. There are about 28/29 holes per square inch. Proper care should be taken.

- **Chemical impregnated bed nets:**

Current development is to use bed nets impregnated with insecticides such as "Pyrethroid" (permethoin or deltamethion). Nylon or polytene nets are dipped in plastic or aluminum containers holding 15 to 25 liters of insecticide solution. One liter of solution can treat 4 to 5 double-sized nets (11 sq. meters). If properly organized, 300 nets can be dipped in 2 hours. They should be dry before using.

- **Long-sleeved dressing:**

Culturally acceptable and affordable. May not be feasible under certain situations and occupations.

- **Repellents:**

Helpful for a short duration in preventing mosquito bites.

- Mosquito coils:**

The active ingredients include Diethyltoluamide, and other chemicals that may be active for 18 to 20 hours.

- Body creams:**

Indalone, dimethylphthalate, dipmethyl carbete, and althylhexanediol are some of the active chemicals in some of the repellents used in body creams.

A simple cream may be made as follows:

Oil of citronella	1 1/2 parts
Liquid paraffin	1 part
Coconut (or any other) oil	2 parts
Carbolic acid	1 percent

Mix ingredients, keep in a bottle, and apply in the night.

Herbs:

Orange peels, lemon grass, and Holy Bagril (*Oscimum Sanctum*) may also be applied on the skin to repel mosquitoes.

• **Window screens:**

Screening buildings with copper or polyester gauze is ideal. Openings in the weave should not be more than 0.0475 square inches. All outside doors, windows, chimneys, and other openings must be closed with the wire mesh.

• **Fans and air conditioners:**

They keep away mosquitoes. Some hungry female mosquitoes may, however, succeed in biting you. "Horse whisks" may temporarily be used to keep away mosquitoes.

• **Mosquito destruction:**

Swatting may be carried out with "fly swatters" or by means of a hand covered with soap lather. (In a British army camp there used to be competition to kill mosquitoes; two people recorded killing 400 mosquitoes in a tent one night.) Native brooms may also be helpful.

Spraying with 5% formalin, cresol may be used for clothing, dark corners, cupboards, and other areas where mosquitoes lurk. Cresol (5 ounces per 1000 cubic feet) may be a good fumigant in a room. Not ideal for high roof houses.

"Cage trays" or "dark boxes" kept in a cool shady place near a corridor attract mosquitoes for resting and may then be destroyed.

2. Environmental Management

• **Filling burrow pits:**

Burrow pits harbor water where mosquitoes breed. There are some bylaws to regulate the dimensions (30 feet x 12 feet x 4 feet deep). The accumulated water can be

treated like any stagnant pool. Alternatively, the pits may be used for sanitary landfill or composting of refuse.

• **Drainage and water protection for preventing mosquito breeding:**

- Sullage of bath room water, storm water, and sewage constitute the three major sources of waste waters that may pose problems. There are no organized drains in most parts of Nigeria. Blocked or silted drains and drains choked with refuse are some of the problems. Household holders should take care of the drain from their houses and the LGA should take care of the major drains in the ward. Ideal drains should be 60 cm wide and 70 cm high and should be covered by removable precast concrete units. The minimum slope should be at least 1 cm/100 feet.
- Whenever possible, in small communities, "soakaway" pits filled with stones should be encouraged.
- Drainage of marshes may be carried out by contour drains.
- Streams should be canalized, weeds removed, and edges kept free from vegetation.
- Watering places for animals should be kept under fence and paved to prevent hoof indentations from being left in the mud.
- Wells, cisterns, and small tanks should be observed for all openings.

• **Larvicides:**

- **Mineral oils:**
The addition of oil to water or drains is an older control method. Diesel oil, fuel oil, kerosene, or other crude fractions are also very useful. The usual application rate is 40 to 90 liters per hectare. Since the life cycle of a mosquito takes 8 days, weekly application is ideal. A cheap and efficient larvicide is a mixture of 1 part kerosene oil + 2 parts of used engine oil. The mixture can be applied by spraying (by means of drip cans [20 drops per minute], floating cans or plugs of trees), or by using a watering can depending on where you wish to apply the mixture. Liquid paraffin (1 teaspoonful per square yard) or cooking oil (1 oz. per square yard) may also be used on ponds.
- **Paris green:**
A green powder that contains copper arsenite and is insoluble in water. For surfaces, it can be mixed with fine road dust or saw dust and sprinkled on surfaces. It can be mixed with wet sand to sink to the bottom of water.
- **Synthetic insecticides:**

Fenthion, chlorpyrifos, and abate are most effective. The dosages (per hectare) are, respectively, 22 - 112g, 11 - 16 g and 56 - 112g. Malathion is also effective at a dose of 224 - 672g/hectare. "Abate" (organophosphorus insecticide) is very useful for drinking water ponds at 1 mg/1 and is the least toxic of the insecticides.

- **Biological control**

A wide range of fishes (e.g., gambusia affinis, tilapia, and carp) can be used in ponds or drains. *Bacillus thuringiensis* and *Bacillus sphaericus* are being developed and may prove useful when sprayed into water sources. 100 - 400 g/hectare seems to be ideal. The bacilli infect the gut of mosquito larvae and destroy them. "Elephant mosquitoes" and certain "nematodes" (worms) are also being used.

- **Cutting weeds, emptying water containers, etc.**

Periodic discussions at the community level and actions to pull the unwieldy weeds, fill the potholes, and empty water containers are very helpful in preventing mosquito breeding. Certain aquatic weeds such as water hyacinth and water lettuce that grow in fresh water ponds should be removed constantly. Good community organization will go a long way.

3. Chemical Control

- Adult mosquitoes are controlled by spraying houses with residual sprays. For environmental health reasons, many countries have discouraged the use of sprays such as DDT. The following insecticides are good against adult mosquitoes:

Insecticide	Amount	Effective For:
DDT	1 - 2g/m ²	6-12 months
Lindane	0.5	3 months
Malathion	2	3 months
Propoxion (OMS-33)	2	3 months

Resistance of mosquitoes to chemicals is a serious problem. About 51 species have developed resistance. Thirty-four (34) are resistant to DDT, forty-seven (47) to Dieldrin, thirty (30) to both DDT and Dieldrin. Organophosphate and carbamate resistance has been recorded in ten species.

□ Pyrethrum extract:

The chemical Pyrethrum, a plant extract from pyrethrum flowers, is a nerve poison and kills insects by mere contact. Pyrethrum is sprayed at a dosage of 1 oz. (containing 0.1% active ingredient) per 1000 cubic feet of space. The doors and windows are closed for at least 30 minutes. Pyrethrum has no residual action.

- Streams should be kept clear of brush and debris.
- Wetlands should be maintained.
- Wells should be protected.

□ Minerals:

Mineral	Resistance to DDT
Aluminum	High
Iron	High
Lead	High
Mercury	High
Phosphorus	High
Sulfur	High
Zinc	High

□ Synthetic:

Handout M6-2

Malaria Control Environmental Planning and Management

1. Introduction

The state of the environment in which we live (whether urban or rural) has a lot to do with breeding mosquitoes. The environment, in its natural form and the way it is being altered through human activities, creates favorable conditions for malaria infection and transmission. Therefore, proper planning and management of the environment is a major factor in the control of malaria.

2. Objectives

In this discussion, we shall focus attention on the following areas, all of which will aim at effective malaria control through environmental planning and management:

- Identifying and understanding breeding sites of the malaria vector around the housing environment.
- Understanding ways and means by which individual households, communities, and local governments can best reduce malaria vector breeding sites.
- Bringing malaria control into the PHC activities.

3. Settlements and Housing Units

We need to understand several things about our villages, neighborhoods, and houses in relation to malaria control. These are:

- *Location of villages (and neighborhoods):*
Some settlements are sited in marshy depressions or very close to rivers or water bodies. Others are located on well drained uplands. Vector breeding and malaria infections will be more problematic in villages that are located in depressions and those close to water bodies.

- *Villages that are located in forest zones:*
Such villages will have more malaria control problems to contend with than those located in savannas or near desert vegetation zones.
- *Orientation of housing units:*
Where there is no proper planning, houses are built in such a way that one backs the frontage of the other. As a result, the waste water from one drains directly into the other. The good planning situation is back-to-back.
- *Architecture:*
The design of some houses encourages transmission of malaria. For example, in The Gambia the gap between the top of the wall and the roof (an open eave) is one architectural feature that enables some species of mosquito to enter a house.

4. The Housing Environment

In discussing the housing environment as it affects mosquitoes and malaria, we shall focus attention on environmental infrastructure, vegetation, and human activities around the home, and in water pools.

- *Environmental infrastructure:*
The drains that carry waste water away from the premises are the most important infrastructures. These may be 'open,' 'covered,' or 'semi-covered.' Important considerations regarding drains are whether they are provided or not, their adequacy if provided, and their maintenance. In many settlements in the developing world, drains are not provided, and this encourages formation of water pools that breed mosquitoes. In other cases, where drains are provided, their sizes are not adequate and they are not lined with concrete materials. Another problem is poor maintenance. Drains are usually blocked with sand, refuse, feces, grass, dead animals, etc.
- *Vegetation:*
Uncontrolled vegetation, especially aquatic weeds, around the housing environments encourage mosquito breeding.
- *Human activities:*
In many tropical settlements, daily human activities take place around the home, and quite a number of activities (such as traditional soap-making, pottery, and extraction of palm oil) require water. More often than not, such waste water is not properly disposed of.
- *Water pools:*
The following are conducive for mosquito breeding and are usually found around dwelling units; abandoned ponds, surface pools created after rains, rock pools, tree

holes, abandoned wells, burrow pits, seepage sites near wells, coconut shells, and hoof indentations.

5. Environmental Planning and Management

Control actions:

Our concern is to consider what control activities are required at the household, community, and LGA levels.

Role of the household:

The household has responsibility to properly discharge waste water on the premises. Waste is either directed into a soakaway pit or into a larger street drain. The collection of broken pots, bottles, etc. is also the household responsibility. (The Nigerian monthly environmental campaign law needs to be supported by health education so that the household realizes that environmental sanitation is necessarily a daily affair.)

Role of the community:

Community actions (rural and urban) should be initiated to provide drainage facilities where they are not available, and to maintain the drains on a continuous basis where they are available. As a necessary condition for all community actions, community organizers and their helpers should go around their villages, identifying all potential vector breeding sites and marking them on a sketched map of the village.

Role of the LGA:

The LGA should collaborate with the communities in sharing responsibilities for provision and maintenance of drains. While the household takes care of the drains within the premises and the communities look after those drains along neighborhood minor roads, the LGA should plan, design, construct, inspect, operate, and maintain the larger network of drains.

In addition, LGA should be responsible for the initiation, review, and enforcement of necessary environmental laws.

6. Implications for PHC

The malaria control measures above should be brought within the scope of the PHC program. The measures should not be difficult to achieve as all the activities are in line with the principles of PHC. For example, involvement of the households and the communities conforms with two of the cardinal principles of PHC—self-reliance and community involvement. The measures also conform with the principle of intersectoral

collaboration since the efforts of many sectors will be required. The provision and maintenance of community environmental infrastructure requires the collaboration of engineering technologist, town planners, health educators, bricklayers, and laborers.

Questions

1. To what extent is your LGA discharging its responsibility in the provision and maintenance of drains?
2. What are the laws in your LGA that deal with housing environmental conditions?
3. Who should initiate community action?

Handout M6.3

Malaria Control Observation Checklist

Rural or Urban Environment

Village or Town _____

Housing Conditions:Roof: Thatched Iron Flat Cement Asbestos

Number of rooms _____

Type of eave: Touches wall Does not touch wall

Windows: Number _____ Size _____

Screens: Yes No Type: Metal PVCCurtains: Present AbsentShutters for windows: Yes No Material: Wood Metal

Doors: _____

Number _____

Material: Wood Bamboo MetalCurtains: Present Absent

Walls: _____

 Mud Cement blocks Cement over mud bricks WoodPresence of crevices: Yes No

Handout M6.3

Inside Environment

Presence of:

 Water Pots Containers Other pots Buckets Plastic tubs

 Tumblers Utensils with little water
Calabash: Covered Uncovered
 "AGBO" pots around
Chemical sprays: Used regularly Occasionally Not at all

Outside Environment

Water source:

 Well Tap Pond Stream Other _____
IF WELL, presence of: Cover Apron Soakaway

Bathroom:

 Drain No drain
IF DRAIN: Open Concrete cemented Wide NarrowLeads to another large drain: Yes NoPresence of refuse in the drain: Yes NoSprays used in the drain: Yes No

Types of sprays used _____

Overgrown weeds: Yes NoPresence of mosquito larvae inside or on the premises: Yes No

Places found _____

Additional Information

Abandoned Ponds: Present Absent

Surface pools created after rains: Present Absent

Rock pools: Present Absent

Tree holes: Present Absent

Abandoned wells: Present Absent

Hand dug pits or burrow pits: Present Absent

Hoof indentations: Present Absent

Handout M6.3

Sketch Map of a Village

Trainers should supply a sketch map for the village(s) selected for a field visit.

Include roads, landmarks (markets, chief's house, schools, etc.), and water sources.

2. Health Education Modules

The modules in this section address the basic theory and practice of health education. Practical exercises and the homework build on these concepts to the content of malaria.

H1 - Health Education Overview

H2 - Synthesis of Behavioral Science

H3 - Community Assessment and Design

H4 - Information Collection

H5 - Formulating Health **Health Education Modules**

H6 - Health Education Strategies

H7 - Plan of Action

H8 - Monitoring and Evaluation

H9 - Budget Management

3. Health Education Modules

H1: Health Education Overview

The modules in this section address the basic theory and practice of health education. Practical exercises aid the trainees to adapt these concepts to the control of malaria.

H1 - Health Education Overview *By the end of this module, the participants will be able to:*

H2 - Synthesis of Behavioral Issues *Identify the key behavioral factors in malaria control programs and the application of these factors for health education.*

H3 - Community Involvement and Participation *Identify the various ways by which health education can contribute to the achievement of the objectives of malaria control programs.*

H4 - Information Gathering *Identify the various ways by which health education can contribute to the achievement of the objectives of malaria control programs.*

H5 - Formulating Health Education Objectives *Identify the key behavioral factors in malaria control programs and the application of these factors for health education.*

H6 - Health Education Strategies

H7 - Plan of Action *Recognize the inter-relationship and linkage of the various health education strategies and the application of these factors for health education.*

H8 - Monitoring and Evaluation *Identify the various ways by which health education can contribute to the achievement of the objectives of malaria control programs.*

H9 - Resource Management

Appreciate the importance of an interdisciplinary or team approach to malaria control programs.

Materials Required

Flip charts and markers

Handout H1.1 - What is Health Education?

Handout H1.2 - Some Principles of Health Education

Estimated Time

2 hours

3. Health Education Modules

The modules in this section address the basic theory and practice of health education. Practical exercises aid the trainees to adapt these concepts to the control of malaria.

- H1 - Health Education Overview
- H2 - Synthesis of Behavioral Issues
- H3 - Community Involvement and Participation
- H4 - Information Gathering
- H5 - Formulating Health Education Objectives
- H6 - Health Education Strategies
- H7 - Plan of Action
- H8 - Monitoring and Evaluation
- H9 - Resource Management

H1: Health Education Overview	
Objectives	
<p>Upon completion of this module, the participants will be able to:</p> <ol style="list-style-type: none"> 1. Explain and define the goal and purpose of health education. 2. Define health education and explain how it works. 3. List and discuss some principles of health education. 4. Describe the major behavioral and nonbehavioral factors in malaria control programs and the implication of these factors for health education. 5. Recognize the inter-relationship and linkage of the various health education technical modules to be covered during the workshop. 6. List and describe five ways by which health education can contribute to the achievement of the objectives of malaria control programs. 7. Appreciate the importance of an interdisciplinary or team approach to malaria control programs. 	
Materials Required	
<ul style="list-style-type: none"> • Flip charts and markers • Handout H1.1 - What is Health Education? • Handout H1.2 - Some Principles of Health Education 	
Estimated Time	
2 hours	

H1: Health Education Overview	
Content	Training Methods
<ul style="list-style-type: none"> · Relationship between goal and objectives · Goal of health education · Purpose and objectives of health education in malaria control 	<ul style="list-style-type: none"> · Brainstorming · Lecture and discussion
<ul style="list-style-type: none"> · Health education as science of health behavior · Health education characteristics, strategies, and methods: <ul style="list-style-type: none"> □ Community survey and needs assessment - behavioral research □ Identification and utilization of local resources in support of health programs, community involvement, mobilization and participation □ Effective IEC □ Training and human resources development □ Intersectoral cooperation and collaboration · The roles of a health educator 	<ul style="list-style-type: none"> · Brainstorming · Handout H1.1
<ul style="list-style-type: none"> · Selected principles of health education · Relevance of the principles in selected malaria control programs 	<ul style="list-style-type: none"> · Lecture and discussion · Problem-solving · Handout H1.2
<ul style="list-style-type: none"> · Behavioral factors in health education · Nonbehavioral factors in a health program · Dynamic relationship between behavioral and nonbehavioral factors · Implication for selected malaria control programs 	<ul style="list-style-type: none"> · Brainstorming · Lecture and discussion · Exercise on implications
<ul style="list-style-type: none"> · Presentation of the health education modules · Relationship of the modules · Implication of the linkages in malaria control programs 	<ul style="list-style-type: none"> · Lecture and discussion · Application of selected modules in some aspects of malaria control programs.
<ul style="list-style-type: none"> · Review of health education strategies and methods · Examples of the application of health education strategies and methods in selected malaria control programs and problems 	<ul style="list-style-type: none"> · Lecture and discussion · Problem-solving
<ul style="list-style-type: none"> · Interdisciplinary or team approach to malaria control · Principal characters and actors in malaria control programs 	<ul style="list-style-type: none"> · Discussion

Handout H1.1**What is Health Education?**

1. Science of health behavior.
2. Totality of educational efforts aimed at helping, motivating, and/or encouraging people to:
 - Want to be healthy
 - Know how to stay healthy
 - Do what they can to maintain health
 - Seek help as and when needed
3. Educational activities to promote and/or facilitate self-health care through self-efforts, self-help, and self-reliance to:
 - Prevent ill-health and health hazards (health protection)
 - Promote and maintain health
 - Use intelligently and maximally available health services

Goal of Health Education**Voluntary Positive Health Action (Practice):**

- Health promotion
- Health protection
- Use of health services and medical products intelligently

Processes and Methods of Health Education

1. Application of health, socio-behavioral, and education sciences for diagnosis and solution of health behavioral problems.
 - Ecologic approach.
 - Holistic approach.
2. Effective information and communication for health.
3. Community study - man and his environment in relation to health.
(Human ecology + Health practice)
4. Applied health behavioral and operational research.
5. Community involvement, participation, and mobilization.
6. Group or team and the change processes:
 - Interdisciplinary approach.
 - Planned change based on knowledge of what is.

Targets of Health Education

- Individuals
- Families
- Groups at risk
- Communities
- School students and staff
- Health personnel
- Political leaders and policy-makers
- Administrators
- Significant others

Types of Health Education

Handout H1.2

1. • Individual health education
2. • MCH education (family health education)
3. • Community health education
4. • Patient health education
5. • School health education
6. • Food and nutrition education
7. • Environmental health education
8. • Workplace and occupational health education
9. • Accident prevention and safety education
10. • AIDS education
11. • Smoking and drug abuse education

Barriers to Health Action

1. • Behavioral e.g., acceptability problems
 2. • Non-Behavioral e.g., availability and accessibility
 3. • Constraints e.g., affordability, feasibility, and situational and environmental
4. To be long lasting, changes in health behavior must be self-imposed – not administratively ordered; they must be integrated into the people's life pattern.
 5. What has intrinsic value for people generates self-motivation; external motivation is of minimal value until it has stimulated the intrinsic self-motivational forces within the health consumer.

Processes and Methods of Health Education

Types of Health Education

- | | |
|---|---|
| 1. Application of health education to the control of health behavioral problems | Individual health education |
| 2. Family approach | Family health education |
| 3. Holistic approach | Community health education |
| 4. Effective information and communication for health | Patient health education |
| 5. Community study - man and his environment in relation to health (Health ecology + Health practice) | School health education |
| 6. Applied health behavioral and operational research | Food and nutrition education |
| 7. Community involvement, participation, and mobilization | Environmental health education |
| 8. Occupational health education | Workplace and occupational health education |
| 9. Accident prevention and safety education | Accident prevention and safety education |
| | AIDS education |
| | Smoking and drug abuse education |

Barriers to Health Action

Barriers to Health Action

- Behavioral - e.g., acceptability problems
- Non-Behavioral - e.g., availability and accessibility
- Constraints - e.g., affordability, feasibility, and situational and environmental
- School students and teachers
- Health personnel
- Political leaders and policy makers
- Administrators
- Significant others

Handout H1.2

Some Principles of Health Education

1. All human behavior is caused; every health condition has a behavioral correlate.
2. The attitude that individuals bring to any health situation determines to a large extent their response or reaction to accept or reject, etc.
3. To participate in what affects our destiny is one of our strongest cravings.
4. The promotion of health action must be in keeping with the services and resources available so that false expectations and frustrations will not develop.
5. Knowledge does not necessarily, or always, lead to action, because knowing is one thing but doing is another.
6. Effective communication is a *sine qua non* of the practice of health education.
7. Personal and situational factors create and influence the health consumer's already existing behavioral patterns.
8. The total environmental setting of individuals plays a dominant role in their health behavior.
9. To be long lasting, changes in health behavior must be self-imposed not administratively ordered; they must be integrated into the people's life pattern.
10. What has intrinsic value for people generates self-motivation; external motivation is of minimal value until it has stimulated the intrinsic self-motivational forces within the health consumer.

Key Issues in Educational Diagnosis

1. Behavioral issues and factors
 - Knowledge and awareness
 - Attitudinal factors:
 - Acceptance and rejection
 - Causal variables (beliefs, values, perceptions, felt needs, prejudices, expectations, etc.)
 - Level and quality of involvement
2. Non-behavioral issues and factors
 - Availability factor
 - Affordability factor
 - Feasibility and workability factor
 - Situational reality and environmental factor
3. Dynamic interrelationship of behavioral and non-behavioral factors in the context of man and his environment (human ecology and health practice).
4. Relevance for malaria control.

Attitudes

- Dynamic force
- Pushing force
- Pulling force
- Imperceptible **but** effects on behavior are perceptible

Undercurrents of Attitudes

H2: Synthesis of Behavioral Issues

- Beliefs
- Values
- Known traditional and customary practices
- Biases
- Prejudices
- Needs (felt needs)
- Problems
- Perceptions, etc.

1. List four malaria control methods that have important implications for health education.
2. Identify key behavioral problems at each of the four levels of intervention (individual, community, policy-making) related to the four control methods.
3. Discuss the reasons for the behavioral problems identified at each level, with special attention to children under 5 years of age and pregnant women.
4. Discuss the importance of this analysis for planning health education activities and thus, for the work to be done during and after the workshop.

Materials Required

- Flip chart and marker
- Handout H2.1 – Take Home Assignment

Estimated Time

2 hours 30 minutes

*Key Issues in Educational Programs**Underpinnings of Attitudes*

1. Behavioral and non-behavioral factors
 - Knowledge and awareness
 - Perceptions, etc. (attitudes, beliefs, etc.)
 - Acceptance and rejection
 - Cultural variables (beliefs, attitudes, etc.)
 - Level and quality of information
2. Non-behavioral issues
 - Availability factor
 - Affordability factor
 - Feasibility and workability factor
 - Situational reality and environmental factor
3. Dynamic interrelationship of behavioral and non-behavioral factors in the context of man and his environment (human ecology and health practice)
4. Relevance for malaria control.

Attitudes

- Dynamic force
- Pushing force
- Pulling force
- Imperceptible but effects on behavior are perceptible

H2: Synthesis of Behavioral Issues

Objectives

Upon completion of this module, the participants will be able to:

1. List four malaria control methods that have important implications for health education.
2. Identify key behavioral problems at each of three levels of intervention (individual, community, policy-making) related to the four control methods.
3. Discuss the reasons for the behavioral problems identified at each level, with special attention to children under 5 years of age and pregnant women.
4. Discuss the importance of this analysis for planning health education activities and thus, for the work to be done during and after the workshop.

Materials Required

- Flip charts and markers
- Handout H2.1 - Take-Home Assignment

Estimated Time

2 hours 30 minutes

3. Select the top priority problem for which action is indicated.
4. As a group select one malaria control strategy and one target group that will have an impact on the priority problem that they want to work on back home through health education.

H2: Synthesis of Behavioral Issues	
Content	Training Methods
<p><i>Four malaria control methods with major implications for health education:</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Early diagnosis and treatment <input type="checkbox"/> Personal protection <input type="checkbox"/> Mosquito control <input type="checkbox"/> Chemoprophylaxis 	<ul style="list-style-type: none"> Review and discussion in plenary of malaria control technologies studied during Week 1
<p>Examples of behavioral problems:</p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>Individual level:</i> <ul style="list-style-type: none"> Mothers do not treat fever in young children promptly Young children sleep with no protection from mosquitoes <input type="checkbox"/> <i>Community level:</i> <ul style="list-style-type: none"> Residents dump refuse in drains Drains are poorly maintained <input type="checkbox"/> <i>Policy-maker:</i> <ul style="list-style-type: none"> Local authorities do not enforce regulations 	<p>Examples from Week 1 will be discussed in plenary</p>
<p><i>3 principal reasons why people behave as they do:</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Thoughts/feelings related to knowledge, attitudes, beliefs, values <input type="checkbox"/> Availability of resources such as time, money, skills, materials <input type="checkbox"/> Influence of other people who are important to them 	<ul style="list-style-type: none"> Brainstorming Guided discussion
<p><i>Importance of the analysis for planning:</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Begin where people already are, i.e., build on existing situation <ul style="list-style-type: none"> * It helps to identify possible solutions that are specific to the reasons for the behavior * It helps to see how existing malaria control technology fits or does not fit with the target group 	<ul style="list-style-type: none"> Guided discussion

Handout H2.1

Health Community Involvement and Participation

Take-Home Assignment

Who

Participants will complete this assignment by working in their LGA or country groups.

By When

To be completed by tomorrow morning.

Tasks

1. Individually review the Needs Assessment reports from their respective localities.
2. Working as a group, identify problems of behavior in the context of the four malaria control strategies:

- Early diagnosis and treatment of fever
- Personal protection
- Mosquito control
- Chemoprophylaxis

with particular reference to the levels of intervention, i.e., individual, community, policy-making levels and specific target groups at the different levels. The frequency (if possible) and importance of each problem will be assessed based on information in the reports.

3. Select the top priority problem for which action is indicated.
4. As a group, select one malaria control strategy and one target group that will have an impact on the priority problem that they want to work on back home through health education.

Levels of Intervention	Malaria Control Strategy			
	Early Diagnosis and Treatment	Personal Protection	Mosquito Control	Chemoprophylaxis
Individual Family	Problem: Message (Target Behavior): → → → Target Group: ↓ ↓			
Community				
Policy-making				

Health Education

Health Education for Malaria Control

AT

Health Education for Malaria Control

H3: Community Involvement and Participation

Objectives

Upon completion of this module, the participants will be able to:

1. Recognize facilitating and inhibiting factors in community participation.
2. Identify appropriate health education strategies that are capable of promoting community involvement and participation at each of the three levels of control (individual, community, policy makers).
3. Apply appropriate health education strategies for community involvement and participation in malaria control activities.

Materials Required

- Flip charts and markers

Estimated Time

4 hours

Estimated Time

12 hours classroom, 4 hours fieldwork, 4 hours analysis and presentation

HE3: Community Involvement and Participation	
Content	Training Methods
<ul style="list-style-type: none"> • Purpose of community involvement and participation in malaria control: <ul style="list-style-type: none"> <input type="checkbox"/> To improve knowledge of community about the cause, prevention, and treatment of malaria <input type="checkbox"/> To enlist cooperation and support of community in malaria control activities; <input type="checkbox"/> To promote local initiatives in malaria control <input type="checkbox"/> To acquire skills to control malaria in the community, etc. • Factors influencing community involvement and participation: <ul style="list-style-type: none"> <input type="checkbox"/> Facilitating factors: knowledge of purpose, positive experience of past community action, good community leadership, and simplicity and feasibility of malaria control technologies <input type="checkbox"/> Inhibiting factors: inadequate knowledge and wrong perception of malaria, negative experience of past community action, bad community leadership or health workers, infighting and complicated and expensive technologies 	<ul style="list-style-type: none"> • Lecture and discussion
<ul style="list-style-type: none"> • Identification of areas of malaria control which call for community involvement/participation: <ul style="list-style-type: none"> <input type="checkbox"/> Vector Control <ul style="list-style-type: none"> Filling of burrow pits Clearing of drainage Cutting and removal of overgrown weeds Covering pots and other containers, etc. <input type="checkbox"/> Use of chemicals <ul style="list-style-type: none"> Larviciding <input type="checkbox"/> Use of local herbs 	<ul style="list-style-type: none"> • Directed group discussion • Group assignment: Country or LGA teams will identify appropriate community groups to be involved in malaria control activities • Group presentations
<ul style="list-style-type: none"> • Community education on cause, prevention, and treatment of malaria. • Community mobilization: <ul style="list-style-type: none"> <input type="checkbox"/> Special groups to mobilize <ul style="list-style-type: none"> Patent medicine sellers Traditional healers Community organizations, e.g., Better Life for Rural Women, Rotary Club, Lions, etc. Traditional rulers Policy makers 	

H4: Information Gathering

Objectives

Upon completion of this module, the participants will be able to:

1. Give reasons for gathering information prior to beginning a health education activity.
2. Use their own data and experiences to identify five types and sources of information collected related to malaria control.
3. Review data from their respective localities to identify the most severe problems related to each of the four malaria control methods.
4. Select one target group and one malaria control method for which they will conduct a health education activity; for the selected target group and method, identify additional information to be collected.
5. Analyze, present and discuss at least two types of information related to the selected methods, and use two simple methods to present the two selected types of information.
6. Prepare and field test in Oyo draft instruments for collecting information when they return home.

Materials Required

- Needs assessment reports
- Other relevant data
- Flip charts and markers
- Handout H4.1 - Facilitator Guidelines

End-of-day "Products"

Estimated Time

1. Definition of behavioral problem(s) selected and known reasons for each behavior.
2. 12 hours classroom, 6 hours fieldwork, 4 hours analysis and presentation

H4: Information Gathering	
Content	Training Methods
<ul style="list-style-type: none"> · Define importance of problem · Learn about resources and constraints · Identify who is affected by the problem · Learn about people affected and what they are already doing 	<ul style="list-style-type: none"> · Handout H4.1 - Facilitator Guide · Brainstorming · Discussion
<ul style="list-style-type: none"> · <i>Types of information</i> <ul style="list-style-type: none"> <input type="checkbox"/> Disease occurrence and frequency <input type="checkbox"/> Geography <input type="checkbox"/> Political organization <input type="checkbox"/> Socio-cultural practices <input type="checkbox"/> Age and sex distribution of population · <i>Sources or Methods</i> <ul style="list-style-type: none"> <input type="checkbox"/> Household surveys <input type="checkbox"/> Record reviews <input type="checkbox"/> Interviews with key leaders <input type="checkbox"/> Observations <input type="checkbox"/> Health worker interviews <input type="checkbox"/> Neighborhood meetings <input type="checkbox"/> Focus group discussions 	<ul style="list-style-type: none"> · Brainstorming · Discussion
<ul style="list-style-type: none"> · Analysis of malaria behavioral problems by four methods and three levels of intervention 	<ul style="list-style-type: none"> · Example using Handout H2.1 matrix - LGA and country groups with facilitators
<ul style="list-style-type: none"> · Priority setting based on data about existing situation and feasibility of change (time, resources, etc.) 	<ul style="list-style-type: none"> · LGA and country-groups with facilitators · Presentations in plenary
<ul style="list-style-type: none"> · Use existing situational data as content 	<ul style="list-style-type: none"> · LGA and country groups with facilitators
<ul style="list-style-type: none"> · Instrument development and field testing procedures 	<ul style="list-style-type: none"> · Guide field practice with facilitators

Handout H4.1

Facilitator Guidelines

Information Gathering:

Day 1

- | | |
|--------------------|--|
| 9:00 - 10:00 am | Plenary |
| 10:00 - 11:00 am | LGA and country groups with facilitators: <ol style="list-style-type: none"> 1. Select one malaria control method. 2. Select one target group. 3. Help group to prepare <i>brief</i> presentation of their selections giving at least three reasons for their choices. |
| 11:15 am - 1:00 pm | Presentations by each group (5 min. maximum for each group). |
| 1:00 - 2:30 pm | Lunch |
| 2:30 - 4:30 pm | LGA and country groups with facilitators: <ol style="list-style-type: none"> 1. Review needs assessment report in terms of data available on selected behaviors. 2. Determine additional data to be collected on the selected behavior(s). 3. Determine how data will be collected, i.e., by what method. 4. Develop at least one instrument for gathering the data that will be field tested (in addition to use of Tracer Diseases form). |

End-of-day "Products"

1. Definition of behavioral problem(s) selected and known reasons for each behavior.
2. Definition of levels of intervention target groups.

3. Description of additional data to be collected about behaviors, reasons for the behavior and target groups and how data will be collected.
4. Initial draft of one instrument to be field tested.

Information Gathering: Day 2

8:30 am - 1:00 pm

LGA and country groups with facilitators

1. Complete one questionnaire in English.
2. Submit questionnaire for typing.
3. Prepare field sites.

1:00 - 2:30 pm

Lunch

1. Translate draft English questionnaire into Yoruba.
2. Yoruba translation is to be translated back into English by a second Yoruba speaker or by the original translator, who no longer has a copy of the English version as a reference.

2:30 - 3:30 pm

LGA and country groups with facilitators

1. Prepare final Yoruba translation.
2. Have Yoruba translation typed.
3. Revise English version (if needed, after translation into Yoruba).
4. Continue to develop other draft instruments for information gathering.
5. Have team members practice one interview, using a translator.
6. Discuss final arrangements for field test.

3:30 - 4:30 pm

Role play an interview and discuss, using one of participant's questionnaires.

Information Gathering: Day 3

8:30 am - 1:00 pm

LGA and country groups with facilitators

Supervised field work in surrounding communities with instruments developed on previous day.

2:30 - 4:30 pm

LGA and country groups with facilitators

Analysis of information gathered and critique of instruments

Information Gathering: Day 4

11:00 am - 1:00 pm

LGA and country group facilitators

Team presentations of results analyzed and critiques

Materials Required

Handout H5.1 - Educational Objectives

Estimated Time

4 hours

3.	Description of additional data to be collected about the situation in the community and target groups and how data will be collected.	Information gathering
4.	Initial draft of one instrument to be field tested	Information gathering
Information gathering	LGA and country groups with facilitators	8:30 am - 1:00 pm
8:30 am - 1:00 pm	LGA and country groups with facilitators 1. Complete one questionnaire in English. 2. Analyze of information gathered and critique of instruments	3:30 - 4:30 pm
1:00 - 2:30 pm	LGA and country groups with facilitators	Information gathering
2:30 - 3:30 pm	LGA and country groups with facilitators 1. Yoruba translation to be made for the English form by a Yoruba speaker or by the facilitator, who no longer has a copy of the English form. 2. Have Yoruba translation typed. 3. Revise English version (if needed, after translation into Yoruba) 4. Continue to develop other draft instruments for information gathering 5. Have team members practice one interview, using a translator. 6. Discuss final arrangements for field test.	Information gathering
3:30 - 4:30 pm	Role play an interview and discuss using one of participant's questionnaires.	Information gathering

H5: Formulating Health Education Objectives

Objectives

Upon completion of this module, the participants will be able to:

1. Identify five characteristics of a health education objective.
2. Define a program objective.
3. Define a health education objective.
4. Identify three dimensions of health education objectives.
5. Identify two types of health education objectives.
6. Develop three measurable health education objectives for their control program.

Materials Required

- Handout H5.1 - Educational Objectives

Estimated Time

6 hours

H5: Formulating Health Education Objectives	
Content	Training Methods
<ul style="list-style-type: none"> · What action is to be performed? · Who is to perform the action? · When is performance to occur? · Under what conditions? · What is the acceptable level of performance? 	<ul style="list-style-type: none"> · Lecture · Discussion · Analysis of sample objectives (Handout H5.1)
<ul style="list-style-type: none"> · What is a program objective? · What is a health education objective? 	<ul style="list-style-type: none"> · Idem
<ul style="list-style-type: none"> · Health education objectives: knowledge, attitude, and behavior 	<ul style="list-style-type: none"> · Analysis of sample objectives · Group exercise (Handout H5.1) · Discussion
<ul style="list-style-type: none"> · Outcome objectives · Process objectives 	<ul style="list-style-type: none"> · Analysis of sample objectives · Group exercise (Handout H5.1) · Discussion
<ul style="list-style-type: none"> · How to develop measurable objectives with examples 	<ul style="list-style-type: none"> · Facilitators work with LGA and country team to develop objectives

Handout H5.1

Educational Objectives

I. Formulating Educational Objectives

Objective:

A statement of an organization or unit that specifies expected change or accomplishments as a result of a program or activity.

Program Objective:

A statement that specifies expected changes a program or activity will have on a *health problem* (malaria).

Health Education Objective:

A statement that specifies expected changes a health education program or activity will have on a behavior contributing to a health problem.

Two Forms (Types) of Objectives	
Process (Effort of Organization)	Outcome (Effect on target)
<p>3. Importance of:</p> <p>Knowledge</p> <p>(Problems identified) Refer to Some Principles of Health Education - Handout H1.2</p> <p>Attitude</p> <p>(Problems identified) Refer to Some Principles of Health Education - Handout H1.2</p>	<p>Practice</p> <p>Practice</p>

Examples: Health Education Objectives for Malaria Control	
Early Diagnosis and Treatment	The percentage of <i>mothers with children who bring their children to the health clinic within 24 hours of fever onset will increase from 24% to 62% (by July, 1991).</i>
Personal Protection	The use of mosquito coils in their bedrooms by pregnant women will increase from 3/100 to 20/100 households in village X by the end of 1991.
Mosquito Control	The number of <i>breeding sites</i> for mosquitoes in village X will be reduced from an average of 10 per <i>household</i> to 2 per household by July, 1991.
Chemoprophylaxis	The percentage of pregnant women in village X who take antimalarial drugs prophylactically through pregnancy will increase from 15% to 39% by the end of 1991.

Two Forms (Types) of Objectives	
Outcome (Effect on Target)	Process (Action of Organization)

II. Types of Educational Objectives

1. There are two types of educational objectives:

- *Training, process or institutional objectives* e.g., training or objectives by the trainer(s) *to be accomplished by trainer(s)*
- *Learning objectives* by the learner(s) *expectations from learner(s)*

2. Educational objectives are defined in *measurable, observable behavioral terms or outcomes.*

3. There are three dimensions of *learning* (educational) objectives:

- Knowledge objectives (cognitive domain);
- Attitude objectives (affective domain);
- Practice or action objectives (psychomotor domain)

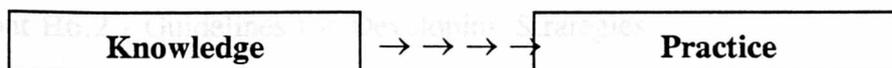
Examples: Action verbs

4. Goal of health education positive health practice and action. Therefore, *knowledge* and *attitude* objectives are the means to an end in health practice and action or health education.

No positive health practice, no health education.

5. Importance of:

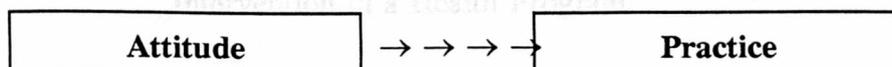
Knowledge objectives for health practice



(Problems Identified)

Refer to Some Principles of Health Education - Handout H1.2

Attitude objectives for Health practice



(Problems identified)

Refer to Some Principles of Health Education - Handout H1.2

Estimated Time

4 hours

Type of Educational Objective	Examples
1. Knowledge objectives Facts, concepts, principles, and procedures	The student will be able to: - list the symptoms of malaria - explain the life cycle of the malaria parasite - describe the transmission of malaria - identify the vector of malaria
2. Attitude objectives Values, beliefs, and feelings	The student will be able to: - appreciate the importance of malaria control - show respect for the health workers - have a positive attitude towards malaria control
3. Practice objectives Skills and techniques	The student will be able to: - identify mosquito breeding sites - use mosquito nets - use insecticide-treated bed nets - use larvicides

4. Goal of health education - positive health practice and action. Therefore, knowledge and attitude objectives are the means to an end or health practice and action or health education.

5. Importance of

Knowledge objectives for health practice



(Problems identified)

Refer to Some Principles of Health Education - Handout H.2.

Attitude objectives for Health practice



(Problems identified)

Refer to Some Principles of Health Education - Handout H.2.

H6: Health Education Strategies

Objectives

Upon completion of this module, the participants will be able to:

1. Explain the concept of diffusion and the need to plan intervention strategies that relate to the target group and its behavior.
2. Identify the stages of readiness to accept change and what must occur for adoption of a new behavior.
3. Differentiate among communication, training, and community mobilization strategies and identify five examples of each type.
4. List the different types of behavioral factors and relate them to the target group and its environment.
5. Select the most appropriate behavioral factors to be addressed in the intervention, and match them with one or more strategies.

Materials Required

- Overhead projector
- Flip charts and markers
- Handout H6.1 - Health Education Strategies
- Handout H6.2 - Guidelines for Developing Strategies
- Handout H6.3 - Health Education Strategy Analysis
- Handout H6.4 - Health Communication Intervention (Media Implications)
- Handout H6.5 - Synthesis of a Planning Strategy for a Health Communication Intervention in a Health Program

Estimated Time

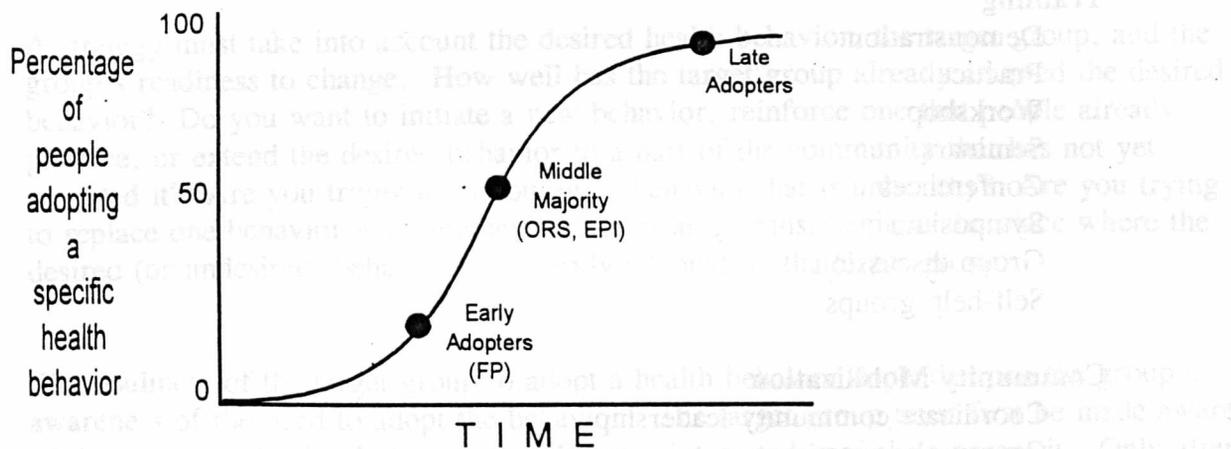
4 hours

H6: Health Education Strategies	
Content	Training Methods
<ul style="list-style-type: none"> The diffusion process for a health behavior follows a course: <ul style="list-style-type: none"> early adopters middle majority late adopters Different strategies must be applied with the above groups. 	<ul style="list-style-type: none"> Lecture Discussion Examples
<ul style="list-style-type: none"> Stage of readiness: awareness, interest, trial, decision and adoption At each point, an action must be taken to move someone to the next level until the behavior is adopted. 	<ul style="list-style-type: none"> Lecture Discussion Examples
<ul style="list-style-type: none"> A number of health education strategies will be identified and described. 	<ul style="list-style-type: none"> Lecture Discussion Examples
<ul style="list-style-type: none"> Predisposing factors relate to motivating persons to act (knowledge, attitudes, perceptions, etc.) Enabling factors are skills and resources impacting on behavior (use of a thermometer, availability and cost of drugs, etc.) Reinforcing factors support a desired behavior (incentives). 	<ul style="list-style-type: none"> Lecture Discussion Examples
<ul style="list-style-type: none"> How to assign values in order to prioritize factors How to select strategies for prioritized factors 	<ul style="list-style-type: none"> Participants will prioritize factors by listing them and assigning a value to their effect on the target group and its environment. Potential strategies will be discussed.

Handout H6.1

Health Education Strategies

1. Diffusion



2. Stages of readiness to change

Awareness	Exposure
Interest	Important advantage
Trial	Examples, demonstration, observation
Decision	Learning persuasion
Adoption	

3. Types of strategies

- **Communication**

- *Interpersonal*

- Counseling
 - Lecture
 - Discussion
 - Interview
 - Role play
 - Songs

- *Mass Media*

- Radio, Films
 - Newspapers
 - Posters, pictograph
 - Town crier
 - Puppet show
 - Campaign

Special Media

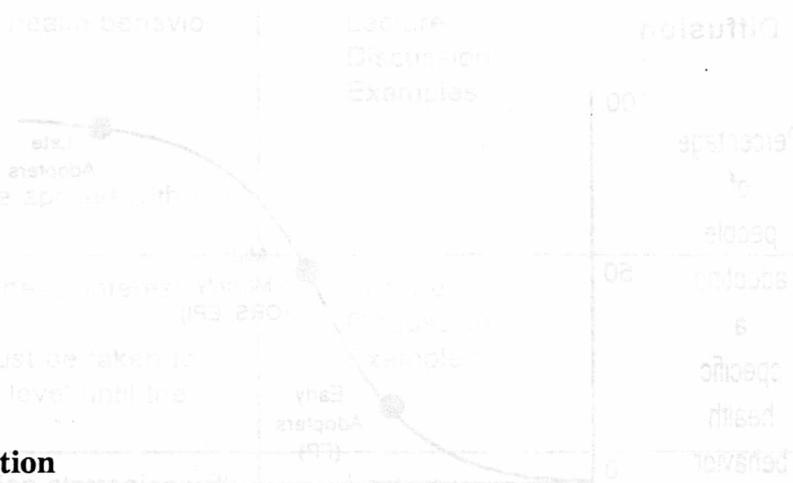
- Target Advertising
- Sports events
- Promotions

• Training

- Demonstration
- Practice
- Workshop
- Seminars
- Conferences
- Symposium
- Group discussion
- Self-help groups

• Community Mobilization

- Coordinate community leadership
- Community meetings
- Social and civic group involvement
- Volunteers
- Religious groups
- Youth clubs



<p>How to design values in certain types of work factors</p> <p>How to select strategies in detail of work factors</p>	<p>Types of strategies</p> <p>Learning persuasion</p> <p>Examples, demonstration, observation, etc.)</p> <p>Important activities</p> <p>Interview</p> <p>Decision</p> <p>Training</p> <p>Learning</p> <p>Stages of readiness to change</p>

- Mass Media
- Radio, Films
- Newspapers
- Posters, pictograph
- Town crier
- Puppet show
- Campaign

Handout H6.2

Guidelines for Developing Strategies

1. A strategy must take into account the desired health behavior, the target group, and the group's readiness to change. How well has the target group already adopted the desired behavior? Do you want to initiate a new behavior, reinforce one that people already practice, or extend the desired behavior to a part of the community that has not yet accepted it? Are you trying to discourage a behavior that is unhealthy? Are you trying to replace one behavior with another? Your strategy must begin at the place where the desired (or undesired) behavior is currently adopted by the target group.
2. The readiness of the target group to adopt a health behavior depends upon the group's awareness of the need to adopt the behavior. The target group must first be made aware of the desired behavioral change, then become interested enough to accept it. Only after creating awareness and interest are you likely to get people to try and to adopt the desired behavior. Is the target group aware of the desired behavior that you expect? Have you created interest in the need for the desired behavior? Have you used rewards, incentives and benefits to assist the target group to try the behavior and to continue it?
3. Every target group has barriers and helpers (thoughts, feelings, available resources, skills, influence of others, culture, etc.) that prevent or assist the adoption of a health behavior and that must be considered when developing a strategy. Have you listed the relevant barriers and helpers to action by the target group (see Handout H6.3)? Have you decided which are most important to consider in developing your strategy? Have you considered ways to emphasize the helpers and overcome the barriers?
4. The strategies chosen must offer the target group the best opportunity to proceed through the behavioral change process from awareness to action. The choice of the most important helpers and barriers will help you select the strategies that will be most effective in achieving the desired behavior. Have you reviewed a range of methods to reach your target group? Have you decided how you will emphasize helpers and overcome barriers as you take the target group through the behavior change process? Have you decided how you will link different strategies to have the best effect on the target group?
5. Always show sensitivity to the target group. Be flexible. If your strategy is not working, review it and don't be afraid to make adjustments based on better information.

Handout H6.2

Target Audience

Specialty

Guidelines for Developing Strategies

Trainer

1. A strategy must take into account the desired health behavior, the target group, and the group's readiness to change. How well has the target group already adopted the desired behavior? Do you want to add to a new behavior, reinforce one that people already practice, or extend the desired behavior as a part of the community? Has not yet occurred? Are you trying to discourage a behavior that is undesirable? Are you trying to replace one behavior with another? Your strategy must begin at the place where the needed (or undesired) behavior is currently adopted by the target group.
 1. The readiness of the target group to adopt a health behavior depends on the group's awareness of the need to adopt the behavior. The target group must first be made aware of the desired behavioral change, then become interested enough to accept it. Only after creating awareness and interest can you expect the target group to try and to adopt the desired behavior. Is the target group aware of the desired behavior that you expect? Have you created interest in the need for the desired behavior? Have you provided incentives and benefits to assist the target group to try the behavior and to continue it?
 2. Every target group has barriers and helpers (thoughts, feelings, available resources, skills, influence of others, culture, etc.) that prevent or assist the adoption of a health behavior and that must be considered when developing a strategy. Have you listed the relevant barriers and helpers to a behavior by the target group (see Handout H6.1)? Have you decided which are most important to consider in developing your strategy? Have you considered ways to emphasize the helpers and overcome the barriers?
 3. The strategies chosen must offer the target group the best opportunity to proceed through the behavioral change process from awareness to action. The choice of the most important helpers and barriers will help you select the strategies that will be most effective in achieving the desired behavior. Have you reviewed a range of methods to reach your target group? Have you decided how you will emphasize helpers and overcome barriers as you take the target group through the behavior change process? Have you decided how you will link different strategies to have the best effect on the target group?
 4. Always show sensitivity to the target group. Be flexible. If your strategy is not working, review it and don't be afraid to make adjustments based on better information.

Handout H6.3

H6 - Health Education Strategy Analysis

	Helpers	Barriers
What people know, believe, feel and think		
Skills and resources available		
Influences		

- Slide projector
- Overhead projector

II. Characteristics of the media listed (advantages and limitations)

- Television
 - A mass communication medium
 - Can reach a wide area
 - Capable of educating a very large number of people at the same time
 - Combines motion picture, sounds and color
 - Expensive and not within the reach of many Nigerians
- Radio
 - Has all the potential of television but does not have picture
 - It is relatively cheap and within the reach of most Nigerians
 - Needs electricity
- Newspapers, magazines and leaflets
 - Benefit only people who can read and write (mostly urban dwellers)
 - Cheap
 - Do not need electricity

Handout H6.3

H6 - Health Education Strategy Analysis

Barriers	Helps	
		What people know, believe, feel and think
		Skills and resources available
		Influences

Handout H6.4

Health Communication Intervention (Media Implications)

The health education experts have identified the behavioral problem(s) and the target population and have designed the message(s) that are to address the *identified behavioral problem(s) towards positive change*. The next stage is the media strategy. Before this strategy is implemented, one must look into what is known as the media implications of the strategy.

This part of the exercise is a discussion on the media implications of the health communication intervention. In doing this we will look into three areas, namely (1) types of media available, (2) characteristics of the media listed, and (3) media selection.

I. Types of media available

- **Broadcast Media**

- TV
- Radio

- **Print Media**

- Newspapers, magazines, and leaflets
- Posters and flyers

- **Media Equipment**

- 16mm projector
- Slide projector
- Overhead projector

II. Characteristics of the media listed (advantages and limitations)

- **Television**

- A mass communication medium
- Can reach a wide area
- Capable of educating a very large number of people at the same time
- Combines motion picture, sounds and color
- Expensive and not within the reach of many Nigerians

- **Radio**

- Has all the potential of television but does not have picture
- It is relatively cheap and within the reach of most Nigerians
- Needs electricity

- **Newspapers, magazines and leaflets**

- Benefit only people who can read and write (mostly urban dwellers)
- Cheap
- Do not need electricity

- **Posters and flyers**

- Benefit literates and illiterates (if **visual** is simple)

- Do not need electricity

- **16mm Projector**

- Has same potentials as the television

- Cannot be reproduced locally

- Expensive

- Needs electricity

- **Slide Projector**

- Combines sound and picture

- Its picture is static

- Expensive

- Needs electricity

- **Overhead Projector**

- Portable chalkboard

- Outdoor quality

- Expensive

- Needs electricity

III. Media Selection

Media selection is the process of choosing one media over the other or one media equipment over another for effective media strategy.

- **Target population**

- Rural or urban

- Literates or illiterates

- **Message**

- **Media available**

- Advantages and limitations

- **Cost effective**

- **Affordability**

Handout H6.5

Synthesis of a Planning Strategy for a Health Communication Intervention in a Health Program

Communication in the context of this workshop should be geared towards behavioral change.

Where do we expect the desired behavioral change to take place? By now we all know the three levels of our LGA.

1. The three tiers of the target population.

- Individual and family level
- Community level
- Policy makers level.

2. Identification of behavioral problems

- To design an effective health communication package, we will need to identify the behavioral problem(s) this package is expected to address.
- There are four areas of malaria control, namely:
 - Early diagnosis and treatment
 - Personal protection
 - Mosquito control
 - Chemoprophylaxis
- For the purpose of this discussion, assume that our health communication strategy is geared towards achieving positive behavioral change in the specific area of mosquito control. In the area of mosquito control we have already identified behavioral problems such as:
 - People not cleaning their surroundings
 - People littering their surroundings with such items as broken bottles, used tires, and empty tins.

3. Target population

Having identified the behavioral problems, we will need to identify the target population with these problems. These can be found at the three levels of our LGA and country.

Level	Location
Individual and family	Urban — suburban
Community	Rural — very rural
Policy makers	Local government State Federal

4. Theme/message(s)

Having identified the behavioral problem(s) and the target population, we will need to direct an appropriate message(s), based on a specific theme, at the target population in order to change negative behavior(s) to positive ones. For example, have people

- Bury empty tins, broken bottles, disused tires, etc., in order to prevent breeding of mosquitoes.
- Practice larviciding stagnated pools, thereby killing larvae to prevent mosquito breeding.

5. Types of media available

- **Broadcast Media**

TV
Radio

- **Print Media**

Newspapers, magazines, and leaflets
Posters and flyers

- **Media Equipment**

16mm projector
Slide projector
Overhead projector

6. Media selection

Media selection is the process of choosing one medium over another or one piece of media equipment over another for effective strategy. One must consider:

- Location of target population (urban or rural)
- Infrastructure
Availability of electricity, etc.
- Percentage of educated people
Are most people literate or otherwise?

- Advantages and limitations of the available media

- Cost of the media package

- Is the cost within the reach of the LGA?

- Effectiveness of the equipment in relation to the message

Example: An urban situation

Our media selection process will take the following into consideration:

- Oyo is an urban community.
- Has a large population of literate adults and students.
- Has necessary infrastructure such as electricity and pipe borne water. Can, therefore, use radio and television transmission.
- Is the seat of local government.
- If the choice of media and the equipment chosen are the most effective in relation to other alternatives, the LGA will afford it.

A battery of media approaches will be made to transmit the message through

- Television in English and Yoruba, at specific intervals.
- Radio jingles in English and Yoruba, at specific intervals.
- Posters in English and Yoruba, to be followed by interpersonal contact.
- Newspapers in English and Yoruba, to be followed by interpersonal contact.

Example: A rural situation

Our media selection process will take the following into consideration:

- Apologun village is very rural
- Lacks the necessary infrastructures such as electricity and pipe borne water
- Even if the LGA is prepared to spend much money, the choice of media or media equipment is limited. Television and newspapers are ruled out.

Our plan will be to transmit the message through:

- Town crier
- Radio jingles
- Posters
- 16mm projector*
- Slide projector*
- Interpersonal*

* Although these will need electricity, an outdoor broadcast van with 5 KVA generator will make this possible. If outdoor broadcast van is not available, the LGA can rent a small generator.

7. Evaluation of the effectiveness of the media plan

• *Pretest*

Field test the media plan to determine its acceptability within the target population regarding such variables as religious taboos, customs and beliefs. To do this, select persons from the urban and rural areas who are part of the target population and conduct a focus group discussion about the media plan.

After this, modify the media strategy on the basis of the findings from the pretest exercise. Then implement the media plan.

• *Monitoring and evaluation*

Monitoring is a process of checking and keeping track of the media approach.

- Are the radio jingles aired at the stipulated intervals?
- Is the newspaper coverage in the center spread as agreed?
- Is the poster ready for distribution?

- When evaluating, follow-up during the campaign to see whether the media plan is going well and to know whether the messages reach the intended audience. Use focus group discussions, selecting people and groups from among the following:

- | | |
|--|--|
| • Illiterate | Rural and urban populace
(literate and illiterate) |
| • Influential members of the community | Religious leaders;
Community leaders or Obas, or
village heads |
| • Policy makers | Chairman of LGA
and Councilors |

• *Training*

In the past health educators sent their messages to the media men in radio houses, TV houses, and the print media without participating in packaging these messages. Unfortunately, these media practitioners are not aware of the behavioral problems these messages are intended to change. The practitioners also do not know the socio-cultural habits of the people. Hence, in most cases, the posters they print may not have cultural relevance to the people. The radio messages may be aired when the people are working their farms, etc. Hence, there is a need to train health educators at the LGA level having the Advanced Diploma in Health Education (ADHE) in such a way that they will understand the need for liaison with practitioners in fields such as:

Example. An urban situation

- Graphic artist and photographers
- Print media
- Broadcast media
 - Radio
 - Television

Upon completion of this module, the participants will be able to:
and understand the principle of media selection.

1. Identify the components of an action plan

If health educators are armed with these health communication rules they will be able to supervise the health communication strategy by working with the artists, photographers, and the media personnel to produce appropriate and effective messages for the desired target population.

Materials Required

Handout H7.1 - Plan of Action

Handout H7.2 - Plan of Action - Recap

Estimated Time

4 hours

7. Evaluation of the Effectiveness of the media

Objectives

To assess the media plan for the malaria control program in the target area, to identify the strengths and weaknesses of the plan, to suggest modifications, to evaluate the impact of the plan, and to recommend ways to improve the plan.

After the media plan is developed, the health educators should evaluate the plan. The evaluation should be done in a systematic way. The health educators should evaluate the plan in terms of the following objectives:

Monitoring is a process of checking and keeping track of the progress of the program. Are the radio jingles aired at the stipulated intervals?

Is the newspaper coverage in the center spread as planned?

Is the program being implemented?

When evaluating, health educators should try to find out whether the program is going well or not. To know whether the messages reach the target audience, the health educators should discuss with the people and groups in the target area.

• Illiterate	Rural and urban population (literate and illiterate)
• Influential members of the community	Religious leaders Community leaders, village heads, and village health workers
• Policy makers	Chairman of LGA and Councillors

Training

In the past health educators sent their messages to the media men in radio houses, TV houses, and the print media without participating in packaging these messages. Unfortunately, these media practitioners are not aware of the behavioral problems these messages are intended to change. The practitioners also do not know the socio-cultural habits of the people. Hence, in most cases, the posters they print may not have cultural relevance to the people. The radio messages may be aired when the people are working their farms, etc. Hence, there is a need to train health educators at the LGA level having the Advanced Diploma in Health Education (ADHE) in such a way that they will understand the need for liaison with practitioners in fields such as

H7: Plan of Action	
Training Methods	Content
<p>Objectives</p> <p>Upon completion of this module, the participants will be able to:</p> <ol style="list-style-type: none"> 1. Identify the components of an action plan. 2. Recognize the benefits of an action plan. 3. Prepare an action plan. 	<p>Components of an Action Plan: Definition of the problem Target population Objectives Strategies Activities Responsibility roster Resources and materials available Additional Time frame Monitoring and evaluation</p>
<p>Materials Required</p> <ul style="list-style-type: none"> • Handout H7.1 - Plan of Action • Handout H7.2 - Plan of Action - Recap 	<p>Benefits of an Action Plan: □ Presents a global picture of what is to be done, by whom, and expected outcomes. □ Provides indicators for what to monitor, to and evaluate in order to accomplish tasks as scheduled. □ Reduces the chances of making incorrect decisions due to inadequate or faulty information.</p>
<p>Estimated Time</p> <p>4 hours</p>	<p>Preparation of an action plan</p>

- Objectives
- Activities
- Responsibility roster (who will do what?)
- Resources:
 available
 additional
- Time frame
- Monitoring and evaluation

H7: Plan of Action	
Content	Training Methods
<ul style="list-style-type: none"> · <i>Components of an Action Plan:</i> <ul style="list-style-type: none"> Definition of the problem Target population Objectives Strategies Activities Responsibility roster Resources: <ul style="list-style-type: none"> available additional Time frame Monitoring and evaluation 	<ul style="list-style-type: none"> · Brainstorming · Lecture · Guided discussion with Handout H7.1
<ul style="list-style-type: none"> · <i>Benefits of an Action Plan:</i> <ul style="list-style-type: none"> <input type="checkbox"/> Presents a global picture of what is to be done, by whom, and expected outcome <input type="checkbox"/> Provides indicators for what to monitor and evaluate in order to accomplish tasks as scheduled <input type="checkbox"/> Reduces the chances of making incorrect decisions due to inadequate or faulty information 	<ul style="list-style-type: none"> · Guided discussion
<ul style="list-style-type: none"> · <i>Preparation of an action plan</i> 	<ul style="list-style-type: none"> · Group assignments in LGA or country groups using Handouts H7.1 and H7.2

Handout H7.1

Plan of Action

What is an Action Plan?

A document describing various activities, resources, outcomes, and strategies for achieving a set of objectives.

Purpose

Provides a framework for decision-making about what the individual, groups or organizations *want to accomplish, how it is to be accomplished, and what course of action* is most appropriate.

Components

- Definition of problem
- Target population
- Objectives
- Activities
- Responsibility roster (who does what?)
- Resources: available additional
- Time frame
- Monitoring and evaluation

Behavioral Problem	Target	Objective	Strategies
Delayed seeking of treatment for fever	Women of child bearing age	% of child bearing age women who bring their children with malaria fever to health clinic within 24 hours of onset of fever will increase 2% 1% by Dec 1991	Mobilize women

Health Education for Malaria Control

Monitoring

Checks from time to time on the operation of a planned program with regard to:

- Compliance and deviation from planned objectives
- Oversights and omissions
- Logistical problems that may inhibit program success

Evaluation - Purpose

Crucial Ingredients

- Baseline information
- Measurable objectives
- Process
- Outcomes
- Impact

Planning Worksheet

Title of Programme: _____

Behavioral Problems	Target	Objectives	Strategies	Activities	Resources*	Time Table J F M A M
Delayed seeking of treatment for fever	Women of child bearing age	% of child bearing age women who bring their children with malaria fever to health clinic within 24 hours of onset of fever will increase X%-Y% by Dec., 1991	Mobilize women	Holding meeting with community leaders	Posters Village health workers Community Leaders Health Education Staff	

* Available resources: projector, posters, VHWs, TBAs, health education and other staff.
Additional needed: films, posters.

Handout H7.2

Plan of Action

Recap

TITLE Mosquito Control: Behavioral Problems at Yekemi Village

STEP 1: State problem in behavioral terms
(Based on needs assessment and behavioral research)

STEP 2: Define target population

STEP 3: Set educational objectives

- Behavioral outcomes
- Process objectives

STEP 4: Outline strategies
(Process objectives)

- Effective **communication** mass and interpersonal
- **Training** and human resource development
- **Community mobilization and organization** for effective community involvement and participation identification and use of local resources
- **Resource linking** through inter-sectoral cooperation and collaboration
- **Social support** through community leaders and groups

STEP 5: List activities

STEP 6: Determine responsibilities

STEP 7: Identify and mobilize resources

STEP 8: Organize time table

STEP 9: Plan monitoring and evaluation

H8: Monitoring and Evaluation Skills in Malaria Control	
Objectives	
<p>Upon completion of this module, the participants will be able to:</p> <ol style="list-style-type: none"> 1. Identify four questions that evaluation usually addresses. 2. Identify three types of evaluation and three dimensions which health education evaluation should address. 3. List the steps for conducting evaluation. 4. Develop the indicators for the health education objectives selected by each LGA and country group. 5. Develop instruments for evaluating the health education intervention developed by each LGA and country group. 6. Use evaluation data to determine the degree of success or failure of a health education program. 	
Materials Required	
<p>None</p>	
Estimated Time	
<p>14 hours</p>	

H8: Monitoring and Evaluation Skills in Malaria Control	
Content	Training Methods
<ul style="list-style-type: none"> · Questions to ask · <input type="checkbox"/> Before: What are you doing before? Is what you intend doing related to your objectives? · <input type="checkbox"/> During: Are you doing what you planned to do? · <input type="checkbox"/> After: Does it have an effect? 	<ul style="list-style-type: none"> · Brainstorming · Guided lecture · Participants develop evaluation questions related to their (program) intervention
<ul style="list-style-type: none"> · Three levels of change that health education should address: Knowledge Attitude Practices - what people do or don't do. 	<ul style="list-style-type: none"> · Brainstorming · Questions and answers
<ul style="list-style-type: none"> · The problem definition · Types of data to be collected for the problem · Setting health education objectives · Generating evaluation questions · Identifying indicators that will help answer the questions generated above · Data collection plan · Analyze and interpret action of data 	<ul style="list-style-type: none"> · Participants use information from previous modules for first 3 steps · Participants develop three questions about their program which measure the three levels of change · Guided discussion · Refer to methods of data collection already discussed in Module H4, Information Gathering · Refer participants to three levels of change to be measured in health education evaluation
<ul style="list-style-type: none"> · Indicators: Knowledge Attitudes Behaviors 	<ul style="list-style-type: none"> · Group discussion
<ul style="list-style-type: none"> · Reviewing questions to be answered · Constructing questions · Sequence of questions · Translation and back translation of instruments · Pretesting instrument · Revising instrument · Finalizing instrument · Administering instrument · Methods 	<p><i>Team work:</i> Facilitators work with LGA or country teams to develop evaluation instruments for at least one behavioral indicator discussed above.</p>

H8: Monitoring and Evaluation Skills in Malaria Control	
Content	Training Methods
<ul style="list-style-type: none"> • Summarizing data • Interpreting data in relation to objectives • Attribution • Making judgments about success or failure of a health education program 	<p><i>Practice:</i> Data are provided to each team for analysis and interpretation to determine effect of intervention</p>

1. Describe the management process
2. List the three major categories of resources that are needed in a health education program and the major activities of each category
3. Describe how to plan and manage each category of resources
4. Identify the barriers to resource management and some methods of overcoming them

Materials Required:

None

Estimated Time:

4 hours

Teaching Methods	Methods Content
<p>Practice: Data analysis and interpretation to determine effect of intervention</p> <p>Role playing: Role of data collector</p> <p>Group D</p>	<p>Summarizing data</p> <p>Interpreting data</p> <p>Attribution</p> <p>Making judgments about success of failure of health education program</p>
<p>Three levels of change in health education should be:</p> <ul style="list-style-type: none"> Knowledge Attitude Practices - what people do or don't do. 	<p>Brainstorming</p> <p>Questions and answers</p>
<p>The problem definition</p> <p>Type of data to be collected for the problem</p> <p>Identifying available data</p> <p>Identifying indicators that will help answer the questions generated above</p> <p>Data collection plan</p> <p>Analyze and interpret a collection of data</p>	<p>Participants use information from previous modules for first 3 steps</p> <p>Participants develop three questions about the problem</p> <p>Guided discussion</p> <p>Refer to methods of data collection already discussed in modules 14, Information Gathering</p> <p>Refer participants to three levels of change to be measured in health education evaluation.</p>
<p>Indicators:</p> <ul style="list-style-type: none"> Knowledge Attitudes Behaviors 	<p>Group discussion</p>
<p>Reviewing questions to be answered</p> <p>Constructing questions</p> <p>Sequence of questions</p> <p>Translation and back translation of instruments</p> <p>Pre-testing instrument</p> <p>Revising instrument</p> <p>Finalizing instrument</p> <p>Administering instrument</p> <p>Methods</p>	<p>Team work: Facilitator's work with LGA or county teams to develop evaluation instruments for at least one behavioral indicator discussed above.</p>

H9: Resource Management

Objectives

Upon completion of this module, the participants will be able to:

1. Describe the management process.
2. List the three major categories of resources that will be needed in a health education component of the malaria control program.
3. Describe two ways to manage each category of resources.
4. Identify constraints to resource management and some methods of overcoming them.

Materials Required

None

Estimated Time

4 hours

H8: Monitoring and Evaluation Skills in Malaria Control	
Content	Training Methods
<ul style="list-style-type: none"> · Components of the management process <ul style="list-style-type: none"> <input type="checkbox"/> Planning <input type="checkbox"/> Organizing <input type="checkbox"/> Staffing and supervision <input type="checkbox"/> Training <input type="checkbox"/> Controlling <input type="checkbox"/> Reporting <input type="checkbox"/> Directing 	<ul style="list-style-type: none"> · Lecture · Discussion
<ul style="list-style-type: none"> · Personnel · Equipment · Finance 	<ul style="list-style-type: none"> · Lecture · Discussion
<ul style="list-style-type: none"> · Personnel <ul style="list-style-type: none"> <input type="checkbox"/> Selection <input type="checkbox"/> Salary <input type="checkbox"/> Job description <input type="checkbox"/> Supervision <input type="checkbox"/> Reporting and feedback <input type="checkbox"/> Training · Equipment and supplies <ul style="list-style-type: none"> <input type="checkbox"/> Ordering <input type="checkbox"/> Maintenance <input type="checkbox"/> Storage <input type="checkbox"/> Stock taking <input type="checkbox"/> Issuing <input type="checkbox"/> Security <input type="checkbox"/> Controlling <input type="checkbox"/> Inventory · Finance <ul style="list-style-type: none"> <input type="checkbox"/> Estimating <input type="checkbox"/> Budgeting <input type="checkbox"/> Accounting <input type="checkbox"/> Auditing <input type="checkbox"/> Imprest 	<ul style="list-style-type: none"> · Lecture · Discussion · Group exercise

H8: Monitoring and Evaluation Skills in Malaria Control	
Content	Training Methods
<ul style="list-style-type: none">ConstraintsFaulty planningLack of job descriptionUndetailed budgetLack of continuity of human resourcesShortage of relevant staff and/or uncontrolled staff movementLack of adequate financial supportPolitical	<ul style="list-style-type: none">· Lecture· Discussion

by

Lawrence Ijiyera
Joshua Adeniyi
Fred O. Oshiname

Health Monitoring and Evaluation Skills in Malaria Control	
Training Methods	Constraints
<ul style="list-style-type: none"> Components of the management process: <ul style="list-style-type: none"> □ Planning □ Organizing □ Staffing and supervision □ Training □ Controlling □ Reporting □ Directing 	<ul style="list-style-type: none"> Constraints: <ul style="list-style-type: none"> □ Lack of job description □ Lack of adequate financial support □ Uncontrolled staff movement □ Shortage of relevant staff and/or □ Lack of continuity of human resources □ Undetailed budget
<ul style="list-style-type: none"> Personnel Equipment Finance 	<ul style="list-style-type: none"> Personnel Equipment Finance
<ul style="list-style-type: none"> Personnel <ul style="list-style-type: none"> □ Selection □ Salary □ Job description □ Supervision □ Reporting and feedback □ Training Equipment and supplies <ul style="list-style-type: none"> □ Orienting □ Maintenance □ Storage □ Stock taking □ Issuing □ Security □ Controlling □ Inventory Finance <ul style="list-style-type: none"> □ Estimating □ Budgeting □ Accounting □ Auditing □ Imprest 	<ul style="list-style-type: none"> Lecture Discussion Group exercise

Background information: In order to evaluate the educational intervention, Yekemi village became the experimental community, and Abata-Egba, 10 kms away, the control.

Prior to programme implementation, data were collected by the LGA team and Yekemi clinic staff using 10 pre-tested instruments developed at the training workshop. One-third of the households in each village were surveyed. A questionnaire was used to probe the knowledge and practices of the heads of households concerning mosquito and malaria. An observation check-list was used to assess environmental conditions which could favor mosquito breeding in and around their houses.

Case Study

Mosquito Control Education in Ife Central Local Government Area of Osun State, Nigeria

by

Lawrence Ijiyera
Joshua Adeniyi
Fred O. Oshiname

Objectives: To increase the knowledge of the population about the role of mosquitoes in the spread of malaria, and to reduce poor environmental conditions contributing to mosquito breeding.

The objectives of the educational intervention in Yekemi were based on one of the control strategies recommended in Nigeria's national policy guidelines, that is, environmental hygiene and vector control. The objectives were:

1. To increase the knowledge of the population about the role of mosquitoes in the spread of malaria, and to reduce poor environmental conditions contributing to mosquito breeding.
2. To increase the knowledge of the population about the role of mosquitoes in the spread of malaria, and to reduce poor environmental conditions contributing to mosquito breeding.
3. To increase the knowledge of the population about the role of mosquitoes in the spread of malaria, and to reduce poor environmental conditions contributing to mosquito breeding.
4. To increase the knowledge of the population about the role of mosquitoes in the spread of malaria, and to reduce poor environmental conditions contributing to mosquito breeding.
5. To increase the knowledge of the population about the role of mosquitoes in the spread of malaria, and to reduce poor environmental conditions contributing to mosquito breeding.

Methods: The study was conducted in two villages, Yekemi and Abata-Egba, in the Ife Central Local Government Area of Osun State, Nigeria. The study was conducted in two villages, Yekemi and Abata-Egba, in the Ife Central Local Government Area of Osun State, Nigeria.

In order to evaluate the educational intervention, Yekemi village became the experimental community, and Abata-Egba, 10 kms away, the control.

Prior to programme implementation, data were collected by the LGA team and Yekemi clinic staff using 10 pre-tested instruments developed at the training workshop. One-third of the households in each village were surveyed. A questionnaire was used to probe the knowledge and practices of the heads of households concerning mosquito and malaria. An observation check-list was used to assess environmental conditions which could favor mosquito breeding in and around their houses.

Background Information

The African Regional Health Education Center (ARHEC), in collaboration with CCCD-Nigeria, organized a four-week training workshop attended by primary health care teams from four local Government Areas (LGAs) in Nigeria in July-August, 1990. At the workshop, the team from Ife Central LGA drew up a mosquito control education plan based on a pre-workshop needs assessment in Yekemi district, one of five districts in the LGA.

Following the workshop, the LGA team contacted the opinion leaders in Yekemi and Abata-Egba villages about undertaking malaria control activities. Abata-Egba is located in a different district but belongs to the same geographic zone and shares the same demographic, social and health characteristics as Yekemi. Although the two communities expressed their interest in the project, leaders in Yekemi had three felt needs which they wanted addressed in addition to mosquito control. These were:

- i) the rehabilitation of the access road linking the community with the neighboring Ife urban community;
- ii) the provision of a deep well in the village; and
- iii) the upgrading of the dispensary in the community to the status of a health center.

Objectives

The objectives of the educational intervention in Yekemi were based on one of the control strategies recommended in Nigeria's national policy guidelines, that is, environmental hygiene and vector control. The objectives were:

- to increase the knowledge of the population about the role of mosquitoes in the spread of malaria, and
- to reduce poor environmental conditions contributing to mosquito breeding.

Methods

In order to evaluate the educational intervention, Yekemi village became the experimental community, and Abata-Egba, 10 kms away, the control.

Prior to programme implementation, data were collected by the LGA team and Yekemi clinic staff using two pre-tested instruments developed at the training workshop. One-third of the households in each village were surveyed. A questionnaire was used to probe the knowledge and practices of the heads of households concerning mosquitoes and malaria. An observation check-list was used to assess environmental conditions which could favor mosquito breeding in and around their houses.

The analyzed baseline data showed comparable low standards of environmental sanitation in both Yekemi and Abata-Egba.

Based on the findings the following intervention strategies were implemented in Yekemi between January 1991 and January 1992:

1. Resource Linkage

Meeting the felt needs of the community was recognized as a critical step in establishing a working partnership. The LGA health educator invited the LGA Chairman to address the community and pledge the Local Government's support for meeting those needs. Responsible officers of the LGA present at the meeting were directed by the Chairman to give priority to these requests.

2. Community Mobilization

A health committee was formed and met regularly. The committee decided to embark on four activities (1) construction of one soakaway pit for draining waste water by each household through self-help; (2) clearing of weeds around the houses; (3) collection and disposal of receptacles; and (4) spraying of insecticides in major mosquito breeding sites around the village.

3. Technical Assistance and Training

Five frontline health workers were trained to provide technical assistance for implementing the planned activities. Heads of households, men and women, were given a four-day training on how to construct simple soakaway pits filled with stones and pebbles for bathroom waste water. Five pits in different locations in the village were constructed to serve as models.

4. Health Information (Community and Schools)

Volunteers, including teachers, were trained to give health talks and carry out "one-to-one" health education in neighborhoods and schools on the cause of malaria, recognition of symptoms, and early treatment.

5. Consultation

Consultants from ARHEC and CDC helped to keep the programme on course. Basic skills and simple techniques for evaluating health education impact were transferred to the LGA team, the health committee and frontline workers.

Achievements/Results

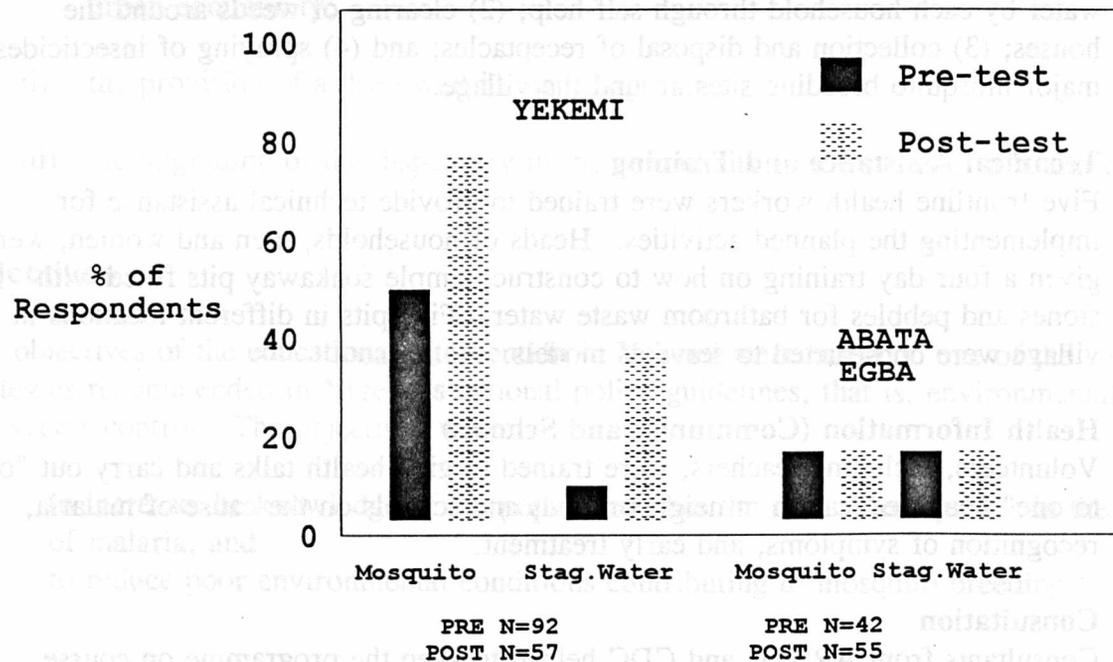
At the end of the health education intervention, the same instruments were administered in Yekemi and Abata Egba.

The results reflect more positive outcomes in Yekemi, the experimental community, in terms of the following:

Knowledge of the cause of malaria and preventive practices:

There was a marked increase in the percentage of heads of households who knew that mosquitoes spread malaria from 43% to 76% as shown in Figure 1. In the control village there appeared to be no change.

Figure 1 Malaria Related Knowledge

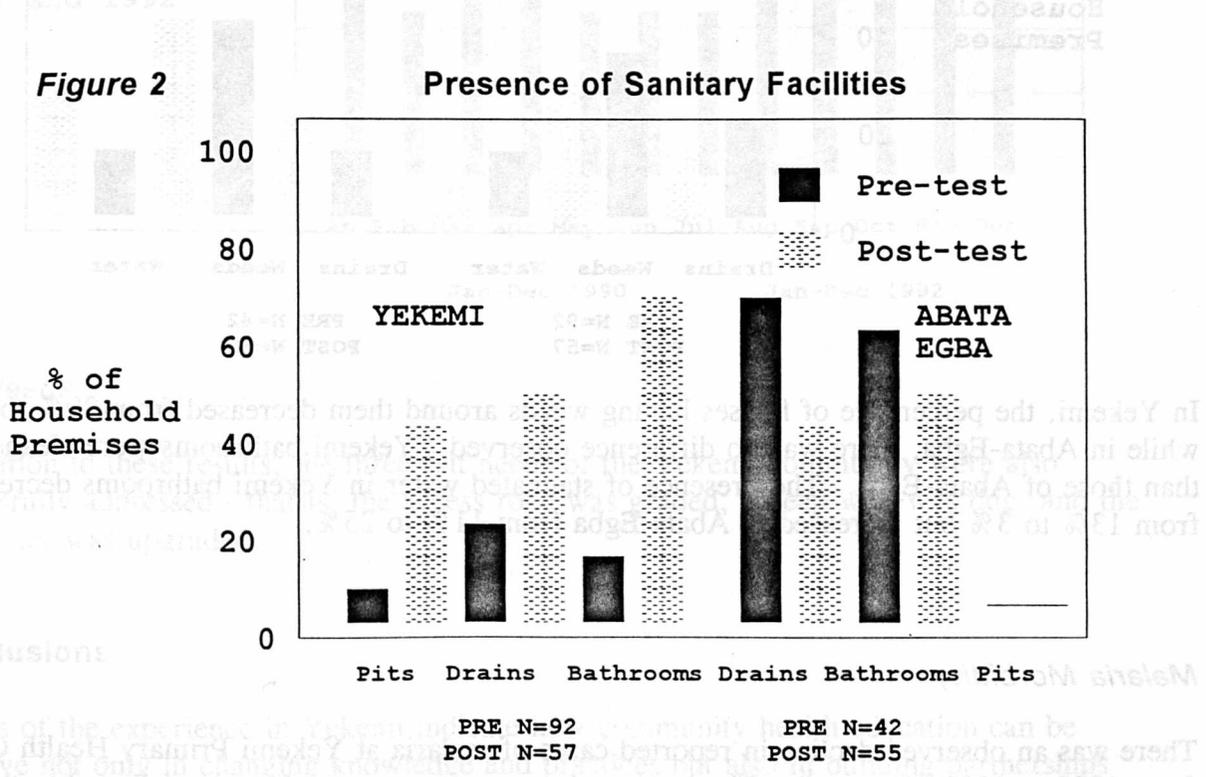


Also the percentage of respondents who mentioned that mosquito breeding can be controlled through elimination of water stagnation increased from 8% to 40%. Again, in the control village, there appeared to be no change.

Prior to programme implementation, data were collected by the LGA team and Yekemi clinic staff using two pre-tested instruments developed at the training workshop. One-third of the households in each village were surveyed. A questionnaire was used to probe the knowledge and practices of the heads of households concerning mosquitoes and malaria. An observation checklist was used to assess environmental conditions which could favor mosquito breeding in and around their houses.

Environmental Sanitation Conditions

Figure 2 shows that there were more changes in Yekemi than in Abata Egba related to the presence of sanitary facilities. In Yekemi, only 5% of households had soakaway pits before the intervention while 40% had pits after. In the control village, no pits were observed at all both during the pre and post surveys. Also in Yekemi, drains around the house and bathrooms increased from 20% and 16% to 48% and 68% respectively. In Abata Egba, a reduction was observed from 71 to 38% for drains and from 76 to 51% for bathrooms.

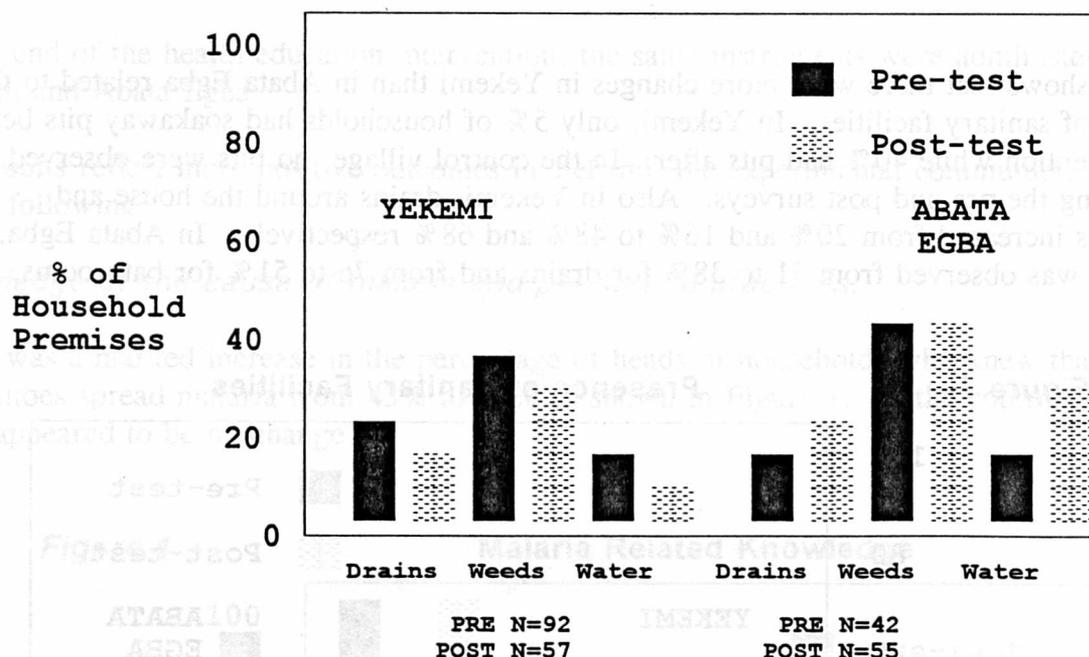


As to sanitary conditions, the percentage of households with blocked drains was reduced from 18% to 7% (Figure 3) while in the control village there appeared to be a slight increase.

While the people of Yekemi provided labor and other affordable local resources used during the implementation process, the Central Local Government provided minimal financial aid.

Although control may be, at best, only a partial solution to the malaria problem, however, the sense of accomplishment felt by the community appears to have encouraged further community action for development. For example, the people of Yekemi are currently establishing a road to link the village with the national high tension electrical lines that pass by it.

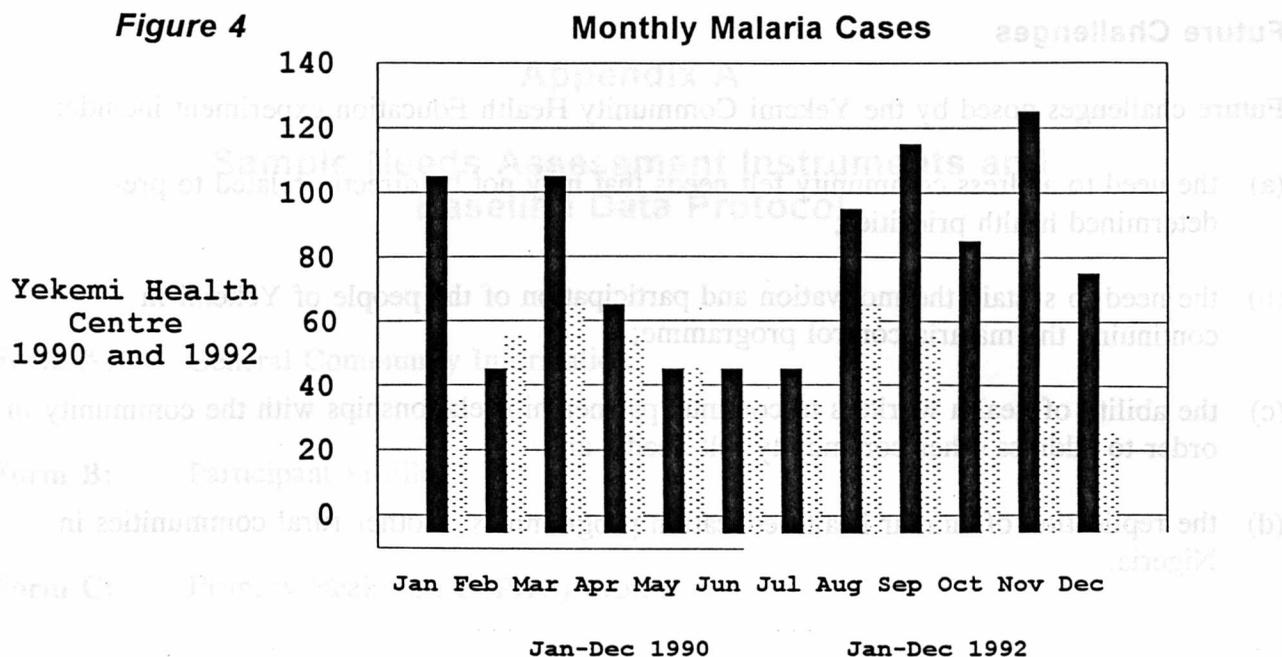
Figure 3



In Yekemi, the percentage of houses having weeds around them decreased from 29% to 15% while in Abata-Egba, there was no difference observed. Yekemi bathrooms were cleaner than those of Abata-Egba. The presence of stagnated water in Yekemi bathrooms decreased from 13% to 3% but increased in Abata-Egba from 11% to 25%.

Malaria Morbidity

There was an observed decline in reported cases of malaria at Yekemi Primary Health Centre from 1990 to 1992 (Figure 4). The intervention programme may have contributed to this decline.

Figure 4

Felt Needs

In addition to these results, the three felt needs of the Yekemi community were also successfully addressed - that is, the access road was graded, a deep well was dug, and the dispensary was upgraded.

Conclusions

Results of the experience in Yekemi indicate how community health education can be effective not only in changing knowledge and practices but also in building partnerships between the community and other agencies such as the local government and a training institution. Such partnership encourages community action requiring minimum external investments.

While the people of Yekemi provided labor and other affordable local resources used during the implementation process, the Ife Central Local Government provided minimal financial aid.

Mosquito control may be, at best, only a partial solution to the malaria problem. However, the sense of accomplishment felt by the community appears to have encouraged further community action for development. For example, the people of Yekemi are currently establishing a fund to link the village with the national high tension electric line that passes by it.

Future Challenges

Future challenges posed by the Yekemi Community Health Education experiment include:

- (a) the need to address community felt needs that may not be directly related to pre-determined health priorities;
- (b) the need to sustain the motivation and participation of the people of Yekemi in continuing the malaria control programme;
- (c) the ability of health workers to continue partnership relationships with the community in order to address other community felt needs; and
- (d) the replication of similar health education programmes in other rural communities in Nigeria.

Appendix A

Sample Needs Assessment Instruments and Baseline Data Protocol

Form A: General Community Information

Form B: Participant Profile

Form C: Primary Health Care (PHC) Profile

Form D: Specific Community Data: Epidemiology and Health Services

Form E: Environmental Health Assessment

Form F: Focus Group Discussion Guide

Form G: In-depth Interview of Traditional Healers

Names of Towns	Population of	Village Names	Population of Villages
1		1	
2		2	
3		3	
4		4	
5		5	
6		6	
7		7	
8		8	
9		9	
10		10	

3. General description of major ethnic groups:

Future Challenges

Appendix A

Figure 1. Challenges posed for the Year 2000 Community Health Worker Experiment

- (a) the need to address community health worker safety related to the use of insecticide treated bednets
 - (b) the need to ensure the motivation and participation of the people to sleep under bednets
 - (c) the ability of health workers to continue participating in the program after the initial training period
 - (d) the replication of similar health education programs in other parts of Nigeria
- Form A: General Community Information
- Form B: Participant Profile
- Form C: Primary Health Care (PHC) Profile
- Form D: Specific Community Data: Epidemiology and Health Services
- Form E: Environmental Health Assessment
- Form F: Focus Group Discussion Guide
- Form G: In-depth Interview of Traditional Healer

Form A: General Community Information

1. Map: On the map provided, plot

- Towns and villages
- Health facilities
- Major ethnic groups
- Schools

2. Population

Names of Towns Above 10,000	Population of Towns	Village Names 1,000 - 9,999	Population of Villages
1.		1.	
2.		2.	
3.		3.	
4.		4.	
5.		5.	
6.		6.	
7.		7.	
8.		8.	
9.		9.	
10.		10.	

3. General description of major ethnic groups:

• **General description of major religious groups:**

• **General description of major occupations:**

4.	Schools	Population of Villages (1,000 - 2,999)	Population of Towns (10,000 - 49,999)	Population of Towns Above 10,000
	Types of Schools		Number in LGA	
	Universities	1	_____	1
	Technical colleges	2	_____	2
	Teacher training colleges	3	_____	3
	Secondary	4	_____	4
	Primary	5	_____	5
	Nursery	6	_____	6
	Others (specify)	7	_____	7
		8		8
	• Three most important problems in schools as seen by:			
		9		9
		10		10

Health workers: 1. _____

2. _____

3. _____

Farmers: 1. _____

2. _____

3. _____

Traders: 1. _____

2. _____

3. _____

Youth: 1. _____

2. _____

3. _____

Women of Child-bearing Age: 1. _____

2. _____

3. _____

Teachers: 1. _____

2. _____

3. _____

Pupils: 1. _____

2. _____

3. _____

Parents: 1. _____

2. _____

3. _____

5. Health Facilities

Type of facility	Number in LGA	Estimated population being served
Hospitals		
Health Centers		
General clinics		
PHC Clinics		
Maternities		
Dispensaries		
Traditional health centers		
Pharmacies		
Patent medicine stores		
Others (specify)		

6. Organization

- Draw a general organization chart with major departments, services, and officers in charge.
- Draw a detailed organizational chart for health and environmental groups that includes a pharmacy and maternal and child health care.

Form B: Participant Profile

Form B: Primary Health Care Profile

Name of LGA/Country _____

(This information is to be collected from the PHC Coordinator.)

1. Personal Data:

Name of PHC Coordinator _____

a. Name (surname first) _____

b. Present position _____

c. Qualifications (list all qualification ever had) _____

d. Highest basic certificate _____

e. Highest professional qualification _____

f. Number of years since professional training completed _____

g. Number of years served in present LGA _____

h. Other duties commonly performed in addition to your regular duties:

Receiving drug fund

Current duties performed	Other duties

Name of staff member	Rank/Status	Qualifications

4. List the number of workshops attended in the last 5 years and state focus (e.g., EPI, diarrhea, malaria).

5	
6	
7	
8	

Form B: Participant Profile

Name of LGA/County	LGA in Roman Numerals	Type of Facility
Present Position		Present Date
Qualifications (list all qualifications ever had)		
Other (specify)		

g. Number of years served in present LGA

f. Number of years since professional training completed

e. Highest professional qualification

d. Other duties commonly performed in addition to your regular duties

Current duties performed	Other duties

List the number of workshops attended in the last 5 years and state focus (e.g., HPA, diarrhea, malaria)

Form C: Primary Health Care Profile

Instruction: This information is to be collected from the PHC Coordinator.

Name of PHC Coordinator _____

1. What year did the PHC program start? _____

2. What are the major accomplishments? (Check all that apply)

Situation report

Community survey

Plan development

House numbering

Zonal committee

Staff training

CHW/TBA training

Revolving drug fund

3. List PHC staff and qualifications

Name of staff member	Rank/Status	Qualifications
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Name of staff member	Rank/Status	Qualifications
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

4. Is there a malaria control unit? Yes No

5. If yes to question (4) above, does the malaria control unit have any problems?

Yes No

6. If yes to (5) above, list the problems encountered by the unit.

1. _____
2. _____
3. _____
4. _____

7. Is there a health education unit? Yes No

8. If yes to question (4) and (7), what contribution does the health education unit make to the activities of the malaria control unit?

9. If no to question (4), is there a disease control unit? Yes No

10. If yes to (9), list the activities carried out by the disease control unit.

11. How many of the following personnel have been trained since PHC started and what activities do they perform?

Type of PHC health personnel trained	No. of training programs	Total no. trained	Who conducted training program	Activities carried out by trainees in the last 2 years
1. Village health workers				1. _____ 2. _____ 3. _____
2. Traditional birth attendant				1. _____ 2. _____ 3. _____
3. Assistant supervisors				1. _____ 2. _____ 3. _____
4. Community health extension workers				1. _____ 2. _____ 3. _____
5. Community health officers				1. _____ 2. _____ 3. _____
6. Pharmacy assistants				1. _____ 2. _____ 3. _____
7. Others (specify)				1. _____ 2. _____ 3. _____

Form D: Specific Community Data - Epidemiology and Health Services

Instruction: This information is to be collected for each community. Use appropriate for each community.

A. Epidemiology and Health Services

Type of health facility

Hospital

Health Centers

Clinics

Dispensaries

Traditional Health Centers (Traditional healers)

Pharmacies

Patent Medicines

12. Annual budget for Health Department.

Sources of Funding	Total \$ Amount	Amount budgeted for PHC	Amount budgeted for malaria control	Amount collected
Federal				
State				
Community				
NGOs (specify)				
Others (specify)				

4. Is there a malaria control unit? Yes No

13. Draw the PHC organizational structure showing lines of communication between the zonal committees and the unit (attach chart).

5. If yes to question 4, show how the PHC unit is organized.

6. If yes to question 4, list the positions encouraged by the unit.

7. Is there a health education unit? Yes No

8. If yes to question 4 and 7, what contribution does the health education unit make to the activities of the malaria control unit?

9. If no to question 4, is there a disease control unit? Yes No

10. If yes to (9), list the activities carried out by the disease control unit.

B. Availability of Antimalarial Drugs

Source	Type of Antimalarial Drug	Available Now?		Form Available			When Available			Average Cost to Test	
		Yes	No	Liquid	Tablet	Injection	Always	Sometimes	Rarely	Child	Adult
1. LGA dispensary	Chloroquine										
	Fansider										
	Daraprim										
	Others (specify)										
2. Health centers	Chloroquine										
	Daraprim										
	Fansider										
	Others (specify)										
3. PHW/community revolving fund	Chloroquine										
	Daraprim										
	Fansider										
	Others (specify)										
4. Govt. hospitals	Chloroquine										
	Daraprim										
	Fansider										
	Others (specify)										

Use a separate form for each community.

Instructions: This information will be collected by health facilities in two selected communities of about 1,000 people.

C. Other Malaria Control Technologies

Sources	Available?		Where Available	Types Available	Quantity Available			Unit Price	Quantity sold in the last month
	Yes	No			Largely available	Moderately available	Fairly available		
1. Bed nets (mosquito nets)									
2. Mosquito coils									
3. Insecticides									
4. Window screens									
5. Fans									

Source	Type of Antimalarial Drug	Available Now?		Form Available			When Available			Average Cost to the		
		Yes	No	Tablet	Liquid	Injection	Always	Sometimes	Family	Child	Adult	
Pharmacies	Chloroquine											
	Caraprim											
	Fansidar											
	Others (specify)											
Houses	Chloroquine											
	Deraprim											
	Fansidar											
	Others (specify)											
Marginalia	Chloroquine											
	Caraprim											
	Fansidar											
	Others (specify)											
S. Woodmjo	Chloroquine											
	Caraprim											
	Fansidar											
	Others (specify)											
T. Beq uep	Chloroquine											
	Caraprim											
	Fansidar											
	Others (specify)											
Zoucos	Chloroquine											
	Caraprim											
	Fansidar											
	Others (specify)											

C. Other Malaria Control Technologies

Form E: Environmental Health Assessment

Section A: General Observation

Instruction: This information will be collected in each of the two communities selected in Form D.

1. What is the total number of dwelling units in the community? _____
2. How many total dwelling units are located in the areas shown below? _____

Traditional area of town	Periphery of town	Reserved areas if any
No. of compounds: _____	No. of compounds: _____	No. of compounds: _____
No. of single houses: _____	No. of single houses: _____	No. of single houses: _____

Section B: Household Observation

Instruction: This information is to be collected in each of the two communities selected for Form D. Randomly select five households from the inner part of town, five from the middle portion, and five from the periphery. Observe and record as shown. Obtain assistance from health workers (a household is a house or part of a house occupied by a family unit - husband/wife/children/other-departments).

1. Name of community: _____
2. Location of household:
 Inner area Middle section Periphery
3. Total number of living rooms in the household _____
4. Number of rooms with windows _____
5. Number of windows with mosquito screens _____

6. Number of window screens damaged or with holes _____

7. Number of rooms with ceilings _____

8. Number of rooms with bednets _____

9. Number of bednets for babies (small bednets) _____

10. Number of baby bednets with holes _____

11. Number of mosquito breeding sites _____

Place	Breeding sites				
	Empty receptacles (e.g., calabashes, pots and bottles)	Overgrown weeds and vegetation	Open drains	Pot holes	Others
In the compound or house					
In the immediate surroundings of the compound or house					

12. Give a general description of mosquito breeding sites.

Form F: Focus Group Discussion Guide (Discussion with Households and Women of Child-bearing Age)

Introduction:

Good evening and welcome to this group discussion session. Thank you for taking the time to join our discussion, which will center on fever and malaria. My name is _____ and my colleague's name is _____. We are from the College of Medicine, University of Ibadan. We want to know your opinion on various aspects of fever and malaria in this community.

We are not interested in what is right or what is wrong. All we want is your opinion on the issues to be discussed. So please feel free to share your point of view even if it differs from that of others.

Because we do not want to forget anything you have discussed, we are going to record the discussion. The results of the discussion will be kept confidential and will be used to develop strategies for solving malaria problems in our communities.

We would like to know your names and since I want to remember your names while we are talking, I am going to write them down as you tell me. Thanks for your cooperation.

Section A

Now let us start with the types of fever in this community:

1. What types of fever affect people in this community?
2. What groups are mostly affected by each type of fever?
3. What do you think cause(s) each of the fevers?
4. How can one know that a person is suffering from each of the fevers mentioned?
5. Where do these groups of people most often obtain treatment for each type of fever?

Children

Pregnant women

Other adults

6. How do you treat each of the mentioned fevers in children, pregnant women, and other adults?
7. What is the cost of treating each fever for children, pregnant women, and other adults?
8. How effective is the treatment for each fever?
9. What are the consequences that may arise when there is a delay in treating each fever in children, pregnant women, and other adults?
10. When is fever most common in this community?
11. We have discussed the various types of fever people get in this community. Now let us talk about ways of preventing them. How can each fever be prevented?

Section B

12. Thank you for your contribution to the discussions so far. Let us now talk about mosquitoes. When are mosquitoes most common in this community?
13. Are mosquito bites harmful to human beings?

(If discussants say mosquito bites are harmful, then ask: What harm can be done to these groups of people?)

Children

Pregnant women

Adults

14. How do mosquitoes breed in this community?
15. What types of behaviors facilitate the breeding of mosquitoes in this community?
16. Do you think it is possible to prevent mosquitoes from breeding?
(If discussants say yes, then ask: In what ways can they be prevented from breeding?)
17. What measures do you take to prevent the breeding of mosquitoes?

Form G: In-depth Interview of Traditional Healers

1. What are the different types of fevers in this community?
2. What do you think causes each type of fever mentioned?
3. For each type of fever mentioned, how do you know that a person is suffering?
4. Which is the commonest type of fever you treat?
5. Which groups of people do you frequently treat for fever?
6. How do you treat each of the mentioned fevers in children, pregnant women, and other adults?
7. What is the cost of treating each fever for children, pregnant women, and other adults?
8. What are the likely consequences that may arise when there is a delay in the treatment of fever for children, pregnant women, and other adults?
9. How can each kind of fever be prevented in children, pregnant women, and other adults?

Methods for Conducting Focus Group Discussion (FGD)

Training of FGD Assistants: This will be necessary if interviews are to be conducted in the local language.

1. **Recruitment of moderators and assistants and their training:** Training will be focused on acquiring the following skills:
 - How to ensure full participation from participants; how to deal with dominant and taciturn participants.
 - How to use the discussion guide.
 - How to ask follow-up questions on important leads that may emerge from discussions.
 - How to keep discussions focused and ensure that all questions are discussed within the stipulated time.

2. Recruitment of discussants:

- Characteristics of groups: Male groups made up of heads of household who are homogeneous in terms of sex, marital status, and leadership of households.
- Female groups made up of women of child-bearing age (15-45 years) who are homogeneous in terms of sex, marital status, and parity.
- Sample size: Six to eight persons will take part in discussions.

3.

- Number of sessions to be conducted: Yet to be determined.
- Duration of each session: Should not exceed 2 hours.

4. Logistics:

- Tape recorder
- Blank cassette
- Refreshments

5. Venue of discussion:

- Should be a place with few distractions or disturbances.
- Sitting arrangement should afford opportunity for face-to-face interaction.

6. Functions of assistant moderator:

- Record nonverbal communication
- Operate tape recorder
- Note unanimity and dissension of opinion

Appendix B

Sample Weekly Training Schedules

MON. 23/7	TUE. 24/7	WED. 25/7	THUR. 26/7	FRI. 27/7
<p>AM</p> <p>Registration (8:30-11:30)</p> <p>Welcome (11:30-1:00)</p>	<p>Official Training (8:30-1:00)</p>	<p>Parasitology (8:30-11:30)</p> <p>Parasitology (5:30-8:30)</p> <p>Parasitology and Entomology (M3) (9:30-12:00)</p> <p>Clinical Features (M4) (12:00-1:00)</p>	<p>Field Case Management (M5) (8:30-1:00)</p>	<p>Field Malaria Control (M6) (8:30-1:00)</p>
Lunch (1:00-2:30)	Lunch (1:00-2:30)	Lunch (1:00-2:30)	Lunch (1:00-2:30)	Lunch (1:00-2:30)
<p>PM</p> <p>Pre-test (2:30-3:30)</p> <p>Small Group Discussion (3:30-5:00)</p>	<p>Health Education Overview (2:30-3:30)</p> <p>(2:30-3:45)</p> <p>Break</p> <p>National Malaria Policies (M1) (3:45-5:00)</p>	<p>Field Case Management (M5) (2:30-4:30)</p>	<p>Field Malaria Control (M6) (2:30-4:30)</p>	<p>Summary (2:30-4:30)</p>

Appendix B

2. Selection of discussion sites

Discussion sites should be selected on the basis of the following criteria:

Female groups made up of women of similar family size and social status, but heterogeneous in terms of sex, age, education and parity.

Sample size: 30 to eight persons will allow for individual views.

3.

Number of sessions to be conducted: Yet to be determined.

Duration of each session: Should not exceed 2 hours.

4. Logistics:

Tape recorder

Interview guide

Refreshments

Venue of discussion:

Should be a place with few distractions or disturbances

Sitting arrangement should afford opportunity for face-to-face interaction

6. Functions of assistant moderator:

Record nonverbal communication

Operate tape recorder

Note unanimity and dissension of opinion

WEEK 1

MON. 23/7	TUE. 24/7	WED. 25/7	THUR. 26/7	FRI. 27/7
AM/ Registration (8:30-11:30) Welcome (11:30-1:00)	Official Opening (8:30-1:00)	Malaria Epidemiology (M2) (8:30-9:30) Parasitology and Entomology (M3) (9:30-12:00) Clinical Features (M4) (12:00-1:00)	Field Case Management (M5) (8:30-1:00)	Field Malaria Control (M6) (8:30-1:00)
Lunch 1:00-2:30	Lunch 1:00-2:30	Lunch 1:00-2:30	Lunch 1:00-2:30	Lunch 1:00-2:30
PM/ Pretest (2:30-3:30) Small Group Discussion (3:30-5:00)	Health Education Overview (2:30-3:30) (3:30-3:45) Break National Malaria Policies (M1) (3:45-5:00)	Field Case Management (M5) (2:30-4:30)	Field Malaria Control (M6) (2:30-4:30)	Summary (2:30-4:30)

WEEK 2

MON. 30/7	TUE. 31/7	WED. 1/8	THUR. 2/8	FRI. 3/8
AM/ Review and Overview (8:30-9:00)	Review and Overview (8:30-9:00)	Review and Overview (8:30-9:00)	Review and Overview (8:30-9:00)	Review and Overview (8:30-9:00)
Synthesis Behavioral of Issues (H2) (9:00-11:00)	Information Gathering (H4) (9:00-11:00)	Information Gathering (H4) (9:00-11:00)	Fieldwork-Information Gathering (H4) (9:00-11:00)	HealthCom Presentation (9:00-11:00)
Coffee/tea 11:00-11:15	Coffee/tea 11:00-11:15	Coffee/tea 11:00-11:15	Coffee/tea 11:00-11:15	Coffee/tea 11:00-11:15
Community Involvement & Participation (H3) (11:15-1:00)	Information Gathering (H4) (11:15-1:00)	Information Gathering (H4) (11:15-1:00)	Fieldwork-Information Gathering (H4) (11:15-1:00)	Information Gathering (H4) (11:15-1:00)
Lunch 1:00-2:30	Lunch 1:00-2:30	Lunch 1:00-2:30	Lunch 1:00-2:30	Lunch 1:00-2:30
PM/ Community Involvement and Participation (H3) (2:30-4:30)	Information Gathering (H4) (2:30-4:30)	Information Gathering (H4) (2:30-4:30)	Information Gathering (H4) (2:30-4:30)	Formulating Health Education Objectives (H5) (2:30-4:30)

WEEK 3

MON. 6/8	TUE. 7/8	WED. 8/8	THUR. 9/8	FRI. 10/8
AM/ Review and Overview (8:30-9:00)	Review and Overview (8:30-9:00)	Review and Overview (8:30-9:00)	Review and Overview (8:30-9:00)	Review and Overview (8:30-9:00)
Fomulating Health Education Objectives (H5) (9:00-11:00)	Plan of Action (H7) (9:00-11:00)	Monitoring and Evaluation (H8) (9:00-11:00)	Monitoring and Evaluation (H8) (9:00-11:00)	Development of Prototype Plan (including some expected modifications to be made back home) (9:00-11:00)
Coffee/tea 11:00-11:15	Coffee/tea 11:00-11:15	Coffee/tea 11:00-11:15	Coffee/tea 11:00-11:15	Coffee/tea 11:00-11:15
Fomulating Health Education Objectives (H5) (11:15-1:00)	Plan of Action (H7) (11:15-1:00)	Monitoring and Evaluation (H8) (11:15-1:00)	Monitoring and Evaluation (H8) (11:15-1:00)	Development of Prototype Plan (11:15-1:00)
Lunch 1:00-2:30	Lunch 1:00-2:30	Lunch 1:00-2:30	Lunch 1:00-2:30	Lunch 1:00-2:30
PM/ Health Education Strategies (H5) (2:30-4:30)	Monitoring and Evaluation (H8) (2:30-4:30)	Monitoring and Evaluation (H8) (2:30-4:30)	Monitoring and Evaluation (H8) (2:30-4:30)	Development of Prototype Plan (2:30-4:30)