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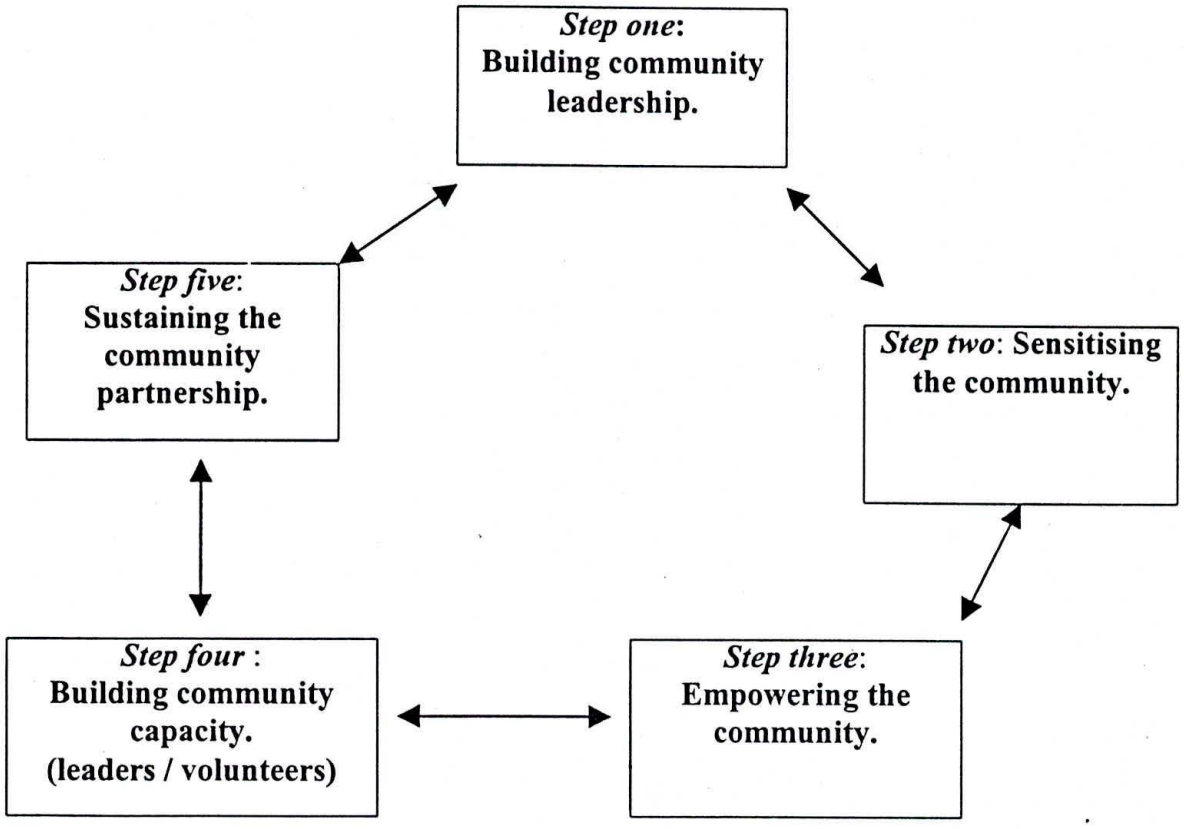
GUIDELINE THREE:

PARTNERSHIP WITH THE COMMUNITY

3.1 Objectives

The objective of Roll Back Malaria is to promote the broad participation and ownership of the community in malaria control. This will be done through the active mobilization, involvement and participation of the community in planning, implementation and monitoring of the health programme.

This can be evolved in five steps:



3.2 BUILDING COMMUNITY LEADERSHIP (STEP ONE)

1. Identify leadership in the community (this may be village, tribal hamlet or township)

(a) These would include:

- Formal leaders
- Informal opinion leaders
- Community clubs and organisations – youth, women, farmers,
- Teachers
- Religious and community leaders
- Village health workers / local development workers
- Others in the community who could assume leadership roles.

(b) Proactively increase the participation of women members by involving women's groups[1].

(c) Ensure adequate representation of marginalised/ minority groups.

2. Evolve the health committee at community level with the involvement of the people

- If there is a *functional* health committee or group already, integrate malaria function with that group.
- If a *functional* committee does not exist then evolve a malaria committee which can take up other health programmes at a later stage.

3. A dialogue of the district administrator[2] with the community leadership / health committee should be initiated to elicit the participation in the Malaria Programme.

4 Orient the leadership/committee to the malaria situation and malaria control to get their help in sensitizing the community.

3.3 SENSITISING THE COMMUNITY (STEP TWO)

Through community level meetings, organised by the identified leadership and or the health committee, sensitize the community to all aspects of malaria situation and malaria control.

1. **Create awareness** of national malaria programme at village/township level and define the expected role of all members of the community.

2. **Emphasise community's role** by stressing:

   a) that they are partners in the programme and have their roles and responsibilities in malaria control, and

   b) that their participation will ensure benefits to their community.

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[1] for example, mahila mandals in India; PKK in Indonesia; and MMCWA in Myanmar

[2] for example, District Collector in India and Bhupathi in Indonesia

3.4 EMPOWERING THE COMMUNITY (STEP THREE)

1. **Initiate a dialogue** using participatory approaches to understand the existing knowledge, attitudes and practices of the community in relation to the malaria problem.
2. **Assess the strengths and weaknesses** from the KAP exercise against the expected behaviour.
3. **Create awareness in the community** on the causes, signs and symptoms of malaria and about the treatment and prevention of malaria.
4. **Involve them in a planning exercise**:
   - to survey and identify the local situation.
   - to identify the existing resources in the community including volunteers who could be trained for the programme.
   - to identify external resource inputs that will be required, and local resources that can be mobilised.
   - to develop a plan of action for malaria control that could include health promotion, early diagnosis and treatment, and malaria prevention activities(including vector control).
   - to identify clearly the role of the community and the role of the Health / Malaria programme team.
5. **Facilitate the operationalisation of this plan by**
   - helping them to implement,
   - helping them to monitor, and
   - helping them to review and revise the plan of action.

3.5 BUILDING THE CAPACITY OF THE COMMUNITY LEADERS / VOLUNTEERS (STEP FOUR)

Helping the community to build its capacity for malaria control activities will essentially mean building the capacity of leaders and local volunteers in a variety of tasks.

1. **To understand all aspects essential for malaria control.** These will include all those aspects included in the box (A Malaria A to Z). The training / orientation must address all these questions in a simple, demystified way, using supportive health education and learning aids.

2. **To further build the capacity of volunteers/leaders** in:
   - early diagnosis and treatment
   - identification of serious cases and their suitable referral
   - community surveillance of malaria morbidity and mortality.
   - vector control activities at community level
   - communication and mobilisation.
   - monitoring and evaluation at community level.

Practical skill development in the context of the local situation will be the key to success.

Malaria A to Z

a) ***What is the current magnitude of malaria problem : National / State / District / Local***
b) ***What is malaria – its symptoms and characteristics for identification?***
c) ***How is malaria caused?***
d) ***Where do mosquitoes come from?***
e) ***Where do they breed?***
f) ***Who are at most risk of suffering from malaria?***
g) ***How can we test for malaria?***
h) ***Where can these tests be done?***
i) ***What can be done to treat malaria?***
j) ***Where is the treatment available?***
k) ***How can we control the mosquitoes?***
l) ***What are the complications of malaria?***
m) ***What should be done in case of complications?***
n) ***What are the protective measures against mosquito bites?***

3.6 SUSTAINING THE COMMUNITY PARTNERSHIP (STEP FIVE)

Community partnership can be sustained by:

1. Frequent interaction with community, providing solutions to the problems in carrying out control activities will also sustain the interest of community in malaria control activities.

2. Ensure that supplies are constantly available (insecticides, fish, nets, medicines, neem oil, equipment, microscopes, stain, slides). This will also greatly help the sustainability of the programme.

3. Encouragement of income generating vector control activities, e.g., social forestry plantations will also help sustainability of the community involvement.

4. Incentives for the community from the district administration in the form of:
   a) declaring malaria-free or healthy villages
   b) developmental inputs.

"True partnership begins when the community involved decides what needs to be done and particularly what needs to be done first."

Case Study - 1

A community based malaria control strategy

Bissamcuttack, Orissa, 1996

[The Christian Mission hospital in Bissamcuttack, Orissa has been recently involved with tackling the malaria problem by involving the community from the villages served by the hospital as follows:]

Step One

- We began with helping people to recognise their public health enemy No.1 – Malaria by sharing with them the MIS data from the government PHC on Morbidity and Mortality. This prepared the ground for step two.
- We also did an informal survey to ascertain sleep habits and patterns, according to community, age and gender.

Step Two

- If the village so desired they invited us to explain to them the basics of Malaria. This involved almost a full day when we met with as many of them as could get organised into groups according to gender, age and community. The classes were quite intensive and based on 4 questions:

1. What is Malaria?
2. How does one get it?
3. What can we do if we get it?
4. What can we do to keep from getting it?

- We used teaching aids, flashcards, photographs, Neem oil, mosquito nets, synthetic pyrethroids, etc.
- An Oriya pamphlet was also distributed to those who could read.
- We stressed environmental methods, neem oil, clothing and nets – as alternatives.

Step Three

- The villages chose the options they wished to pursue. Most opted for Neem oil and impregnated nets.
- The village decided who will take charge – usually 2 or 3 respected people. They would be incharge of finalising the order, supervising the distribution and collection of money. Each village decided on different schedules and modes of payment.
- We supplied nets, taught the method of impregnation and taught 8 principles of using the net. Our team members stayed over the first night to help sort out 'teething problems'.
- We got nets from Raipur and synthetic pyrethroids from Calcutta.
- More than 50% of our investment has been repaid already.
- Our investment had been in terms of time, energy and capital money. The approach chosen was slow but encouraging.
- We have not raised the question of subsidy because most families spend around Rs. 800-00 a year on Malaria and our nets are cheaper than local shops – so they opt for it.

To summarise:

Our strategy is an Alternative, people based, village level, sustainable strategy with 3 basic thrusts:

a) Malaria Education
b) Promotion of personal protection measures – all methods including IBNs
c) Early clinical diagnosis and prompt treatment.

We then did a 2 day workshop for other NGOs to share our experience. The idea is that they will go home and launch similar village level 'wars' against malaria!

Christian Hospital, Bissamcuttack, Orissa.

REMEMBER!

RBM is a social movement for better health and poverty alleviation

"RBM is a social movement for better health and will focus on providing access to the poor who suffer from malaria the most. RBM actions would lead to poverty alleviation. The community and the private sector would have the opportunity to play important roles in the delivery of effective anti-malaria interventions, particularly in primary prevention and treatment of malaria. National plans to roll back malaria should reflect diverse opportunities and approaches."

Community mobilization

"The program should address health issues arising through enhanced community awareness and knowledge about disease prevention, diagnosis and treatment, as well as through local operational research activities. Bottom-up planning should be the core principle where decision-making and planning capacity will be based at the level where the problem occurs i.e., local-level planning, disease surveillance, monitoring of program activities, resource allocation, IEC, training, vector control etc. Epidemiological information would be analyzed at the local level and used in proactive action in developing evidence-based planning. However, national-level competence and coordinating function should be retained or developed at the central level during the process of decentralization and thereafter."

RBM promotes equity in health by focussing on disadvantaged populations

"Malaria primarily affects the poorest people. Children, women and migrants are the main victims of malaria. RBM will promote health equity by strengthening interventions focussed on disadvantaged populations and by developing acceptable standards of health care, focussing not just on disease burden but also on the cost effective interventions."

Improving access to health care

"Because of poor quality public sector facilities and the lack of public confidence in them, the private sector plays a dominant role in treatment. There is thus a need for an effective regulatory function to protect public health interest and secure quality service."

GUIDELINE SIX

DIAGNOSIS AND TREATMENT AT THE COMMUNITY LEVEL

6.1 Simple Ways for diagnosis and treatment of malaria

Recognition of signs and symptoms of malaria, especially the serious forms of it and the actions expected in an episode of malaria of various actors at home and at village or primary level should be as clear to the lay people as to the technically trained people. It is this factor that will make the Roll Back Malaria Initiative to survive the inadequacies of state funding, collapses of health systems due to war / violence and the vagaries that people of developing countries often have to face.

It is hence imperative that as many people as possible are trained in each community who can learn to distinguish malaria from other illnesses, can help to detect the serious forms of the disease and help them to reach the nearest and appropriate treatment facility.

6.2 How to recognise malaria

- Every case of fever in highly endemic areas or in persons with a history of travel to high endemicity area in the past four weeks, should be presumed to be due to malaria, unless proved otherwise.
- In low risk areas, other causes of fever should be eliminated before suspecting malaria.
- Classically a group of symptoms consisting of headache, myalgia, malaise and nausea occur before the first episode of fever.
- Typical, fever due to malaria occurs in cycles occurring every 48 hours. The fever is accompanied with chills and rigors and ends with profuse sweating. *P.malariae* fever recurs every 72 hours. This classical pattern may not be observed in all cases, particularly so in *P.falciparum* malaria and treatment failures.
- Atypical symptoms like abdominal pain, vomiting & dry cough may be present in some patients. Particularly in children, there is no classical pattern of fever, regardless of the infecting species.

6.3 What to do

- Patients with any of the above symptoms should visit the nearest health facility centre for diagnosis and treatment of malaria. This centre should ideally be situtated within a short distance for any community: short enough that a lone woman with a sick child can access easily.

6.4 What should be done at the Primary Centre

- If facilities for blood smear examination are available locally or nearby, and results can be obtained within 2 hours, defer treatment till results are available. Otherwise, treat presumptively for malaria as per National guidelines.

- If facilities for blood smear examination are not available, treat presumptively for malaria as per National guidelines. However if possible, exclude other causes of fever before presumptively treating for malaria.

6.5 When to refer patients to a health centre/hospital

The following criteria should be able to help a reasonably aware person to make a judgement about referring a patient for better treatment facilities.

- Pregnant women and children with high fever (above 39^0 C) .
- Persistent and/or very high fever (fever over 7 days or above 39^0 C) .
- Restlessness/Refusal to take feed in children.
- Severe pallor or Jaundice
- Change in level of consciousness / Convulsions
- Signs of shock (cold & clammy skin, thready pulse and rapid respiration)
- Bleeding from any site / black or brown discoloration of urine (cola colored urine) / fall in quantity of urine
- Failure to respond to previous antimalarial treatment (if symptoms of malaria recur within 1 month of treatment)
- Persistent vomiting and inability to swallow antimalarials.

6.6 Laboratory Diagnosis

- Blood smear should always be taken or dipstick test done, wherever possible, for identification of malaria parasite and its species, before starting treatment. However, it does not mean that treatment should be delayed for availability of the result of such a test.

6.7 Rapid Diagnostic Tests

- In high risk areas, where facilities for blood smear examinations are not available, facility for dipstick test for *P.falciparum* should be provided at the fever treatment depot for early diagnosis. In case of limited availability of these kits, priority should be given to children and pregnant women and seriously ill patients.
- Where dipsticks are made available but health workers are not available, efforts should be made to train some responsible

community members, such as teachers and volunteer health workers, to diagnose *P.falciparum* by the dipstick method. It may be noted that the sensitivity of Dip stick test is about 95% and not 100%.

- Private practitioners should be encouraged to provide facilities for laboratory diagnosis of malaria.
- In areas where health facilities are not available, NGOs may be involved in the diagnosis of malaria, particularly by dipstick method.
- In high risk areas, if laboratory test for malaria is negative and fever persists, the laboratory test should be repeated on 3 consecutive days.

6.8 Treatment and Follow up of malaria patients Home care (by family members)

- Fever should be brought down as quickly as possible with cool water sponging. Paracetamol, 500mg to 1gm for adults and 10mg/kg per dose for children may be used. Patient should be given plenty of fluids.
- Glucose or sugar solutions must be given to drink, particularly to children and pregnant women.
- In case of children, continue breast feeding.
- Seek medical care as early as possible.

6.9 Primary level (community level/DDC/FTD/sub-centre)

- At the Basic Health Facility Centre in the village
- If a presumptive diagnosis of malaria is made, then the local fever treatment depot (FTD) or other health facilities should be contacted and patient treated with Chloroquine or other appropriate drugs (depending on the drug policies already laid out by the malaria control programme of individual countries).
- There is no benefit of giving Primaquine to all patients in hyper-endemic areas.
- Advise patient / care providers to look for signs of serious illness and refer the patient to a health centre / hospital .
- Provide supportive therapy as required (Paracetamol for fever and headache, plenty of fluids etc.)
- Advise patients / care providers about nutrition, home care, the need for treatment adherence and when to report back.
- In high endimicity areas, where the probability of malaria is high, algorithms as per national guidelines may be followed for diagnosis and treatment. (see box at the end of Guidelines 6)

6.10 At the Health Centre/Hospital

- Diagnosis of malaria should be confirmed and patient treated with Chloroquine or other appropriate drugs as per the National policy.
- Patients of severe and complicated malaria should be treated with intra venous (i/v) Quinine infusion or other appropriate drugs like Quinine, Mefloquine, Sulfadoxine-Pyrimethamine and Sodium Artisunate / Arteether as per the national malaria treatment guidelines.

- Chloroquine and Quinine can safely be given during pregnancy including the first trimester for the treatment of malaria. However Quinine infusion should be given in dextrose solution to avoid hypoglycemia.
- Sulfadoxine-pyrimethamine combination can be given after the first trimester of pregnancy up to one month prior to delivery.

6.11 Malaria in pregnancy

During pregnancy, not only does malaria attack more frequently and severely, but it also worsens women's anaemia and can cause a high incidence of abortion, neonatal deaths and low birth weight. Effective chemo-prophylaxis in pregnancy effectively protects the women from malaria and should be given for the entire duration of pregnancy (preferably avoided in the first trimester because of nausea.

Approved doses of Chloroquine or Quinine may be given in any trimester of pregnancy for curative treatment of malaria.

Sulfadoxine - Pyrimethamine combination may be given after the first trimester of pregnancy and upto one month prior of delivery.

Primaquine should not be given during pregnancy (and to infants below one year).

6.12 Administrative level

- Establish, where possible, a functional drug distribution centre (DDC) or fever treatment depot (FTD) in each village and urban slum.
- Ensure timely replenishment of diagnostic supplies and antimalarial drugs.
- Paediatric formulations of antimalarial drugs should be made available.
- Evolve mechanisms to ensure quality control of antimalarial drugs.
- Training of health workers and volunteers in malaria diagnosis and treatment.
- Coordination should be ensured between different partners (eg: private practitioners, volunteers and NGOs) and different programmes (eg: RCH, IMCI etc) in malaria diagnosis and treatment.
- Local patterns of drug resistance should be monitored by the specialised teams in order to formulate the local drug policy.
- Development and maintenance of relevant surveillance and reporting system for monitoring and evaluating malaria situation in the area. Case definition for reporting should be followed as per the recommendations of 20th Expert Committee on malaria (WHO).
- Provision of required drugs, preferably in age-group-wise packets, with instructions in local language.

6.13 Medical Audit

To ensure a good quality of care provided to patients with malaria, each member country in the region should develop a system of **medical audit** to build effective mechanisms for ensuring the quality of patient care.

> **Medical audit is a systematic critical analysis of the quality of medical care including the procedures used for diagnosis and treatment, the use of resources and the resulting outcome for the patient.**

6.13.1 Medical Audit should be carried out in district hospitals with suspected malaria deaths to begin with. Later it can be expanded to other institutions and areas. An attempt must be made to introduce it as a necessary component of good hospital practice in private clinics, nursing homes and hospitals through professional bodies. Adherence to national treatment guidelines on malaria and rational malaria care can be promoted through medical audit and besides ensuring quality care to people, it also goes a long way in preventing or delaying resistance to antimalarials.

6.13.2 At district level, a committee consisting of district health authority, public health experts and clinicians not directly involved in the direct management of the case. The report of the medical audit should be sent to the concerned authorities for appropriate action. For hospitals, medical audit committees can be formed by physicians and pharmacists not directly involved in the case management.

> ***Antimalarial drug policy for the country or region should be reviewed periodically by an expert committee and changed whenever required depending on the sensitivity patterns of Plasmodium species.***

GUIDELINE NINE

PACKAGE DELIVERY FOR COMMON DISEASES

It is envisaged that by strengthening District Health System through Primary Health Care Services we are indirectly strengthening the malaria control operation in the district. It is in this context that PACKAGE DELIVERY CARE to common diseases is to be incorporated in Roll Back Malaria Program. As the malaria control activities now are integrated with the general health services, it would rather be useful to deliver a package of services to the community related to the communicable diseases as per the need of the community. However this packaging of essential care should be defined as per existing disease prevalence and the felt-need of the community to be served; availability of manpower (both from government and other sectors); provision of static health facilities; and not the least, the least care-seeking behavior of the community. The already existing "Essential Services Package (ESP)" and the "Integrated Management of Childhood Illnesses (IMCI)" may be considered wherever useful.

9.1 Definition of Common Diseases for Health Care Package

Since the pattern of endemic diseases and morbidity varies from area to area, the approach to select the diseases to be addressed for Health Care Package should be based on area specific pattern of diseases. Though communicable diseases are common in all parts of the country, there are certain diseases which have high prevalence and hence we need to have some criteria to select such diseases for the delivery of the package. The following criteria should be used for prioritization of health care package.

- Quantum of morbidity
- Complications/Disabilities
- Epidemic potential
- Amenability in Control

Methodology for Selection of Diseases is

- Study of existing records at District level and below
- Special Survey Reports, if available.
- Study of infrastructure including manpower institution.
- Study of the delivery system.
- Pattern of local administrative system and community system

It is suggested that about 5 to 6 such diseases may be selected by following the above criteria.

9.2 Package Kit

There is a system of having Drug Kit with every MPW and list of the drugs supposed to be kept in the kit are given below:

Chloroquine tablets and microslides are invariably kept in the kit. This kit may be revived to see whether it serves the purpose aimed for prevention, control and cure of the disease. An indicative list of such drugs/ equipment may be:

9.3 Preventive drugs / equipment:

1. Tab Iron & Folic Acid
2. Tab. Chloroquine
3. Vit A solution/capsule
4. Chlorine tablets
5. Disposable pricking needle
6. Gauze /Bandage
8. Microslides
9. Sputum cup
10. Thermometer

9.4 Curative:

1. ORS packets
2. Cotrimoxazole tablets/syrup
3. Paracetamol tablets/syrup
4. Anthelminthics tab./syrup
5. Cough expectorant syrup
6. Amoxycillin tab./cap /syrup
7. Diazepam tab/syrup
8. Tab. Primaquine
9. Tab. Sulphadoxine/ Pyrimethamine
10. Tab. Quinine Sulphate
11. Tab. Ergometrine
12. Antispasmodics
13. Anticoagulant tablets
14. Anti-emetic tablets, e.g., Prochlorperazine/Metoclopramide/

Drug information inserts detailing the indication, dosage, side effects and expiry dates must accompany the drug kit written in easily understandable language(in local language where possible)

GUIDELINE ELEVEN

IMPROVEMENT OF HEALTH CARE AT HOME THROUGH EMPOWERMENT OF WOMEN

Empowerment of women means:

- creating an awareness among women through basic knowledge for prevention of malaria and other common diseases.
- Providing adequate information for recognizing the seriousness of the disease and identifying its possible complications and adopting simple methods to undertake home care within the family.
- This will directly result in early diagnosis and prompt treatment of common illnesses including malaria.

11.1 Identification of key persons:

For the empowerment of women it is necessary to identify different groups of women. Depending upon the physio-demographic characteristics of the area, the women groups can be divided into the following:

1. Rural
2. Urban slums / laboUr colonies
3. Urban areas

11.2 Methods that may be adopted

A. Rural areas:

- In rural areas women can be empowered through women members of local bodies. The other organizations and situations which hold significance in empowering women are

  (i) Women's organizations
  (ii) Religious organizations/social gathering
  (iii) Weekly markets

- IEC material will have to be developed. Street plays / puppet shows / other sources of entertainment may be used as a vehicle to provide the necessary education.
- Special groups of women interested and trained in health should be identified as a trained resource. These groups may include lady teachers and female members of local bodies, bank and post offices and may be trained for early detection of malaria also.

A. Urban slums / labor colonies

- Knowledge to women in urban slums may be imparted through NGOs / voluntary organizations and cooperative societies.

A. Urban areas

B. Women in urban areas can be empowered through

- ♦ Welfare Associations
- ♦ Women's development Councils
- ♦ Women's clubs
- ♦ Voluntary Organizations involving women (eg: Lions club etc.)

C. The member(s) of these organizations may be trained in imparting knowledge regarding home care of malaria, who in-turn will train other women at home. Their training shall include the following thrust areas:

1. Health education and awareness about common diseases including malaria.
2. Cleanliness, in and around the house including water management and disposal.
3. Use of preventive measures like use of bed-nets, repellents, mosquito proofing etc
4. Knowledge and awareness about existing local health infrastructure.

The home care package given to women may include the following:

1. Fever as a symptom to be taken seriously and presumptive treatment for malaria to be given preferably after taking blood smear for malarial parasite.
2. Symptomatic treatment like sponging, plenty of fluids, antipyretics.
3. Identification of complications like drowsiness, vomiting, low urine out put, convulsions, which need immediate referral to the hospital.
4. Pregnant women / infants & children with fever to be dealt with as a potential emergency and immediate treatment to be given.
5. Prophylaxis for pregnant women especially in high endemic areas.

Women involved in social development work including malaria control should be recognized and honored by the local bodies / NGOs. This would act as an incentive for involvement of more women.

GUIDELINE FIFTEEN

MALARIA PREVENTION AT COMMUNITY LEVEL

There are four main ways to prevent malaria

1. Prevent mosquitoes from biting people by personal protection.
2. Control mosquito breeding by elimination of breeding places
3. Kill adult mosquitoes by house spraying and thermal fogging.
4. Chemoprophylaxis by regular intake of drugs taken to prevent malaria.

Important preventive measures that can be adopted and applied by individuals and the community are personal protection against mosquito bites and elimination of mosquito breeding places.

15.1 Personal protection against mosquito bites

- Mosquito nets / insecticide treated mosquito nets and curtains
- Mosquito repellents
- Mosquito coils
- House screening

However, none of these measures can provide full protection against mosquito bites and the diseases transmitted by them (Table 1).

15.2 Insecticide treated mosquito nets/curtains

A major impact on malaria incidence/mortality following the large-scale application of insecticide treated mosquito nets (ITN) has been demonstrated. From the experience gained in the usage of ITN, it has been observed that to optimize the use of nets the following basic information is essential:

- Mosquito biting times and site of contact
- Sleeping habits / socio-behavioral practices of the communities to be protected.

Unless this information is available and ITNs are found relevant in the control of malaria in the area, introduction of ITNs in the programme may not have the desired results.
Operational aspects including delivery, cost sharing and social marketing of nets should be investigated to look at feasibilty and self-sustainability.

15.3 Mosquito repellents

Mosquito repellents are effective against outdoor as well as indoor biting vectors. They could supplement effects of mosquito nets and could be used more frequently in some high-risk groups such as rubber-tappers and night hunters.

Table 1

Personal Protection Measures	Active Ingredient/ Principle	Likely side-effects
Mats	Synthetic Pyrethroids	Respiratory/eye problem including asthma, itching, rash, etc.
Mosquito Coils	Herbal/synthetic pyrethroids	---------do---------
Insecticide Treated Nets / Curtains	Synthetic Pyrethroids	----------do---------
Vaporizers	Synthetic pyrethroids	---------do--------
Light Traps	Light attraction	Nil
Mosquito proofing/ window screening	Mechanical barriers	Nil
Mosquito Repellent Creams	Herbal /Chemical	Skin irritation or rash
Lotions (DEET)	Chemicals	Skin irritation
Eucalyptus Oil	Natural oil	Nil
Citronella oil	Natural oil	Nil
Protective Clothing	Natural oil	Nil
Neem Oil	Neem derivatives	Nil

Note: Effective protection by the repellents (except treated mosquito nets/curtains) varies from one to four hours in the field in different seasons. The effectiveness also varies against different mosquito species. All repellents are more effective against *Anopheles* (malaria vectors) than *Culex* (filariasis and J.E. vectors) or *Aedes* (Dengue vectors).

15.4 Operationalization of use of repellents/ITN programme in different settings

The strategy for the sustainable use of these methods at the community level is as follows:

- The manager of the malaria control programme, at the District Level will be overall in charge, working under the purview and guidelines of District Malaria Society. His/her responsibility will include the procurement and distribution of repellents and ITNs, and providing back up support and coordination of IEC and other promotional activities through media, educational institutions, local government institutions, NGOs, etc.

- It is recommended that the money received from the sale of the subsidized items such as nets should be handled by a voluntary agency / NGO/ autonomous society created for the purpose.

- The monitoring mechanism should be developed according to local situation for which a committee could be set up, taking representatives from the community and malaria society.

- Annual evaluation of the programme be conducted by a small committee with representatives of Malaria Control Programme, community, NGOs, local Government and experts with social science background.

- In the distribution and use of mosquito, the priority should be given to pregnant women, infants and children. The significance of protecting this vulnerable group should be highlighted through mass media and IEC activities.

- Type of insecticide for treating mosquito nets should be decided by the National Program Managers as per insecticide policy of the country.

- There is evidence in few countries that repellent formulations are of poor quality or fake. Therefore quality control checks should be rigidly applied.

- Herbal repellents like Citronella oil, Eucalyptus oil, Neem oil, etc. should be encouraged.

15.5 Elimination of mosquito breeding places in and around houses.

A. In the Homes

Major mosquito breeding sites within the house, comprise water storage container, animal drinking pans and flower vases, roof gutters and pit latrines. Mosquito breeding in these habitats could be checked by taking the **following preventive measures that need to be made public knowledge through IEC campaigns**:

- Water storage within the household should be reduced to a minimum. However, this may not be possible in areas without a piped water supply or with intermittent supply. In such cases, mosquitoes must be mechanically excluded by keeping all domestic water storage containers covered.
- Unwanted standing water should be cleared and the containers inverted. This is required because mosquito larvae dive to the bottom of the container when disturbed, and may survive in the residual water at the bottom of the container.
- Choked roof gutters should be cleared of debris, so that rain water does not stagnate.
- Water in animal drinking pans, flower vases, etc., should be replaced every day.
- Sullage should be removed from the premises through properly designed drains.
- Breeding of mosquitoes in pit latrines could be controlled by treating with malaria oil to cover the water. Another novel method is placement of polystyrene balls to form a complete physical barrier over the water to prevent oviposition. These balls are cheap, non-toxic, virtually indestructible and have little attraction or value for

people to steal them. Proper design and maintenance of sanitation systems is essential for eliminating mosquito breeding in these habitats.

- Access of mosquitoes to the interior of the house could be prevented by screening doors and windows with 18 inch guage wire mesh screens.

B. Around the House

Mosquito breeding habitats around the house include rainy water collected in waste articles dumped in vacant plots, underground cisterns and water storage tanks, wastewater drains, cesspits, and septic tanks. Mosquito breeding in these habitats could be eliminated by adopting the **following preventive measures**.

- A thorough search of yards and vacant plots must be made for discarded articles and rain water collection sites.
- Tree holes should be filled with mud or cement to prevent accumulation of rain water. If solid waste disposal services are inadequate, articles that may collect rain water could be dealt with, in other ways, e.g., cans could be cut open and crushed, pans and trays could be turned over, discarded tires could be cut and turned over, etc.
- Underground cisterns and water storage tanks should be covered with 18-guage mesh screens. If possible these may be stocked with mosquito-eating fish such as *Gambusia affinis* for clean water and *Poecilia reticulata* for dirty water.
- Drainage arrangements should be made.
- Cesspits should be avoided completely and replaced with proper soakage pits.
- Septic tanks should be sealed properly and the vent pipes furnished with screens. Effluent from the septic tank should be discharged into a soak away and not into the open.

C. In the Community

In the community, major mosquito breeding habitats comprise spillage around water supply sources, wastewater drains, storm water drains, cesspools, ponds and other large water bodies, and low-lying vacant plots. **These habitats should be dealt with as follows**:

- Water spillage around community water supply sources such as hand pumps, wells, public stand posts, etc., should be checked and drainage arrangements made.

- Wastewater and storm water drains should be maintained properly and dumping of solid wastes into these areas should be forbidden.

- Undesirable water collections in the community could be eliminated by drainage or filling. Cesspools and low-lying vacant plots are best dealt with by filling with rubble, earth or refuse. Ponds, borrow pits and ditches could be filled or, alternatively, these could be drained. However, small and temporary habitats such as small pools and puddles, roadside ditches, water-filled vehicle tracks and cattle hoof-prints may be too numerous and scattered to fill or drain.

- Mosquito breeding in large water areas could be eliminated through environmental modification e.g., construction of public irrigation works that allow control of the water level and shore conditions (impoundment).
- Drainage, filling and impoundment are methods that usually give long lasting effects. However, these may have other ecological repercussions and therefore should be undertaken only with expert advice.

- Houses may be graded periodically on the basis of cleanliness and action taken by the individual /family on points mentioned in Table 2.

- Houses with Grade I (best) may be given some incentive, recognition or free gifts.

15.6 Larvae Control

Larvae control can be carried out if breeding sites are within the flight range of mosquitoes from the community and breeding sites are limited and accessible.

The following options can be used:

- Chemical larvicides like Temephos
- Use of larvivorous fish
- Covering/screening of water tanks
- Biolarvicides like toxin formulations from *Bacillus thuringiensis* (BT)/*Bacillus sphaericus* (BS), and insect growth regulators (IGR).
- Use of expanded polystyrene beads (EPB) to cover the water surface.

The following points may be considered in the application of the above methods:

- Temephos is useful for an instant larval kill and may be used even in potable water.
- Larvivorous fish are cheap, can be linked with edible fish production and can provide long term control, if proper supervision is maintained.
- Bt and Bs toxin preparations are specific for mosquito larvae, do not kill predators and are not prone to illicit sale for other purposes. However resistance develops against Bs.

- Screening or sealing of tanks may be expensive but is long lasting.
- EPS is long lasting in confined sites without wind and overflow.
- IGRs are effective at very low doses (p.p.b.) but the effect is not immediately visible.

15.7 House spraying and thermal fogging

House spraying and thermal fogging should be done by well-trained health personnel. Communities should assist in house spraying operations and fogging by providing volunteers for spraying and motivating people to accept house spraying.

15.8 Chemoprophylaxis

The community should be educated by the National authority, whether or not to take Chemoprophylaxis and which drugs to be used for the same. In special circumstances, Chemoprophylaxis should be offered as per national guidelines to special groups such as pregnant women in endemic areas and short-term non-immune travelers to endemic areas.

15.9 Malaria vaccine

An effective malaria vaccine is not yet available although various candidate vaccines are being developed and tested.

GUIDELINE SIXTEEN

SPECIAL STRATEGY ON ELIMINATION OF BREEDING PLACES THROUGH COMMUNITY ACTION

In the previous section, we have identified step of involving the community in the Malaria Programme. A special effort must be made as part of the RBM strategy to involve them in Elimination of breeding places through Community Action as a social movement.

16.1 Concept:

Mosquito control can be done by eliminating breeding habitats as much as possible. Community action is required to eliminate breeding places as most of the breeding habitats are man made and hence it is the responsibility of the community at risk of vector borne diseases to eliminate the source of breeding.

Methods of elimination of breeding places are:

- source reduction by eliminating or changing the breeding places to make them unsuitable for developing larvae.
- Making the breeding places inaccessible to adult mosquitoes for laying egg.
- Releasing fish / predators that feed on larvae and pupae.

Operational area principle:

In and around human settlements in an area with a radius greater than the flight range of the target mosquito species (normally 1.5 –2 kms).

Elimination of breeding places can be on permanent (long term) basis through environmental, modification or on a temporary basis through environmental manipulation and release of bio-control agents.

16.2 GUIDELINES

1. Identify target community : rural, urban, development project area, and stratify if there are diversities in the socio-epidemiological situation of malaria in the area.

2. Motivate the community through awareness campaign using appropriate IEC materials.

3. Carefully identify breeding places at community level and map them.

4. Evolve Guidelines for community action to eliminate breeding places (depending on local mosquito species it and choice of methods for specific breeding habitats identified locally (see point 13. Also Appendix 2 for further guidelines for action for different types of situations in rural and urban areas).

5. It is necessary to establish a committee with a chairperson. Active members such as teachers, postmasters, retired employees, KDS workers, religious leaders can be included and one person assuming the leadership role.

6. The activities of the committee should include

- motivation of the community through – interactive meetings
- identify solutions – including those from community experience
- involve / motivate other depts and their field workers

  - local administration
  - sanitation / water supply
  - agriculture department
  - fisheries
  - PWD
  - forestry

7. Small groups with active members can be formed to generate collective force in filling low lying areas of public interest. Such reclaimed areas can be used for public use such as playground, etc.

8. School children can be motivated in planting trees in the reclaimed marshy / low lying areas in the effort of developing social forestry.

9. Technical skill in masonary, plumbing and constructing of soakage pits need to be developed so as to make the community self reliant.

10. It is necessary to ensure the availability of materials such as larvivorous fishes, EPS beeds, neem oil cake, etc. This can be achieved through collaborative approach. Information management system will help in monitoring activities for feedback..

11. Potential avenues can be explored for resource mobilization.

12. Community participation can be sustained some of the by following measures in the programme:

- ⇨ Planning income generating programmes with vector control as a byproduct.
- ⇨ Advocating alternative methods
  - drainage
  - water supply
- ⇨ Legislation and strict enforcement of law

- ⇨ Dynamic leadership and encouraging self reliance

- ⇨ Periodical meetings with the community – to assess the situation, listen to local problems and be open to suggestions

- ⇨ Promoting socially acceptable and viable solutions that are
  - Culturally acceptable
  - Low-cost – available / affordable by all
  - Socio-epidemiological need
- ⇨ Involve community right from planning in all stages of programme

- ⇨ Increase popular awareness of the value and the benefits of a malaria programme.

- ⇨ Minimize conflicts by keeping organizations small; restricting memberships to persons with harmonious objectives; defining objectives; in a focussed way and distributing benefits equally.

- ⇨ Facilitate incentive from District Collector for those who involve in community action.

13. A checklist of methods for mosquito control through environmental management identifying site of action and assigning 'roles' and responsibilities is given below in Table 2.

Table 2

Methods for Mosquito Control through Environmental Management (Individual / Family / Community / Government)

Action site in	Action to be taken by	Action
The house	The individual, the family	Cover domestic water storage containers; tight fitting lids; empty water once in 7 days
The house	The individual, the family	Clear unwanted standing water
The house	The individual, the family	Clean roof gutters/sun shades
The house	The individual, the family	Replace water once in 7 days in animal drinking pans, flower vases, etc.
The house	The family, the community, the local government	Ensure provision of properly designed sullage drains
The house	The family, the community, the local government	Ensure proper design and maintenance of sanitation / cover vent pipes with mosquito netting
The house	The family, the community	Store used articles and other refuse in closed containers
The house	The family	Screen doors and windows
The house	The family	Coolers / air conditioners may have water changed once in 7 days or a dry day observed each week
The house	The individual, the family	Use mosquito nets and repellents
The surroundings	The individual, the family	Clean yards and vacant lots
The surroundings	The family	Cover with lid tightly; screen underground cisterns and water storage tanks, or stock them with mosquito eating fish
The surroundings	The family, the community, the local government	Ensure proper drainage
The surroundings	The community, the local government	Control water supply sources and ensure proper drainage
The surroundings	The community, the local government	Provide properly designed waste water drains and storm water canals
The surroundings	The community, the local government	Drain or fill undesirable water areas like cesspools, puddles, ditches, etc. tap pits
The surroundings	The community, the local government	Modify large water areas by impoundment
The surroundings	The community, the local government	Ensure adequate solid waste collection and disposal
The surroundings	The contractor; the building laws by government	Construction site
The surroundings	The vendor, community	Coconut shells to be cut in 4 pieces
The surroundings	The family, the housing society	Mosquito proofing of overhead tanks (OHT), make OHT accessible for inspection, demolish discarded tank completely.
The surroundings	The family, Community	Unused wells may have water covered by EPS beads, crude oil or larvivorous fishes
The surroundings	The family, the community	Used wells may be covered, screened with net or use larvivorous fishes

Adapted from : The CAP guide for Insect and Rodent Control through Environmental Management (WHO/UNEP)

CASE STUDY - 5
THE PUDUKUPPAM INITIATIVE

"The Vector Control Research Centre (VCRC) demonstrated that vector control could be made into an income generating programme, which is the only way to enlist and sustain community participation in such endeavours. A success story of a research project, carried out from1980 to1985 in the coastal villages of Pondivherry in which malaria control was made a by-product of income generating activities is given below:

- Pudukuppam, a coastal village, in the Union Territory of Pondicherry, was meso-endemic for malaria. The vector incriminated was Anopheles subpictus breeding in brackish water. The major source for mosquito breeding was a backwater lagoon (approximately 3 to 5.5 sq. kms.) with the entire water surface covered with Enteromorpha compressa a filamentous algae facilitating vector proliferation. Removal of algae was the only practical solution to control the vector breeding. Vector Control Research Centre explored the economic utility of this algae in paper industry and the technology developed was handed over to the hand made paper unit of Sri. Aurobindo Ashram, Pondicherry. The art paper made by the unit using this algae drawn world wide attention with an excellent export market. This resulted in the creation of a self sustaining system for algae removal with economic incentives to the local populace. Total elimination of malaria was thus demonstrated exclusively through community action.

- Feasible vector control measures

  - Source reduction : By the removal of algae which promote vector breeding
  - Quantity of algae removed in one year : 130 tons
  - Practical permanent solution : Economic exploitation of algae for manufacturing paper, file cover, etc.
  - Technology developed by : Vector Control Research Centre
  - Technology transferred to : 1. Hand made paper unit of Sri. Aurobindo Ashram, the pioneers in art paper manufacture. 2. Hand made paper unit of Mahatma Gandhi Leprosy Rehabilitation Centre.

- Benefits to the Community

  - Total elimination of indigenous transmission of malaria from the village.
  - Additional regular income to the villagers.
  - Employment opportunities to the unemployed youths, who collect and sell algae.
  - Reduction in the cost of production or mottled art paper, file covers, etc
  - A clean environment"

VCRC project – Pudukuppam

GUIDELINES : Process of Evolution

WHAT? **Guidelines on Roll Back Malaria Programme for South East Asia Region**

WHY? To develop guidelines that would enable various components of the Roll Back Malaria Initiative to be understood in-depth and with clarity. The guidelines deal with strategies and methodologies for involving the community and civic society at large; with diagnosis, treatment and referral of malaria patients; and with the systems required at District level to implement, monitor and review the programme effectively.

FOR WHOM? The effort was to evolve simple, generic guidelines for Malaria Programme officers and their partners primarily at district level.

(Some guidelines were found necessary for the state / national / regional levels as well so that the programme at district level benefits from support at higher levels as well. (e.g., structural inputs, human and material resources inputs, and planning and management backup). These have been indicated.)

HOW / WHERE?

1. The guidelines on Advocacy and Community and Partner Mobilisation were evolved through an interactive, participatory workshop held in Bangalore, facilitated by the Community Health Cell, Society for Community Health Awareness, Research and Action, Bangalore (CHC) from 9-11th December 1999. (It also drew up from an interactive, participatory process report entitled "Towards an Appropriate Malaria Control Strategy" that was facilitated by the Society and VHAI, New Delhi, in 1997).

2. The Guidelines on Strengthening of District Health System for Implementation for Implementation of the RBM Initiative were evolved at a workshop of past and present experts conducted by the Indian National Anti-Malaria Programme (NAMP) Directorate from 27th to 29th December 2000 at NAMP Directorate, Delhi.

3. The Guidelines for Simple Ways for Diagnosis and Treatment of Malaria were developed by experts invited by The Post-Graduate Institute of Medical Education and Research, Chandigarh from 3rd to 5th Jan 2000.

All guidelines were finally reviewed and revised in the context of the South Asian diversity and restructured in an informal consultation at WHO-SEARO New Delhi on 18-21 Jan 2000.

The guidelines were then integrated, edited and standardised by a team of three consultants at CHC, Bangalore in June - July 2000.

WHO?

1. The participants of the Bangalore Workshop included resource persons from academic and research centres, field NGOs, NGO support groups, and citizens groups. The group was multidisciplinary with multi level experience in health care and control of communicable disease programmes (See Acknowledgements).
2. The participants of the New Delhi workshop were mainly past amd present senior officials from the National Anti-Malaria Programme, and also had representatives from the Railways, Armed Forces Medical Services, Industry and from NGOs. (See Acknowledgements).

3. The experts on malaria involved in the Chandigarh workshop were mainly academics from various disciplines like parasitolgy, medicine, public health and also had participants from the local health authorities and NGOs. (See Acknowledgements).

4. A group of consultants from WHO-SEARO and the region revised the three guidelines to suit the pan-South East Asian Region at the Delhi Consultation. (See Acknowledgements).

ACKNOWLEDGEMENTS

- **List of participants of the Bangalore workshop organised by CHC :**

  Dr. V.P. Sharma; Dr. Rajaratnam Abel; Dr. Sunil Kaul; Dr. C.M. Francis; Dr. Thelma Narayan; Dr. Ravi Narayan; Dr. V. Benjamin; Mr. S.D. Rajendran; Dr. Rakhal Gaitonde; Dr. M.V. Murugendrappa; Dr. P.N. Halagi; Prof. N.J. Shetty Dr. T.R. Raghunatha Rao; Dr. P. Jambulingam; Dr. K. Krishnamoorthy; Dr. K. D. Ramaiah; Dr. S.K. Ghosh; Dr. Sathyanarayana; Dr. S.N. Tiwari; Dr. A.K. Kulshrestha; Mr. R.R. Sampath Dr.K. Ravi Kumar; Dr. Mira Shiva ; Dr. Mani Kalliath; Dr. Pankaj Mehta ; Dr. B.S. Paresh Kumar; Dr. Daniel; Dr. J. Fernando; Dr. V.R. Muraleedharan; Dr. Prabir Chatterjee; Dr. Rajan Patil; Dr. Biswaroop Chatterjee; Dr. H. Sudarshan; Dr. Prakash Rao; Dr. Anton Isaacs; Mr. Suresh Shetty ;

- **List of partcipants of Delhi workshop held by NAMP at NAMP Directorate:**
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List of participants of Chandigarh workshop held by PGI, Chandigarh:
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- The guidelines were reviewed in WHO-SEARO and further modified and edited with the participation of Dr. V.P. Sharma – WHO-SEARO, Dr. Ravi Narayan – Community Health Cell, Dr. Rajaratnam Abel – RUHSA Department, CMC-Vellore; Ms. Tavitian-Exley (Myanmar); Dr. B.N. Gultom (Indonesia), Ms. Jyotsna Chikersal, Mrs. Harsaran Bir Kaur Pandey (Nepal); Mr. V. Alexeev, Mr. Omaj M. Sutisnaputra, and Dr. Sunil Kaul – CHC Associate; Dr. Sawlwin; Dr. A. Mannan Bangali; Dr. P.B. Chand; Dr. G.P. Dhillon; Dr. Hadi M Abednego; Dr. N. Kumara Rai; Dr. Harry D Caussy; Dr. MVH Gunaratne.

WE ACKNOWLEDGE THE CONTRIBUTIONS AND ACTIVE PARTICIPATION OF ALL OF THEM.

- Dr Ravi Narayan, Dr. Rajaratnam Abel, and Dr. Sunil Kaul specially helped with the final editing and integrating of the guidelines. There support is specially acknowledged.

GUIDELINES FOR THE IMPLEMENTATION OF ROLL BACK MALARIA IN SOUTH EAST ASIA REGION

Introduction

Malaria. People of the world's poor communities face many threats to their well being. 40% of the world's population is at risk of malaria and the disease is a particular burden for the poorest countries.

There are as many as 500 million cases of acute malaria in the world each year – as many as 5% of them causing severe illness associated with time away from work or studies. The risk of malaria is a constraint to the economic development of communities, regions and nations.

Roll Back Malaria Initiative. In 1998, Dr. Gro Harlem Brundtland, Director-General of the WHO launched The Roll Back Malaria (RBM) Initiative against malaria. RBM emphasizes evidence-based strategies, community level action, partnership between governments and development agencies, and a reformed response from all of WHO.

It recognizes that sustained success in rolling back malaria inevitably calls for development of health sector so that they can address a range of priority health problems. The RBM Initiative seeks to mainstream efforts to roll back malaria throughout the range of community-level health activities being taken forward by societies at risk of malaria and is expected to evolve into a social movement on a global scale.

Within countries, the Roll Back Malaria movement will be backed by governments and development agencies, NGOs and private sector groups, researchers and media working in partnerships. The same partners will be organized as a global partners.

The global Roll Back Malaria partnership has an overall goal of halving malaria-related deaths throughout the world by 2010; the strategy builds on the 1992 Amsterdam global malaria control strategy; with the following six elements:

1. Enhanced diagnosis and treatment of malaria (eg., new diagnostics test, universal access to treatment, combination drugs);

2. Disease transmission control (cost effective integration of vector control tools eg., insecticide treated nets, selective vector control, bio-environmental methods);

3. Enhanced surveillance (rapid response, border malaria, and monitoring process);

4. Health sector development (eg., decentralization, health equity, package delivery care, changing role from implementers of malaria control to leadership, regulation and coordination);

5. Community mobilization (empowerment of communities, evidenced-based planning and ownership); and

6. Advocacy (forum for advocacy, strategic investments eg., mapping, new drugs and vaccines, regional support networks eg., drug policy, rapid response, etc., health impact assessment, research on reform in health system).

Malaria in South East Asia. Malaria continues to be one of the most serious public health problems in the South-East Asia region. 85% of the total population in Southeast Asian countries is at risk of malaria, with 35% living in moderate to high risk areas.

Malaria in South East Asia - Situation Analysis

- In South East Asia Region – there are about 3 million (25-26 million clinically suspected) malaria cases annually.
- Malaria in Asia is unstable and causes epidemics and high morbidity.
- An estimated 1,202.5 million people or 85% of the total population of SEA region are at risk of malaria. About 90% live in moderate to high risk of malaria in India, Indonesia, Myanmar and Thailand.
- Chloroquine resistant P. falciparum is reported from all endemic countries (except DPR Korea); nearly 400 million people live in areas with risk of contracting drug resistant malaria. Sulfa-Pyrimethamine resistance is also reported from all endemic countries except Sri Lanka and DPR Korea with an estimated 140 million population at risk. Multi-drug resistance P. falciparum is highly prevalent on the Thai-Cambodia and Thai-Myanmar borders.
- Deteriorating epidemiological indices are associated with drug resistance and operational problems.
- In this region 80-85% malaria cases are reported from India and bulk of the malaria deaths (55-65%) from Myanmar.
- Malaria has adverse effects on economic and social development. Malaria has been called the single biggest cause of poverty in some countries. Morbidity caused by malaria reduces family earning by 12% and a weakened workforce brings down productivity.
- The process of development itself contributes to the spread of malaria. As roads are built, forests cut down, new mining areas opened, habitats which favour the breeding of mosquitoes, expand. This is very common in the SEA region.

Simple guidelines have been developed to implement the six elements of the Roll Back Malaria. These guidelines address the health sector development leading to advocacy and the community mobilization.

The RBM is different from previous efforts to fight the disease. While drawing on the strengths of past experience in malaria control, it focuses on political commitment, community empowerment, inter sectoral linkages and partnerships with the community; voluntary agencies and NGOs; and the private sector involving both health and development related programmes.

The focus is on finding local solutions to local problems while drawing on potential resources outside the health sector. With this aim in mind, The Roll Back Malaria project emphasises decentralization and district level planning with the full involvement of the community and other partners.

The National Malaria Control Programme then assumes a role of leadership, facilitation, co-ordination, regulation and not of sole implementation.

RBM – the New Initiative – What is New?

1. RBM is a **social movement** for better health and poverty alleviation.
2. RBM plans are country driven, evidence based **and adapted to local realities**.
3. RBM promotes **health equity** by focussing on disadvantaged populations.
4. RBM solicits effective **partnerships** within and outside WHO.
5. RBM plays the role of **leadership**, regulation and coordination.
6. RBM activities mainstream into **health sector development.**
7. RBM is an **integrated approach** to address malaria and other common diseases.
8. RBM is a **pathfinder** for health and human development.
9. RBM is for high level of **advocacy** for change.
10. RBM promotes research and development for **new tools**."

Guiding Principles

RBM draws on the Primary Health Care (PHC) strategy and aims to strengthen the existing district health system for the same. It also identifies that early diagnosis and treatment cannot be made unless common women and the community at large understands the basics of malaria and has access to medical aid for all kinds of common ailments one of which is malaria.

Mobilisation and advocacy are therefore deeply embedded in the Primary Health Care approach. This is done through the emphasis on

i. Community participation
ii. The use of appropriate technology
iii. Intersectoral coordination
iv. Social equity – central to the strategy of the control programme.

The following principles form the *blueprint* to these Guidelines:

1. The **'community'**, in the urban slum, the rural or tribal area, must first be accepted at all levels of the control strategy as **'active participants'** of the programme and not **'passive beneficiaries'**.
2. The **community** and/or its representatives both formal and informal leaders, should be **involved in the planning** and **organisation of the activities at all stages** of the programme. A village health committee will operationalise this further.
3. The **focus** of the activities and strategies should not just be on providing the community - a package of services, but on actively **enabling and empowering them** to **participate in decision making** that helps them to make health, including malaria control activities, their own responsibility.
4. The large number of **human resources** that are available in any community must be identified and **mobilized** to support the programme.
5. The Primary Health Care approach is a comprehensive approach and therefore malaria control programmes should not become unipurpose or selective in their orientation and whether it is the village committee, the health guide, or the strategy, there should be scope and openness to use the **same structures and resources for other disease and health problems in the community / country**.
6. A major thrust of such a primary health care oriented programme will be the approach of **demystifying the problem** at the community level; to **build confidence and perspective to tackle** that at the level itself; so that the health team works in close partnership with the people and the **programme becomes identified by the people as their programme**.
7. The Primary Health Care approach also calls for a certain **humility in the health team** about not always wanting to 'teach' or tell the people something, but also a willingness to learn from local experience, wisdom and health culture. The people, when provided the right forum and context will often share ideas, options, alternatives that the health teams should consider. New approaches or alternatives can emerge if this learning from the people and **working 'with them'** rather than 'for them' becomes a team commitment.

> **"We need not only to persuade the people to accept the professional's wisdom, but also the professional to understand people's wisdom."**

8. Building new partnerships is another challenge of the RBM initiative. These concrete guidelines are intended for use by all partners involved in RBM. They identify the steps required at district level by the programme managaer leading the anti-malaria operations to broaden the range of partners in the control of malaria (supported by national, state/division level):

- With the communities
- With non-government, civil society organisations
- With the private sector (medical and non-medical)
- With the educational sector
- With other sectors in a spirit of intersectoral collaboration.

They are designed to be applicable and suitable for use in the field. They have been arranged in logical and chronological sequence of activities. Case studies and a few examples have been included to illustrate the possible applications.

9. While advocacy, leadership development and community mobilization, capacity building of communities and building new partnerships is the main focus of the RBM initiative, there is also a need to strengthen the whole District Health System and its capacity to respond to the malaria problem. The guidelines therefore also focus on strengthening of the District Health System through a wide range of activities.

10. One of the challenges of evolving these guidelines was to keep them as generic as possible so that they could be adapted to each country situation in the region. At the same time, there is a need to be specific and provide some details as well.

11. These guidelines are designed to be applicable and suitable for use in the field. They have been arranged in logical and chronological sequence of activities. Case studies and a few examples have been included to illustrate the possible applications.

12. These guidelines are not complete. We have tried to look at as many aspects that the consultants who participated in the process of evolution of these guidelines could share. Each country, each district in the region has its own distinct ~~in its~~ ecology, environment and requirements that need further guidelines. These will have to be evolved locally.

"Health is created and lived by people within the setting of their everyday life, where they learn, work, play and love."

II GUIDELINES ON BUILDING LEADERSHIP THROUGH PARTNERSHIP IN RBM.

II
- Advocacy
- Leadership
- Partnership
- IEC

GUIDELINE ONE

ADVOCACY

1.1 ADVOCACY

As the causes of malaria lie outside the control of the health sector, obtaining political will for malaria control is an essential first step. Intersectoral collaboration is an important principle of RBM, and this will need advocacy at many levels.

AT THE NATIONAL LEVEL

- Political commitment must be obtained at the highest level to ensure inter ministerial collaboration, as well as sufficient budget allocations to fight malaria. It is important that top leadership is convinced about the need for action across various sectors, and makes the necessary commitment for this. It is also important that the top leaders make public commitment to the cause.

- WHO and the Health Ministry need to make a strong case, based on evidence, of the importance of such commitment and action.

- Special advocacy materials need to be produced to present the case.

- Print and audio visuals materials would clearly spell out the issues,

- These would need to highlight the argument that malaria is a net drain both on the health of the people, and on the workforce, causing a negative impact on the economic productivity of a country.

- National and state level data are needed so that the argument is based on evidence. Different versions would target separate key stakeholders: eg: government/ other ministries/Chief Ministers of States/captains of industry/ the news media.

Role of media

- At the national level, media need information to understand the scale of the problem, in health and economic terms.
- The link with environment degradation and unplanned urbanisation are issues already under media scrutiny in most countries. The malaria issue's linkage to these developments needs to be highlighted.
- The news media offer a good channel to set the agenda and make malaria control an issue, particularly at the national level. They can ask questions, and play a watchdog role.

AT THE STATE or SUB-NATIONAL LEVEL

- A similar high level commitment must be sought from the top political leadership.
- This would translate into inter-department cooperation.
- As different states would have varied situations, the malaria situation must be spelt out for that state.
- Health ministries/departments must obtain the health and economic data related to malaria morbidity and mortality for that state. Advocacy materials at this level would use this in the formulation of key arguments.

Role of media

At the state level too, the news media play an important role in setting the agenda, in awareness creation among policy makers, creating public awareness, and in following up on action taken or the lack of it.

AT THE DISTRICT or MUNICIPAL LEVELS

- Activate the district/ municipal administration or mechanism to ensure implementation and monitor the programme components.
- The private sector/other departments/service organizations, and the media. are to be targeted for advocacy.

Role of media

At the district level, the media can be used increasingly for information dissemination, about the problems related with malaria, possible community action, role of service organizations and the private sector. Media has a greater role in social mobilization and support to social marketing, at this level.

THE STEPS FOR ADVOCACY AT ALL THESE LEVELS INCLUDE

1. **Analyse situation and problem**
   "Analysis is the first step to effective advocacy, just as it is the first step to any effective action. Activities or advocacy efforts designed to have an impact on public policy start with accurate information and in-depth understanding of the problem, the people involved, the policies, the implementation or non-implementation of those policies, the organizations, and the channels of access to influential people and decision-makers. The stronger the foundation of knowledge on these elements, the more persuasive the advocacy can be".

2. **Design strategy (What are the messages to be communicated)**
   "Every advocacy effort needs a strategy. The strategy phase builds upon the analysis phase to direct, plan, and focus on specific goals and to position the advocacy effort with clear paths to achieve those goals and objectives".

3. **Mobilise resources**
   "Coalition-building strengthens advocacy. Events, activities, messages, and materials must be designed with your objectives, audiences, partnerships, and resources clearly in mind. They should have maximum positive impact on the policy-makers and maximum participation by all coalition members, while minimizing responses from the opposition".

4. **Implement action** — What activities ?
   "Keeping all partners together and persisting in making the case are both essential in carrying out advocacy. Repeating the message and using the credible materials developed over and over helps to keep attention and concern on the issue". advocacy is not message giving only.

5. **Evaluate results**
   "Advocacy efforts must be evaluated as carefully as any other communication campaign. Since advocacy often provides partial results, an advocacy team needs to measure regularly and objectively what has been accomplished and what more remains to be done. Process evaluation may be more important and more difficult than impact evaluation".

6. **Plan for continuity**
   "Advocacy like communication is an ongoing process rather than a single policy or piece of legislation. Planning for continuity means articulating long-term goals, keeping functional coalitions together, and keeping data and arguments in tune with changing situations".

"Public policy advocacy is the effort to influence public policy through various forms of persuasive communication. Public policy includes statements, policies, or prevailing practices imposed by those in authority to guide or control institutional, community, and sometimes individual behaviour."

GUIDELINE TWO

LEADERSHIP

2.1 BUILDING LEADERSHIP AT DISTRICT LEVEL

THE MALARIA CORE GROUP LEADERSHIP (COORDINATION TEAM)

The malaria programme activities at the district level needs the involvement of atleast the following:

- The District Administrator
- District Health Officer
- Health Officer designated for malaria, if available.
- Education Officer
- Agricultural Officer
- Public Works engineer
- Representative leaders of local / village self government
- Selected NGOs
- Representative of health care providers associations if any
- Public / private industry if any
- Officers in charge of:
  - ❖ water and sewerage
  - ❖ irrigation
  - ❖ rural and urban development
  - ❖ social welfare

(The composition of this coordination committee will vary in each country and state and will depend on the resource persons available at district level)

2.2 EVOLVING THE ROLE OF THE COORDINATION TEAM

These will include the following steps:

Step One

A coordination committee chaired by the district administrator and health/malaria officer as secretary will be the first step to ***develop leadership at the district level***. In keeping with the new philosophy of RBM, representatives of leaders of the community, NGOs, private practitioners and industry should also be included in the committee so that the ownership and the stakes of a much wider group are facilitated.

Guideline 4

BUILDING OTHER PARTNERSHIPS

General Principles

Partnerships for Health

"Partnerships for health bring together a set of actors for the common goal of improving the health of populations based on mutually agreed roles and principles.

Partnerships imply that a balance of power and influence is maintained between the partners and that each partner can maintain its core values and identity. They are built on:

- common interest
- mutual respect
- clear manageable objectives
- commitment to contribute time, resources and energy, and
- trust"

Recognising Partnership Diversity

To sustain the community level malaria control activities, there is a need to build a relationship with a wide variety of partners. These could be:

- NGO sector
- Private sector
- Educational sector
- Other developmental sectors including agriculture, irrigation, construction, industry, etc.

Evolving Partnership Process

"Partnerships do not just come about. They need to be built with skill, care and mutual trust. A partnership strategy needs to constantly keep in mind each of the following steps:

- identifying opportunities
- identifying potential partners
- selecting the most suitable partners
- negotiating / reaching a clear partnership agreement
- maintaining the partnership
- regularly evaluating the partnership."

Partnership Criteria

"Partnerships should meet three basic criteria:

- the partnership should lead to significant health gains
- the health gains should be worth the effort involved in establishing and maintaining the partnership.
- the partnership should strengthen the programme's role as a catalyst for health development."

"Partnership is an alliance in which individuals, groups or organisations agree to:

- ***work together to fulfill an obligation,***
- ***undertake a specific task,***
- ***meet a shared objective,***
- ***share the risks as well as the benefits,***
- ***review the relationship regularly,***
- ***revise the agreements as necessary"***

4.1 PARTNERSHIP WITH NGOs

Context

i) **The role of NGOs especially the voluntary agencies (not for profit NGOs) is being increasingly recognised in planning and policy circles** as an effective complementary/ supplementary strategy.

ii) In the past, they have played this role without much governmental support. In recent years a **greater degree of collaborative effort is emerging as a policy alternative.**

iii) **The Voluntary agencies (Volags) have their Strengths**

a) They are closer to the people and usually more aware of grass root realities.

b) They often work in more interior and inaccessible areas or in accessible areas with more marginalised groups and the underprivileged.

c) They tend to be idealistic and committed to certain values and principles.

d) They often have a stronger development orientation and awareness building commitment and skill.

iv) **The Voluntary agencies (Volags) have their Weaknesses as well**

a) They are very dispersed and individualistic and not woven into any integrated network.

b) They are often aloof from governmental programmes having their own programmes and agenda,

c) They are very diverse in their size, type, ideology, focus, distribution, lineages and professional competence.

d) They are inadequately informed about governmental programmes and initiatives and often lack adequate professional expertise being stronger in motivation rather than in skills.

e) They often follow fund driven / donor driven agendas.

f) They are also not often present in areas where they are needed most.

v) It is a very important development that the opportunities of government - non-governmental collaboration are being increasingly promoted in recent years though involvement in malaria care is still not significant. The evolving process should build on NGO strengths but it is necessary to be alive to NGO weaknesses as well. These vary in different countries of the region.

4.2-2

4.2 AVENUES / AREAS OF PARTNERSHIP

A. Community awareness

As the NGOs work with the local communities, they understand the community dynamics and the local culture. Any community awareness programme should be relevant to the local context and hence working with the NGOs as partners could greatly enhance the efficacy in the community awareness programmes. Developing IEC material relevant to the local context and carrying health messages through indigenous and local methods will have greater acceptability and adoption and could be a major role for NGOs.

B. Community planning

Most of the organisations promote participatory methods of problem identification and planning. This favours bottom up planning and ownership of the programme by the community. In the area of vector borne diseases, this will be a good strategy for control mechanisms and the government could use this expertise available with the NGOs.

C. Community mobilisation

As mentioned earlier this is one of the great strengths of the NGOs. A recent example of this has been the pulse polio programme. Similar strategy could be adopted for vector control and personal protection measures, and this should be seen as a positive aspect in partnership.

D. Socio epidemiological research

Unfortunately there are very few good local and community based research studies so essential to have policies on control of vector borne diseases. Studies like KAP, community behavioural pattern, health seeking behaviour etc., could throw a lot of light for effective strategy formulation. Here the NGOs could play a larger role and this partnership will enhance efficacy of the work.

E. Diagnosis and treatment

As the NGOs are the first level contact in the community, access to diagnosis and treatment could be made available nearer to the community. They also could be involved not only in case finding but also on follow up of patients. (A few NGOs could be trained in this direction as an approach to partnership).

F. Epidemic preparedness

A few NGOs could be built as resource centres for epidemic preparedness as they are closer to the scene of action. Here the partnership will enhance the effective control of the epidemics in epidemic prone areas.

4.3 GUIDELINES AT DISTRICT LEVEL

A. Identification of NGOs in the districts The State coordination cell will develop tools for partner appraisal and accountability in choosing the right type of partner for the control programme.

B. Setting up district coordination committee The district health malaria officer will form this committee with some NGO representation. The basic function of this committee would be to appraise the NGOs, proposal and budget screening, and working out a time plan of activities.

C. Sensitisation and capacity building of the NGOs The committee will conduct a workshop of the identified NGOs to sensitise them on the issues of vector borne diseases and do a need assessment to look at gaps in the skills. This committee will also identify resource persons in the district to build the skills of the NGOs, especially in areas of diagnosis, treatment and vector control.

D. Information dissemination The district committee will develop appropriate information and programme guidelines for various activities for the NGO partners on the health issues identified. This in turn will be further simplified by the NGOs for community level dissemination.

Information from the community also will be received, sometimes through the NGO at the district level for follow-up. This may be documented systematically or could be taken up for policy advocacy work.

E. IEC materials The committee will encourage production of community specific IEC materials which can be used in the local context. This committee can over a period of time review the impact in the community due to this IEC, which may then be documented. Local artists, school teachers and school children can be involved in generating local materials. Local folk arts and folk media may be used to evolve themes relevant to the malaria programme.

F. District level action plan The district coordination cell will ensure that each district has an action plan worked with the help of NGO partners. This may be presented to the cell and queries clarified and approved.

G. Participatory planning and monitoring The committee will encourage the use of participatory tools for programme planning and monitoring. Other than this, the committee also will develop indicators as MIS for bringing out reports and to measure outputs.

H. Monitoring and review The committee along with the partner and community will conduct this review at regular intervals to give direction to the programme.

I. Advocacy The committee along with the partners and networks will take up local issues for advocacy. This may be at the local government level or at the district level

J. Documentation

This is usually the weakest area in the NGO sector. Enhancing the documentation skills of NGOs involved in the programme are an important adjunct activity and should be promoted. Learning from field experiences both positive and negative are an important adjunct to group learning.

4.2.34

4.4 RECOMMENDATIONS FOR STATE / NATIONAL LEVEL

A. Dialogue with key agencies

The government should have a meeting with the key NGO coordinating and resource agencies whose priorities are on health and communicable diseases to work out collaborative mechanisms. A clear terms of reference should emerge on the modes operandi, roles and the financial commitment. Usually these agencies would work through their partner organisations and the government should also work out a Terms of Reference for working through them.

B. State level nodal NGO

The government should identify nodal agencies in each state as a "single window system" for building up collaborative alliances, identification of NGO partners, mobilizing resources, etc.

C. Database on NGOs

Government along with the nodal agency should develop a data base on NGO working in the respective state and classify them according to their focus of work (like agencies working on vector borne diseases, health care, etc).

Where a data base already exists this should be reviewed and constantly updated.

D. State level workshops with NGOs

The government along with the nodal agency should organize a workshop to discuss the challenges in vector borne diseases and to appraise the key role the agencies have to play in collaboration with the government.

E. Formation of a State coordination cell

Along with the nodal agency a coordination cell could be formed to appraise the NGO partners, review and approve the proposals sent by them, approval of funds. This cell could also play a role in taking up advocacy issues raised from the districts.

F. **Approval procedures of proposals from partners**The state coordination cell using expertise of some coordinating national and international NGOs could evolve forms / formats for proposals writing and develop guidelines for approval procedures.

G. **Identify themes for social epidemiological research**

This could be identified by the cell at the district level. The cell could identify experts to conduct this study at the community level and facilitate / support them.

H. Policy advocacy

Issues raised from the district could be related to policies or policy implementation. The cell would develop strategic alliances with agencies involved in advocacy work to take up the issues for policy advocacy and policy reform.

4.5 PARTNERSHIP WITH PRIVATE SECTOR

Range and Diversity

Private sector at district level would consist of one or more of the following groups:

1. Health Care Providers:
   - General practitioners of all systems of medicine
   - Dispensaries, hospitals and nursing homes
   - Laboratories and diagnostic centres
   - Chemists and pharmacists

2. Health Product manufacturers of:
   - Pharmaceuticals
   - Insecticide
   - Bed nets and personal protection equipment.

3.Non-health private sector including corporate sector, small scale industry, construction, engineering, etc.

4.5.1 General Principles

- All the above groups would need guidelines on Scientific Diagnosis, Presumptive and Radical treatment, Prevention and Control measures. (Emphasis on these components would vary depending on the activity of the group. For example, the medical profession would focus on prophylactic preventive measures and bio-environmental control measures whereas the Architects and Building Contractors would focus more on designing and constructing houses which would prevent mosquito breeding and entry. Similarly overhead tank manufacturers would focus on manufacture of tanks that deny entry to mosquitoes so as to prevent their breeding inside the tank).

- Providers of care should adopt scientific diagnosis and treatment of malarial cases. It was also recognized that there would be variation in the regimens used in some parts specially where resistance is widespread or where Plasmodium falciparum happens to be the predominant pathogen. However, in all regions guidelines on management of malaria cases as applicable in the region have to be strictly followed.

- All healthcare providers should also be aware of different types of malaria and their presentations and when and where to refer if need arises. The programme officer should properly instruct on the above and on the need for notification of all proven cases. He should ensure that all private health care providers are well versed with environment control measures of mosquito borne diseases. The programme officer should also stimulate the private sector in taking part in malaria control activities.

- All guidelines should be made available widely and promoted at every available opportunity. Private sector involvement in their publication and distribution is possible.

4.5.2 Guidelines

1. Building a partnership with all the above would involve the following steps:

Step One

Identifying all potential partners from each of the groups above at the district level.

Step Two

Sensitising them and making them aware of various aspects of malaria control by organising meetings with them.

Step Three

Helping them adopt malaria control initiatives in their own work places, and

Step Four

Identifying the role and the contribution they could make to the programme.

Each of the above groups could contribute to the programme in various This would vary with different groups:

A. Health Care providers.

They should be encouraged to:

- adopt scientific and rational diagnosis and treatment of malaria.
- provide referral support wherever feasible.
- Support IEC at patient, family and community level in their area.

For this purpose CME (Continuing Medical Education) programmes, bulletins, newsletters and handouts may have to be prepared in collaboration with professional associations/institutions. The CMEs must update the health care providers on all aspects of Rational Malaria Care and Control. They must also counter irrational practices and approaches that are not uncommon (see Box below).

CONTINUING MEDICAL EDUCATION PROGRAMMES

CMEs must specifically address the following trends in malaria control in the private sector:

1. A use of a wider diversity of irrational regimes and combinations often at a high cost to the patient and totally at variance with the national malaria guidelines.
2. A tendency to exploit the illness episodes by the use of injectable preparations and other adjuncts not in consonance with the principles of rational malaria care.
3. A tendency to see the 'outbreak' or 'epidemic' as an opportunity for gain rather than as an opportunity to be actively involved in a national health programme and national efforts to tackle a major public health programme.
4. These trends are further complicated by an increasing fall in clinical diagnostic standards and inadequate recourse to lab diagnostic facilities. The clinical laboratories also have been showing a lack of quality and standardization even when they are available and utilized.
5. Further some degree of medical misinformation by medical representatives pushing their company's remedy against the other to enhance profit margins even when low-cost generics are available is a growing problem.
6. The obvious result of such continued, irrational medical practice is reflected in the increasing problem of drug resistance, as well as the continuation of unnecessary and avoidable suffering.

B. Health Product manufacturers

Opportunities should be explored with all local manufacturing industries to produce malaria control related products that are low-cost and appropriate to the local needs;

- Nets
- Mosquito repellants
- IEC material
- Drugs

The private sector, specially the manufacturers and distributors should adopt rational production, good manufacturing practices, fair pricing, ethical marketing and sales of all malaria prevention and control products. Pharmaceutical companies manufacturing and promoting anti malarial compounds should provide rational formulations and produce single ingredient products and drugs in the recommended dosages only.

C. Non-health private sector

They could be harnessed at district level for providing the following:

- Financial resources for the programme
- Promotion and marketing skills.
- Taking steps to prevent mosquitogenic conditions in their institution / project areas
- Support IEC

The private sector usually has very good marketing and retailing skills. These could be fruitfully shared with Non Government Organizations and other

voluntary organizations working in the field of malaria specially those involved in social marketing.

"Today more than ever public health institutions world wide need to re-define their mission in the light of the increasingly complex environment in which they operate"

Julio Frenk

What is for ?

Recommendations at State / National level for Government – Private Sector partnerships

- The private sector specially the Corporate Sector should be approached for financial and other resources for the control of vector borne diseases. Many corporate sectors have their own townships. They should take all necessary steps to prevent malaria transmission in these townships as well as all other vector borne diseases mainly through environmental and biological control measures.

- Prior to the sanctioning of manufacturing licenses, all new industries and projects should have a health impact / malaria risk assessment. Drug industries should meet ISI norms and standards for their products used for malaria management and all insecticide manufacturers should follow WHO guidelines. To facilitate this, collaboration with CII and other bodies should be formed.

- National, State and District data base specially on malaria morbidity and mortality, health personnel and health care institutions of all systems, active players and groups from the private sector and other sectors involved in malaria activities are required for proper programme implementation. It is also important to have all demographic and resource data and plan for adequate funding and obtain all necessary resources for successful partnership with the private sector.

- To prevent misuse of anti-malarials, second and third line of drugs should be made available at tertiary care level centres and some identified institutions only. No sale of these drugs should be allowed at other centres/places and even in the identified centres these drugs are to be dispensed to those having a proper prescription only.

- Therapeutic guidelines for treatment for insurance purposes should be issued thereby making insurance bodies effective regulators for care as per stated guidelines. Claims of those claimants that have not had treatment as mentioned in the guidelines should not be honoured.

- All private practitioners and institutional staff should be encouraged to implement national drug regimens for all cases of malaria. To facilitate this, booklets on malaria with all necessary information are to be widely distributed and also presented to all new graduates.

- Undergraduate courses in all medical fields should ensure that students receive adequate training in malaria, are competent in its diagnosis and management and are able to provide correct advice on prevention and control measures.

- All professional organizations (Homeopathic, Ayurvedic, allopathic) are to be involved.

- For those who have completed their courses continuous educational programmes should be organized on a regular fashion and participants should be given recognition of having attended these courses in the form of certificate of attendance and or competence.

- To obtain cooperation from industry as well as in training various groups like traditional practitioners, Registered Medical Practitioners, etc. Non Governmental Organizations with requisite capacity should be identified and involved. Linkages between these organizations should be encouraged so that they can utilize IEC capacity, should be involved and requested to contribute to IEC activities for malaria.

A Word of Caution

Partnership with Corporate sector

1. **"Partnership with the corporate sector at all levels from global to local are essential.** The public health sector has not and can not make sufficient health gains on its own. Developing partnerships with the corporate sector is a matter of balancing the potential benefits to be gained against risks. The stakes are not trivial"

2. **"The risks in developing partnerships with the corporate sector include the possibilities** that,

(a) the government / programme reputation will be used to sell goods and services for corporate gain, thus diminishing government / programmes reputation as an impartial holder of health values,

(b) Government / programme's judgment on a particular product, service, or corporate practice may be compromised by financial support provided by the involved company or industry, and

(c) Government / programme involvement with an industry or company is perceived as acceptance by government / programme of unhealthy products, services, or practices".

3. **Government / Programme policy toward the industry involved**
"The involved industry must be a suitable partner for government / programme. The following questions which must be asked when developing a policy toward a specific industry:

- Are the major products or services of the industry harmful to health?
- Does the industry engage on a large scale in practices which are detrimental to health?
- Is the influence of government / programme's role in the partnership likely to do more good than the damage done by harmful practices, products or services?"

"Health provider organizations, the pharmaceutical industry, health care technology industries and similar organizations are generally quite suitable partners. The tobacco and arms industries, which have indisputably negative health impacts, are clearly not suitable partners. Many industries such as transportation industry, fast food industry, and chemical industry have both a positive and a negative impact on health."

4. **"Suitability of the individual company**
Even when an individual industry is a suitable partner, individual companies may not be. Additional factors to consider in evaluating partnerships with individual companies are:

- the occupational health conditions on which products or services are produced
- the environmental commitment of the company
- the marketing and advertising practices of the company
- the research and development policy and practice of the company
- the regulatory adherence of the company
- but also the subsidiary / combine has to be looked at
- no past activities (not to exceed 3 years) which might affect objectivity, credibility of government / programme".

5. **"Appropriateness of the individual activity**
Partnerships often focus on a specific activity or set of activities. Most categories of activities proposed in the context of a government / programme partnership will be appreciate, since they will aim at specific health policies or health practices. However, the following categories of activities are not appropriate within a government / programme partnership:

- activities which involve conflict of interest or perceived conflict of interest
- activities which benefit the corporate partner, but provide no clear health benefit, benefit to government / programme or benefit to Member States.

Conflict of interest is of particular concern for government / programmes involved in setting regulatory standards and other norms which may affect product costs, market demand, or profitability of specific goods and services".

6. **"To avoid conflict of interest – real or perceived –the concerned government / programmes must establish procedures** which ensure that

(a) final normative decisions are free from undue influence,
(b) industry funding is not used for salaries of staff involved in normative decisions, and
(c) consultations and other normative activities never have their majority financing from the concerned industry.

In the context of an on-going partnership, some proposed activities may service public relations and other interests of the external partners, but have no clear health benefit. In general, such activities should be avoided."

repetition page

Recommendations at State / National level for Government – Private Sector partnerships

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- To obtain cooperation from industry as well as in training various groups like traditional practitioners, Registered Medical Practitioners, etc. Non Governmental Organizations with requisite capacity should be identified and involved. Linkages between these organizations should be encouraged so that they can utilize IEC capacity should be involved and requested to contribute to IEC activities for malaria.

4.5 PARTNERSHIP WITH AGENCIES INVOLVED WITH EDUCATION OF CHILDREN AND YOUTH

A) Principles

1. Target for behavioural change

- School and college going children (6-21 years)
- School drop-outs
- Children with no formal education.

2. Partners

- Local schools – primary, middle and high schools.
- Colleges
- Non-formal education.

(to enhance these local partnerships, there should be dialogue between the government / programme with directorates of school / college education, technical education; medical and agricultural organisations etc.,)

3. What is expected from children and youth:

- know cause and control of malaria, change attitude and practice preventive measures
- involve in health education campaigns to create awareness among community
- participate in mosquito breeding preventive measures (in and around educational institution)

4. What is the role of partners?

- inclusion of health education in school / college curriculum
- motivate the students
- mobilize their participation in preventing mosquito breeding
- involve them in community awareness programmes.

B) Guidelines for advocacy for partnership in school / college health education

District level

i) Involve the education department in celebrating malaria month by carrying out anti-malaria activities on the occasion.

ii) Involve science clubs and science networks in increasing awareness about anti-malaria activities amongst children and youth.

iii) Conduct seminars / guest lectures / demo-exhibitions / field trips / essay competitions / debates appropriate to the level of schooling / education.

iv) Explore the possibility of inputs by teachers and students into fairs and festivals.

v) Including the practice of vector-control activities by students and youth in scout movements, national defense and social service auxiliary corps.

vi) Exposing students and youth to various aspects of malaria by including malaria related activities and experiments as project work in the curriculum.

vii) Initiating debates / competitions between schools, colleges, and universities on malaria control and on vector control to create widespread awareness.

To sustain the above:

- Have regular meetings with teachers and staff involved in education.
- Have capacity building/training sessions for volunteers, teachers and high school students.
- Organize events at regular intervals to maintain the interest and tempo of awareness activities in the educators and the students / youth.

C) Guidelines For Advocacy With Agencies Involved In Non-Formal Sector Of Education

Agencies like NGOs, Slum Welfare Boards, Social Welfare Boards and the educational department that are involved with street children, child labour and school dropouts must also be encouraged to increase awareness about various issues regarding malaria through appropriate efforts from those mentioned in the guidelines above and those given in section on partnership with voluntary agencies.

Content Clarity

Some or all of the answers to the following questions must be included in the awareness / education programme depending upon the target age. The content needs to be presented in interesting, interactive forms whereby the children and youth can learn from participating in situations and role plays that make a lasting impression. The questions are:

a) What is malaria ? b) How is malaria transmitted? c) How do mosquitoes breed? d) Where do mosquitoes breed? e)How can we stop mosquito breeding?

f) How can fishes be used to eliminate mosquito breeding? g) How can we protect ourselves from mosquitoes? h) What are the disadvantages of insecticides?

j) What should we do in case of fever? k) What can we do at village / community level to tackle the problem?

D) To support advocacy for partnership in school / college health education at local levels some partnership at State / National level are also useful

State / National Level

i) Approach the education secretary or vice-chancellors through appropriate forums to incorporate various aspects of malaria in the school or college curricula respectively.

ii) Prepare (or adapt and translate) audio / video / audio-visual / print material for IEC appropriate to local needs and for the target audience, designed after pre-testing them successfully.

iii) Encourage the education department to train teachers and to prepare educational material on malaria.

iv) Approach polytechnics / engineering / architecture colleges and institutions to promote and stress on designs that prevent vector breeding.

v) Encourage medical colleges to appropriately enhance the scope and content of malaria in the syllabus and in examinations.

vi) Promote agricultural practices that use appropriate technology for water-management to prevent vector-breeding through Agricultural Colleges and Krishi Vigyan Kendras.

vii) Organize workshops for training health educators / health illustrators and trainers in appropriate communication skills and for preparing communication materials that attract and interest the children / youth.

viii) Collect quantitative and qualitative data from the state / local area on morbidity and mortality from malaria, and work out the impact of awareness / educational programmes on the situation, in order to make more effective advocacy materials.

ix) Explore the options of using internet and other futuristic communication tools to enhance the reach and update content of awareness / educational programmes.

x) Approach open universities and distance learning institutes for starting / including courses on malaria and vector-borne disease control in their list of courses.

xi) Understand the educational process in order to identify and exploit every opportunity to include malaria and vector-borne diseases in all curricula.

xii) Send regular feedback to the agencies involved in education regarding the progress of their efforts in combating malaria and their impact on malaria, to generate a sense of true partnership with comments and suggestions.

Case Study 3

School Health Education on Malaria in Goa – I

With an aim to make students in schools of Goa malaria literate, a systematic education programme was devised and initiated in Goa, in 1992 by Malaria Research Centre, Goa, in collaboration with Indian Red Cross Society, Goa. This programme was implemented in phases starting 1992 when 81 schools were enrolled targeting 16211 students from 8th to 10th standard. In 1994, this programme was extended to Higher Secondary classes up to 12th standard and by 1998, 227 schools participated in the programme targeting 53,462 students throughout Goa.

The aims and objectives of the programme were us under:

1. To introduce teaching on Malaria in the entire state of Goa in school children through Junior Red Cross (JRC) and Youth Red Cross (YRC) components in Secondary and Higher Secondary classes.

2. To train JRC and YRC counsellors (Teachers) to impart malaria education to the students.

5. To prepare curriculum on malaria and seek its ratification from Goa Board of Secondary and Higher Secondary Education.

4. To reach community through these students and teachers so as to train and involve people in the vector and disease control process.

5. To undertake field projects on malaria with the help of Red Cross counsellors and volunteers (students) wherein the local community is exposed to the problem and its remedial measures.

6. To prepare a cohesive force over a period of time in the community who would practice the mosquito / vector control in their day to day life and also continue to disseminate the self action idea to others in future.

Training of Red Cross Counsellors

Thirteen State Level Workshops have so far been organised by the MRC and Red Cross for imparting Orientation training to 808 teachers with the understanding that organisational and technical responsibility will be shared by the Red Cross and MRC Goa Field Station respectively.

The technical aspects of training included lectures, preparing course material, hand outs, audio visual aids, and films and exhibitions on malaria. 61 exhibitions were organised for 24,133 students in 232 schools.

(contd.....)

The exhibitions on malaria included:

1. Immature and adults of Anopheles, Culex and Aedes mosquitoes explaining the life-cycle and their distinguishing features.

2. Models of domestic and peridomestic breeding habitats. These focussed upon man's negligence and indifference which may support the growth of mosquito populations.

3. The control aspects demonstrated, consisted of:

i. Larvivorous fish such as Aplocheilus blockii, Rasbora daniconius, Gambusia affinis and Poecilia reticulata devouring mosquito larvae and pupae.

ii. Bacillus thuringiensis and Bacillus sphaericus samples.

iii. Expanded polystyrene beads (EPS) forming a top layer on the water in the model of an unused well.

iv. Models of air-tight overhead tanks and sumps, highlighting the mosquito-proof arrangements such as the lid assembly and the sieved overflow pipe opening.

v. Models showing efficient drainage of water from terraces and water channels to avoid stagnations responsible for mosquito breeding.

vi. Personal protection methods such as mosquito nets and window screens.

vii. In addition, blood slides with P. vivax and P. falciparum parasites were shown under the compound microscope. Charts showing the life-cycle of a malaria parasite, the need for early detection and treatment of malaria cases and the importance of species-specific treatment of malaria were also displayed.

viii. A set of panels highlighting various aspects of malaria in the urban and rural settings were also exhibited.

ix. Handbills containing tips on self-action for the prevention and control of malaria were distributed.

Reference Text for the Training of Teachers

A book entitled "Elementary Malariology" has been published by the Goa Board of Secondary and Higher Secondary Board authored by Dr. Ashwani Kumar, MRC, India.

4.7 PARTNERSHIP WITH OTHER SECTORS (Intersectoral Coordination)

A key feature of the RBM Initiative is the focus on inter-sectoral coordination symbolizing that malaria should be everyone's concern and not only the responsibility of the health ministry / department. The coordination committee / core group mentioned in the leadership guideline also reflects this inter-sectorality.

The coordination committee and the district health / malaria programme officers should dialogue with different departments and explore their supportive involvement in many different ways.

A) Agriculture

The agriculture department can be involved in:

- IEC activities for agricultural community
- Source reduction to decrease mosquitogenic conditions
- Promotion of larvivorous fish hatcheries
- Introduction of larvivorous fishes in water bodies in selective high risk areas.

B) Urban Development

Urban development department can help in:

- Awareness of byelaws / legislation
- Source reduction drive
- IEC activities particularly for slum dweller and migrant labour
- Promoting guidelines for construction and maintenance of
  - Roads
  - Safe drinking water supplies
  - Sewerage systems
- Orientation of engineers from different sectors for their involvement for the malaria control activities.

What about other sectors ?

Note

Similar partnerships can be evolved at local / district level supported by National / State level partnerships with all the other ministries and departments as well -including Forestry, Industry, Mining, Social Welfare,Railways, Defence, Irrigation, Power, etc,. and so on. Specific guidelines for thes have have not been outlined and these will vary from country to country.

REMEMBER!

The following strategic directions will mark the work of RBM over the next 5 years

- An integrated approach for health promotion and disease prevention, addressing the major communicable diseases that shares the same risk factor as the focus for primary prevention initiatives.

- Promoting equity by strengthening interventions focusing on disadvantaged populations and by developing acceptable standards of health care. Focusing not just on disease burden but also on cost effective interventions.

- Primary preventive initiative will be incorporated into the primary health care in a strategy that is based on community mobilization and intersectoral action.

- Expanding the role of the media through partnership in advocacy and disseminating information on healthy lifestyles and primary prevention against malaria.

- Strengthening advocacy and raising awareness in malaria control among policy makers, health professionals and the general public.

- Enhancing the role of the health professionals in health promotion and disease prevention as key strategy in prevention programmes.

- Effective approaches to support communities, families and homes in the prevention of common health problems.

- Mainstreaming RBM into the health sector development, integrating health care delivery and management of support system.

- Form new partnerships with other agencies and potential donors based on sector approach to health development.

Case Study - 2

Tackling Malaria in Rural Gujarat

[SEWA – Rural is a voluntary agency that has provided health and development services extending from the nucleus of a small rural hospital in Jhagadia. This case study highlights the key features of the experience with malaria control]

- As an NGO we had taken over a PHC and done mainly surveillance and presumptive / radical treatment of fever just as any other PHC is supposed to do.
- After four years we realised we were getting nowhere and malaria prevalence was changing inspite of our efforts; so we decided to look at feasibility and efficacy of introducing simple vector control measures.
- We took a study and control population and monitored fever cases (smears) round the year and vector density (standard procedures) fortnightly.
- Interventions included simple engineering measures, fish, kerosene and very rarely insecticide (for one-time use to curb exceptionally heavy breeding sites).
- Interventions and Monitoring were done by Male Multipurpose workers and supervisor after due training and alongside routine 'PHC work'. The female health workers took on some extra load (of other work) from the male workers.
- We also took the community's help, especially school children, informally.
- Ongoing informal health education was given to people about mosquitoes and malaria.

Result

GUIDELINE FIVE

COMMUNICATION FOR BEHAVIOUR CHANGE

[Note : These guidelines are for National / State / District programme managers who organise IEC activities. Different guidelines are more applicable to one level or the other. Each country programme will have to decide at what level the guideline will apply]

5.1 Organise IEC Strategy and Materials

A) Carry out a formative survey which consists of the following

- Situational analysis of the knowledge, attitude and practice (KAP) regarding malaria and vector borne diseases (if already available than that information / survey may be used)

- Identify behavioural gaps against acceptable behaviour – promotive, preventive and health seeking related.

B) Set an action plan for IEC strategy based on district level RBM strategy and based on
assessment made in (1) above

- Identify possible target groups to focus upon in the IEC strategy
- Define media / channel / method to be used
- Schedule the programme initiatives
- Assign responsibility.

B) Prepare directory/inventory of all available educational materials and collect them. This may be entrusted to one partner with appropriate experience and may obtain information from all the potential sources .

C) Develop IEC materials (as and when necessary, especially if not available or are not adequate / relevant)

i) **Design messages**

Prepare a list of messages that are generic and applicable to all populations; that are scientifically accurate; acceptable to or approved by peers in malaria control; focusing on action points; structuring educational materials correctly, such as minimum lines per poster

- Messages should be prepared for different groups.
- The messages relating to vectors should be area specific depending on whether it is forest; border; revenue; tribal; construction site; industrial; irrigation site; domestic – urban, overhead tanks, coolers, water pots; drinking water for animals; coconut shell; car tyres.
- Messages should be region specific such as handling run off water from hand pumps, covers for manholes, etc. (Picture of hand pump). Simulation games may be developed for health workers and school children to highlight messages.
- There is a need for developing appropriate communication methods for the illiterate populations.

ii) Pretest the messages

iii) Revise the messages if required after pretesting

iv) Produce IEC material

Explore local, decentralised, low cost production

E) Distribute, disseminate and communicate the IEC materials ~~and product~~ as planned (Identify person/institution in-charge at all level)

The message dissemination will consist of

- Product/Service distribution such as printing and electronic media
- Using mass media such as local radio, television, news paper and traditional media
- Face to face communication (individual and group) such as training, orientation seminars, workshop and field visits.

5.2 Communication strategy - principles

A) Communication strategy based on interactive participatory two-way approaches should be planned and some of the principles to be followed are:

- This is to be a two way process.
- Qualitative and participatory methods which facilitate two-way communication are to be taught to health worker.
- Communications skills also need to be taught to health personnel by some one who is committed and capable.
- Catchy events and events from the life of important people may be used for communication.
- Communication should be simple, straightforward and direct.
- Communicators are encouraged to listen to what the community has to say before they plan messages.
- Communication must be adapted to the four phases namely that of awareness, knowledge, attitude and practices.
- Tools should be developed for each phase.
- Role plays should be utilised for attitude change, emphasizing how people don't do certain things in a particular way.
- Community should know where blood smear is carried out.
- Teaching the skills of blood slide-making is a high priority.
- Health education or behaviour modification strategies may be adopted, analysed in a socio-political perspective
- Communication should use the curricular approach with observable, measurable, feasible and relevant objectives. These should be provided after obtaining community feedback. It should be learner oriented rather than teacher oriented.
- IEC materials are for self learning and group education.

5.3 Communication Methods

A) Information materials could include:

- ✓ Posters
- ✓ Handbill
- ✓ Flash card
- ✓ Booklets
- ✓ Video cassettes
- ✓ Audio cassettes

Maintain quality of education with respect to the choice of a language that is simple, unambiguous in mother tongue focusing on specific spoken dialect, with emphasis on marginalised and tribals.

B) The following methods of interactive education are to be utilised:

- ✓ Role play;
- ✓ Street theatre;
- ✓ Folk songs;
- ✓ Exhibitions;
- ✓ Puppet shows;
- ✓ Jathas

Folk artistes should be treated as professional at their own level and should be reasonably remunerated.

5.4 Innovations

A) New and innovative methods of communication should be evolved and experimented with

- Colouring books / sheet on mosquitoes and malaria control.
- Develop educational toys around the theme of malaria.
- Activity modules for science experiments
- Audio visual material on the human stories about malaria, for example 'why did Mr. Y die ?' reflecting a death due to malaria should be produced.

Case Study 3

Evolving a Community Strategy to keep villages Malaria-free

[The Uttari Rajasthan Milk Union Limited (URMUL) Trust is a farmers' cooperative that organises an integrated rural development programme with health care being an important component of the diverse development package. They were actively involved during the malaria epidemics in their area of operation in recent years and tried to evolve strategies to keep their villages free of malaria deaths]

Aim: To keep our villages free of deaths from Malaria

Our limitations

1. One lab technician for our 30000 population scattered over 2500 kms. and also doubling as Health Coordinator.
2. 3 PHCs and 1 CHC as referral support andnumerous RMPs and quacks – none of them under our control.
3. No data for 1994 but government data put API below 2 everywhere so no spraying could be done.
4. Literacy levels of women <5% and males below 20%.

Our Strategy

a) Drug Distribution Centres with teachers who were trained for the purpose.

b) Chloroquine taken from government and replacement made every month.

c) Modified Fever Treatment Depots with our own workers.

d) Presenting our findings on fortnightly basis to CHC, CM & HO, Dy. CM & HO – Malaria, District Collector and Divisional Commissioner to galvanise action on behalf of district authorities.

e) Posters procured from government and pasted all over.

f) Pamphlets in Hindi for all educated people and RMPs and quacks.

g) Street theatre and puppet shows by our communication team in each village.

h) Placing slides with RMPs etc., to help in monitor patients.

j) Introduced larvivorous fishes in own campus to help staff gain confidence in method and effect.

k) Holding and referral facilities for the serious at our headquarters centre.

Results Succeded in our pledge to prevent malaria deaths.

URMUL TRUST, Rajasthan

GUIDELINE SEVEN

7

MANAGEMENT OF SEVERE MALARIA

Although it may not be possible for lay people to understand and distinguish severe malaria from other types of fevers with complications, it is desirable that some members of the community understand the effects of severe malaria and the principles of treatment at various levels of care. This would ensure reasonable expertise available at the community level to help select the appropriate level for referring the patients of severe malaria for the earliest treatment.

~~Needless to add~~, the information in the following paragraphs should form part of the curriculum for frequent refresher trainings for all levels of health workers – including nurses and doctors -- in malarious areas and as continuing medical education for local practitioners.

7.1 What is severe and complicated malaria?

Any patient with asexual forms of *P.falciparum* in peripheral blood smear showing one or more of the following complications is labeled as severe and complicated malaria. (WHO criteria 1990)

- Cerebral Malaria - Unrousable coma, after exclusion of other causes of coma. At least 30 minutes or more after seizure the coma must continue to distinguish it from post-ictal state.
- Severe anaemia - Hb < 5 gm %
- Acute renal failure - S. creatinine > 3mg/dL
- Acidosis - pH<7.2
- Hypoglycaemia - Blood glucose < 40 mg/dL
- Spontaneous Bleeding or DIC
- Massive I.V. Haemolysis with Heamoglobinuria
- Acute Pulmonary Oedema or Adult Respiratory Distress Syndrome
- Malaria shock or algid malaria
- Repeated generalised convulsion

Minor Criteria

The following minor criteria when present may also help the health worker in tilting the diagnosis to severe malaria in case of doubt.

- Hyperpyrexia - Core temp > 104^{O} F OR 40^{O} C
- Jaundice - Bilirubin > 3mg/dl
  - Hyperparsatiaemia - > 5%

However, health workers, auxillary nurse midwives, community health volunteers, FTD workers and community leaders must be made

Treatment of severe malaria must not be delayed by diagnostic procedures.

aware that they must urgently refer *any patient of fever with the following features as they indicate severe malaria*:

⇒ altered mental state
⇒ convulsions/fits
⇒ unconsciousness
⇒ blood in urine
⇒ severe pallor
⇒ high jaundice

- **Smear negative cases coming from endemic areas must be treated as for malaria unless otherwise proved.**
- **Any fever should be treated as cerebral malaria whenever there is little change in sensorium or change in behaviour.**

7.2. Diagnosis and Clinical Features

Diagnosis needs to keep the clinical features listed above in mind, but wherever possible, it should be supported by a laboratory diagnosis.

a) Peripheral blood smear for malarial parasite. Repeat if negative
b) Dipstick method (wherever available)-- epecially useful in cases of
   - Low parasitaemia
   - Partially treated cases

Clinical Features

Patient enquiry

- Travel history to /from malaria endemic area must be taken.
- Duration of illness, particularly coma as described earlier
- Treatment history needs to be taken to prevent overdosage or correct interpretation of lab results.
- Pregnancy/delivery needs to be kept in mind for all women with malaria for choice of drugs, esp., Primaquine.

7.3 Physical Examination

Look for
- Anaemia ! Look for features
- Jaundice ! of severe malaria
- CNS - (including meningeal signs) ! as described in 7.1
- Respiration !
- B.P./Pulse !
- Urine output !

7.4 Investigations

Different investigations may be carried out depending on the level of faciities available. ***However, it must be reiterated that treatment of a case of severe malaria may be started based on clinical suspicion without any laboratory investigations in the interest of the patient's life.***

*A. **Primary level** (sub-centre / FTD / DCC/ community level)*

Blood for malarial parasite - blood slide to be taken.

B. Secondary level

Blood glucose to check for hypoglycaemia.
Hb to identify severe anaemia.
Bleeding Time ! To identify Algid Malaria
Clotting Time ! at the earliest.

C. Tertiary level (Hospital / District level)

Blood urea) For severe malaria affecting
S. Creatinine) the kidneys.
S. Bilirubin ! To confirm if jaundice is
Liver enzymes like ALT & AST ! due to haemolysis.
Lumbar puncture To rule out bacterial meninigitis.

7.5 Management

A. **Primary level** (sub-centre / FTD / DCC/ community level)

- General Nursing care
- Treatment of high fever.
- Adjunctive therapy
- Chloroquine or other anti-malarial as per national guidelines.

? for community + family can do. and need more explanation

Patients should be referred to the secondary level (PHC / sub-district hospital) at the earliest along with a note about previous treatment. if what ?

B. Secondary Level (primary health centres /sub-district level)

- All available at primary level.
- Antibiotics/I.V. fluids/Oxygen/Anticonvulsants
- Parenteral Quinine or Parenteral Chloroquine
- Artemisinin I/M - If I/V line not possible.
- Supportive therapy

At this level the physician, gynaecologist and paediatrician should form a team for management of severe malaria cases in pregnancy and after childbirth.

Patient should be referred to the tertiary level hospital at the earliest along with a note about previous treatment if - - what ?

C. Tertiary Level (Hospital / District level)

Few patients will require this level of support and the system needs to gear up to the challenge of malaria at the end of the referral chain.The following are considered essential for such a tertiary referral. Appropriate specialists would also be required to be present to carry out this level of care.

- All available at primary and secondary level
- Correction of severe anaemia.
- Hypoglycaemia to be corrected urgently and watched for.
- Peritoneal dialysis for renal failure.

Facilities for blood transfusion and for trained personnel to carry out simple procedures like peritoneal dialysis need to be created.

If what should be referred to upper level hospital ?

GUIDELINE EIGHT

REFERRAL SYSTEM FOR MALARIA

Each member country in the region needs to establish a good referral system especially to manage the severe and complicated cases of falciparum malaria. Malaria control programs in each country should identify the referral health institutions at different levels of health care delivery system and these institutions should be strengthened to take care of the referred patients. All the health personnel involved in the management of malaria should be trained in identifying the cases and institution to be referred and in the proper management of malaria cases.

8.1 Who should be referred? Criteria for referring malaria cases

The type of the patients to be referred will depend on the available resources at the institution. However, the following patients require special attention therefore should be referred to the appropriate level of medical care.

- Severe and complicated cases of malaria.
- Malaria in children with very high temperature, convulsions, dehydration or disorientation.
- Malaria in pregnant mothers with P. falciparum infection and /or severe anemia.
- Cases of malaria — not responding to known available anti-malarials.
- Malaria cases with continuous vomiting and inability to retain oral drugs.

8.2. Who will and where to refer?

Countries should workout in detail about the type of malaria cases to be referred by health personnel at different level of health care delivery system to appropriate institutions.

Symptomatic treatment as well as a loading dose of appropriate anti-malarial should be administered to all suspected severe malaria cases (depending upon the national anti-malarial drug policy) before referral.

A referral form should accompany the patients indicating history and treatment given before referral. The referral centre must send a feedback to the referring unit regarding the treatment and outcome of the case.

Referral centres should be identified at the District level. Inter-district coordination may be necessary to facilitate the referral of such patients to the ***closest appropriate level of treatment*** even if the facility falls in the other district.

The life of patients is crucial and administrative mechanisms have to be created to facilitate life-saving referrals across district boundaries.

8.3. What facilities should be available at the referral centre?

The minimum facilities required in each referral centre should be:

- Tablets / syrups of basic antimalarials.
- Blood smear for examination.
- Hb estimation.
- Urine R/E.
- I/V and oral Quinine.
- I/V fluids.
- Oxygen
- Oral and injectible antipyretics, anti-convulsants, diuretics and antibiotics.

However, other specialized facilities will be required depending upon the level of referral institution as discussed earlier.

As the mortality due to severe and complicated malaria is highest amongst poor and marginalised communities because of delay in reaching the referral facilities, some mechanism must be worked out in consultation with partners to allow reimbursements for transportation in such cases (as has been permitted in the Reproductive and Child Health Programme in India for pregnant women needing institutional delivery /intervention).

GUIDELINE TEN

DRUG SUPPLY AND MANAGEMENT

Uninterrupted and timely supply of essential anti-malarial drugs and other equipment and supplies are critical needs of the malaria control Program. The objective is to ensure supply of drugs to the user units, in the right quantity, of right quality and at right time. A good drug supply management will prevent either shortages or excess of supplies. Existing administrative units and their procurement procedures for drug supply management should be strengthened. Matters pertaining to drug supply management should be discussed with concerned authorities in the districts to apprise existing bottlenecks and problems in the procurement, storage and supply of drugs. Bottlenecks and problems will have to be removed.

Countries should estimate their individual drug requirements as per the existing Anti-malarial Drug Policy, and maintain adequate stock and ensure proper distribution up to the users' points. An indicative list of anti-malarial drugs depending on the level of health facilities and provision of care may be:

a) Primary level (sub-centre / FTD / DDC)

I). Tablet and syrup Chloroquine
II). Tablet and syrup Paracetamol
III). Tablet Anti-emetic Prochlorperazine/Metoclopramide ! only for
IV). Tablet Antacid ! subcentres
V). Tablet Primaquine !

b) Secondary Level (PHC/ sub-district)

i) All above
ii) Tablet, syrup and Injection Chloroquine
iii) Tablet, syrup and Injection Paracetamol
iv) Tablet, syrup and and injection Quinine (or as per national list)
v) Inj 25%/50% w/v Glucose.
vi) Tablet and Injection anti-emetic.
vii) I/V Fluids
viii) A combination of Sulpha and Pyrimethamine

c) Tertiary Level (Hospital / district)

i) All above
ii) Artemisinin and its derivatives
iii) Dipstick test kits for *P.falciparum* diagnosis.

10. 1 Management of Drug Supply

1. For effectively managing a regular and adequate availability of anti-malarials at all levels, correct estimation of requirements of different drugs for different levels must be made. These estimates must be made on the following information :

    - total number of malaria cases including severe malaria.
    - quantity of various tablets, syrups and injectibles used in corresponding season / period of previous years.
    - average lag - time required for drug replenishment from source and to peripheral levels.

2. An increased requirement during epidemics must be anticipated and worked into the estimate.
3. A percentage of drug supplies must be held as reserve at the district level that may be released as per the requirement of a Epidemic Response Team during an epidemic. The same should be regularly turned over to prevent expiration.
4. Regular visits must be made to Drug Distribution Centres / Fever Treatment Depots, sub-centres and PHCs to discuss the problem faced in drug supply and to ensure sufficient stocks of drug are maintained.
5. Random samples of various drugs procured can be sent for quality control to drug analysis laboratories to ensure quality. It must be mandatory for the suppliers to enclose a copy of the batch analysis report with every batch of drugs supplied along with the bill submitted for payment.

GUIDELINE TWELVE

INTER PROGRAMME LINKAGES WITH SAFE MOTHERHOOD AND OTHER PROGRAMMES

12.1 Malaria and Pregnancy

Malaria is a disease that affects motherhood both directly and indirectly. Malaria by itself can produce anemia, abortions particularly in the first trimester, stillbirth, premature/ low birth weight babies and sometimes even maternal mortality. Besides, deaths due to malaria among children, it causes insecurity in the family, thereby affecting family planning behaviour. Integrating RBM and Safe Motherhood programmes would increase programme effectiveness and efficiency.

12.2 Malaria in pregnancy as part of Reproductive and Child Health (RCH)

Malaria in pregnancy should be included as part of the RCH. This should be incorporated into the syllabus with specific emphasis on antimalarial treatment schedule, chemoprophylaxis and personal protection through use of ITNs and other methods. RCH programme should also invest in malaria control through purchase of antimalarial drugs in emergency situations. Treatment of pregnant women and children should follow the national drug policy on malaria.

12.3 Malaria as part of Integrated Management of Childhood Illness (IMCI)

As is done in African countries, malaria among children should be incorporated as one of the diseases under the IMCI programme. This will ensure that medical practitioners develop the skills for diagnosing and treating malaria in children and in managing complications.

12.4 Links with existing health infrastructure

RBM can establish links with the existing health infrastructure. For example, peripheral health workers involved in the safe motherhood programme can be trained in diagnosis and treatment of malaria. Likewise, private practitioners and traditional healers can be involved in the programme. They may also be used to promote use of bed nets and elimination of mosquito breeding sites and remove misconceptions and false beliefs regarding malaria in the community.

The main thrust of training should be to diagnose malaria early in patients with fever. If presumptive treatment is started, complete course of treatment should be ensured. Complete drugs may be provided in one strip. In case of severe fever with loss of sensorium and/ or loss of

consciousness, patients should be referred to pre determined referral centres.

12.5 Malaria related to development projects

Major projects and construction works are providing migrant labour with gainful employment. In addition, seasonal agriculture work supports migrant labour. These categories of persons should be identified as high-risk groups for malaria. Wherever feasible, assessments of malaria impact should be conducted prior to the commencement of development projects and malaria prevention strategies should be incorporated into the projects.

The managers, supervisors of these projects and employers of migrant labour should be educated about the problem of malaria, how it can be handled and the available resources from the government. In this way the management may be encouraged to take an interest in the welfare of the migrant labour and provide support for safe motherhood and control malaria among the labour.

GUIDELINE THIRTEEN

MONITORING DRUG RESISTANCE

With malaria not being adequately controlled and with inadequate or irregular treatment with Chloroquine and/or other drugs, resistance to available drugs is becoming an increasing problem. Therefore monitoring drug resistance becomes important in the control of malaria.

For carrying out the activities of drug resistance monitoring, there is a need to establish sentinel centres in different parts of the country situated in medical colleges, hospitals or any other appropriate institution located in endemic areas. These centres will regularly carry out drug resistance studies in their own areas or by collecting material from different areas with the help of mobile teams. These activities will generate sufficient data to enable the countries to scientifically review and formulate their drug policies.

13.1 Identifying Sources of Information

The District Health Authority should identify all sources of information relating to drug resistance. The following is the suggested list.

A. Medical practitioners treating large number of malaria patients.
B. Primary Health Centres
C. Sub-district Hospital
D. District Hospital
E. Teaching and Research Medical Institutions.

13.2 Information on Failure of Treatment with Anti-malarials

Whenever information on failure of anti-malarial drugs anywhere is received, the District Health Authority should investigate other possible factors such as

F. Adequacy of treatment, whether
   - Complete
   - Incomplete
   - Irregular
G. Whether drugs are substandard
H. Host factors - such as other concomitant diseases like diarrhea which could limit absorption

13.3 Testing for Resistance

On receiving information of drug resistance and after ruling out failure of treatment due to other causes, district health officer should pass on this information to state health authorities to initiate activities for testing of drug resistance through sentinel centres.

Methodology to be followed for testing drug resistance may be conventional *in vivo* tests or by testing of the therapeutic efficacy of anti-malaria drugs against clinically manifest infections with P. falciparum (WHO document WHO/MAL/96.1077)

13.4 Vigilance for Pv Resistance

Since resistance in *Plasmodium vivax* against Chloroquine has been identified in localized foci in some countries, e.g., Indonesia, Myanmar[3], therefore malaria personnel must be on the look out to identify earliest occurrence of resistance of P.vivax by following therapeutic efficacy tests as for *P .falciparum.*

[3] WHO. *Management of UncomplicatedMalaria and the Use of Antimalarial Drugs for the Protection of Travelers.*(WHO/MAL/96.1075)

GUIDELINE FOURTEEN

HEALTH MANAGEMENT INFORMATION SYSTEM

The National Health Management Information Systems are operating in most of the countries from the PHC level through the district/township and state/region/province/division levels to the national level. From time to time these have been modified. Most of these systems have certain weaknesses mentioned below:

- Delayed information
- Inaccurate information
- Insufficient information
- Scattered information

For effective functioning of the information system it is necessary to build in modifications that could bring about the needed improvement. The following are some of the suggested guidelines.

Information Requirement (Indicators)

The first step is to identify the essential information that is required for decision making. This information may be used to identify the following in order that appropriate action may be taken.

- outbreaks of disease so that these can be investigated and containment measures implemented
- high-risk populations and areas that need special attention
- areas with poor programme performance so that corrective measures can be taken.

The information to be analyzed and accessed at each level is indicated below as a list of indicators.

Administrative Level	Indicators to be monitored
Community Level Worker	· No. of fever cases treated. · No. of slides prepared and sent for microscopy
Primary Health Centre (PHC) (These indicators will be analyzed **Village-wise**[4])	· No. of fever cases treated · No. of slides prepared and sent or examined · No. of slides positive for Pv · No. of slides positive for Pf · No. of villages sprayed · No. of malaria cases treated · No. of treatment failures · No. of Health Education programmes
District/Township (These indicators will be analyzed **PHC-wise**)	· Annual Parasite Incidence (API) · Annual Blood Examination Rate (ABER) · Slide Positivity Rate (SPR) · No. of Deaths due to malaria

[4] That is the lowest level where health workers are available in a country.

14.1 Data Collection System

The information that is required determines what data should be collected. The data collected or collated at each level should be in relation to the information requirements. Periodicity of data collection may vary between one week to three months. In addition to recording numbers for each indicator, the date and the administrative area code should also be recorded. This might require establishing some standard codes (E.g. coding each administrative location) or modifying the existing standards (if necessary). All efforts must be made to use computers at the district level. Existing system should be improved and wherever possible district network should be enhanced using Information Technology (IT).

Forms are generally used to record surveillance data. *The existing forms should be reviewed*. The purpose of each set of data should be identified along with its level of usage. Formats that could be combined should be clubbed together. The forms should be modified to ensure that:

- **all the data that is required to generate essential information is included**
- **data not used for analysis is eliminated**[5]
- **it is easy to use**
- **has enough space for recording the values**
- **has no ambiguous text**
- **contains all the crucial instructions, etc.**

It is recommended that a proposed / modified form be tested in the field before implementation.

The anti-malaria programme should collect and analyze all essential information at the national level. In addition it should provide selective information as required by HMIS for national level planning.

In order to avoid further modifications to the formats necessary for computerization, it may be essential to have discussion with MIS consultants early in the development or adaptation of the system.

14.2 Analysis of data

The data collected should be analyzed at each level using computerized or manual system to produce information for action and monitoring progress.

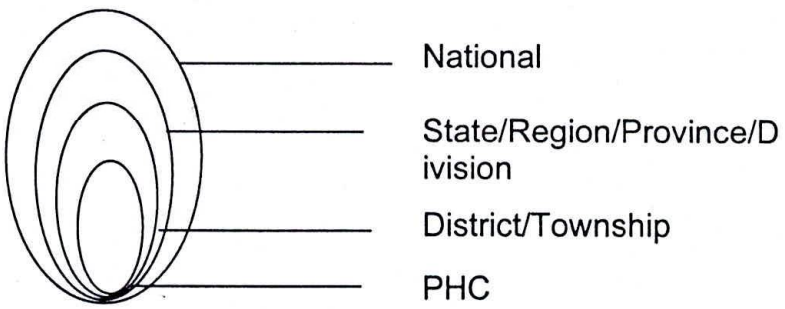
The PHC staff can utilize the analytical skills of MIS personnel at district/township level. Neighboring districts could share a common computer center facility. At the district and state levels also the analysis may be done based on the information needed at these levels. Gradually,

[5] reduced amount of data collection from the field level generally results in more accurate information. However, data collected should be sufficient to satisfy the information requirements.

computerization should be completed at the national, state/region/province/division and district/township levels in a phased manner.

It is important to highlight in each report deviations from the normal occurrence at each level to the next higher level. Each higher level may access information from lower level, that is necessary for analysis and action. Each data collection site must report to the next higher level, even if no cases of the disease under surveillance have been identified during the given time period. This will provide distinction between "Zero reporting" and "No reporting". The analyzed reports must be disseminated to the next higher and lower levels[6].

Diagrammatically, the sharing of information is shown as below:



Periodic Validation of data

To verify the accuracy of the data collected, officials from each higher level should validate the data periodically in sample populations. Field visit data should match the data reported. This further contributes to accuracy of data. Similarly, quality control on analysis of data should be implemented.

14.3 Who is responsible?

The MO' PHC is ultimately responsible as the team leader for all the data coming out of the PHC. However a senior PHC staff may be designated to support in this responsibility, preferably the health supervisor. District Medical Officers will be responsible for district level analysis and quality control.

14.4 Coordination with other health sectors

Since the Government health system both at PHC and district/township levels provides diagnosis and treatment of only a proportion of the population, others such as the private practitioners, voluntary agencies, private dispensaries, railways and armed forces should be involved to participate in the malaria control by providing essential information.

[6] Sending analyzed feedback to the lower levels highlights the importance of the reporting system to the reporting centre.

The initiative should come from the government. Centers where microscopy is done and where treatment is provided should also be listed. Efforts should be made to collect information from private practitioners, private hospitals, nursing homes, other governmental organizations, armed forces, railways etc. All these should contribute to the overall information.

14.5 Personnel

Even while the population has increased there has not been a concomitant increase in personnel, and also many posts are lying vacant. On the other hand, filling all posts will not necessary increase timely and accurate information. It may be necessary to re-deploy existing personnel so that some minimum predetermined levels are maintained. However, when personnel are short, then other alternatives that are agreed earlier, should be adopted.

14.6 Public domain information

Once data have been collected, consolidated and analyzed at the district, state and national levels, periodically, preferably each quarter predetermined data should be made available as public domain information through usual channels and wherever possible through Internet/World Wide Web. This would provide opportunity to strengthen multi-sectoral collaboration. Sensitive information should be disseminated only after appropriate authentication by government authorities.

14.7 Implementation of Computerized HMIS

All efforts must be made to use computers at the district level. Existing system should be improved and wherever possible district network should be enhanced using information technology (IT). The following resources are essential for implementation of Computerized Health Management Information System.

- **Software:** Integrated computer based Health Management Information System should be implemented at different levels based on factors such as availability, cost, local expertise etc. Sufficient user documentation and technical documentation is essential.

- **Hardware:** Hardware requirements are determined, to a large extent, by the software that is to be used. The choice of hardware depends very much on available finance, local support etc.

- **Human Resources:** It is worthwhile finding out about the availability of manpower and training facility and other support locally before finalizing the choice of software and hardware.

- **Communication Infrastructure:** Modern communication facility such as Fax, E-mail, other Internet services (WWW, FTP etc.), should be made available to whatever extend possible.

- **Data Flow:** The data flow from the most peripheral level to the most central level should be clearly established, taking into account the following factors:

- Which forms are to be used at which level.
- Which data items are to be forwarded to the next level, how often and in what format.

  If the data are to be sent in computer files, then standardized format should be used compatible with the software.

GUIDELINE SEVENTEEN

EPIDEMIOLOGICAL SURVEILLANCE.

17.0 SURVEILLANCE : RURAL, URBAN/ PERI URBAN

Surveillance is an essential activity of anti-malarial programmes that must aim to provide early evidence for outbreaks and epidemics, besides indicating the efficacy of anti-malaria programmes and effecting necessary changes in them. With the change of malaria scenario, it is necessary for systems of surveillance to keep pace with the changes in agent, vector, environment and the human host. Hence, surveillance must include:

- Routine Epidemiological surveillance.
- Entomological Surveillance.
- Surveillance For Forecasting And Early Detection Of Epidemic.
- System Surveillance.
- Behavioural Surveillance.

- Surveillance must be instituted with reference to urban and rural areas. Special care must be taken to include peri-urban areas, because of the temporary nature of residence of migratory and labour populations, and the lack of effective outreach of health services in such areas.

- In urban areas, surveillance must tilt towards passive case detection, although frequent active surveillance will be required for the respective peri-urban areas and priority groups like migratory populations, seasonal workers' groups, labour aggregations at construction sites.

- Surveillance for rural areas that has been a feature of all national malaria programmes including active and passive case detection, mass surveillance will require further strengthening in terms of human and material resources. Surveillance methods must be suitably modified to prevent the higher morbidity and mortality amongst infants, children and pregnant women.

Routine Epidemiological Surveillance

- Routine epidemiological surveillance that is part of the national malaria programmes needs to be strengthened. As many urban centres in the SEA Region countries are contributing to the increasing malaria incidence, wherever the routine systems of surveillance are deficient in urban centres, they must be instituted to complement the rural epidemiological surveillance.
  - All national programmes must evolve standards for monitoring the rates of blood slides examined and of the proportion of active and passive case detection so that the surveillance is effective and accurate.

- Personnel and equipment necessary to effect a good surveillance system in tune with the requirements of the Roll Back Malaria programme must be placed at the disposal of the districts as a priority.

- The status of malaria and the anti-malaria operations in the district analysed out of regular and continued surveillance must be shared with the district health committee at regular intervals to strengthen the spirit of partnership envisaged in the Roll Back Malaria Programme.

17.1 Entomological Surveillance

Continued entomological surveillance is necessary not just for predicting outbreaks and epidemics, but also to guide the districts in selecting vector control measures, drafting IEC messages and propagating personal protection measures.

~~This surveillance should include regular monitoring of~~:

- Vector population dynamics, esp. at rural/urban and rural /peri-urban interfaces..
- Vector bionomics.
- Vector density.
- Vector behaviour.
- Susceptibility of larvae and adult vectors to insecticides/biocides.
- Mosquitogenic conditions created by industrial or irrigation project works.

The responsibility of such surveillance should rest with:

Urban / Peri-urban areas: Entomologist/Biologist or Local body health officer.
Rural: Entomologist or other responsible authority.

17.2 Forecasting and Early Detection of Epidemics

The importance of epidemiological and entomological surveillance in forecasting and early detection of epidemics cannot be overstated. It is necessary to organise and analyse the data arising out of the routine epidemiological and entomological surveillance to help forecast - or detect at the earliest - an epidemic.

Changes as highlighted below may be picked up to initiate prompt corrective action:

- Rapid increase of nos. of fever cases/clinical malaria cases/slide positivity rate
- Change in Pv: Pf ratio in favor of the latter
- Spurt in vector density.
- Change in vector behaviour.

- Change in vector population dynamics.
- Change in susceptibility of larvae and adult vectors to insecticides/biocides.
- Intermixing of vector populations at rural/urban and rural/peri-urban interfaces.
- Natural calamities, mass influx.
- Disarrayed intervention programme schedule.

The responsibility of the surveillance should rest with :

Urban / Peri-urban areas: Entomologist/Biologist or Local body health officer.
Rural: Entomologist/Epidemiologist/MO PHC/DISTRICT HEALTH AUTHORITY as appropriate.

17.3 System surveillance

A very important component of surveillance is "system surveillance," that must be rigorously maintained. The entire onus of surveillance and preventive activities depends on the system and hence any deficiencies if not corrected immediately may have disastrous consequences.

Surveillance to monitor the system must be instituted to ensure:

- procurement and distribution of anti-malaria supplies.
- authorisation and placement of personnel.
- coverage.
- work quality.
- adherence to time schedules (in respect of larviciding, spraying, surveillance and EDPT).
- effective response to epidemic situations.

The responsibility to carry out such surveillance can be rested with the in-built supervisory hierarchy, but involvement ofcommunity leaders and civc society in such a surveillance will go a long way in empowering the partners of the RBM programme

how they be involved ?

17.4 Behavioural surveillance

Although conventional anti-malaria programmes have been strong on measures responding to vector and parasite behaviour, the changes in the third angle of the epidemiological triad, namely human behaviour have not been adequately studied. Social scientists who study human behaviour and can guide the programme at various levels should be included in the surveillance for malaria programmes.

be hired ? How ?

The input from such surveillance would form the basis of choosing appropriate personal protection measures, spraying activities, and for making IEC messages appropriate to the customs and traditions prevalent in the area or to implement strategies to alter them.

what to be monitored ? surveys ?

Provision of social scientists can be made from local educational institutions or by inclusion of such personnel as part of the programme resources at appropriate levels.

Results of programme interventions are dependent on the behaviour of various ethno-cultural communities and their sociological characteristics. The involvement of social scientists in the formulation and implementation of the programmes will be able to positively influence the outcomes of the programme. Social scientists can also help to smoothen the interface between the service providers and the recipients, particularly in areas of doctor-client relationship and the behavioural aspects of interventions in respect of active participation and co-operation from the community.

highly expensive than. Who will pay..?

What practical at Distt can be done?

GUIDELINE EIGHTEEN

EPIDEMIC PREPAREDNESS AND RESPONSE

18.1 Epidemic

A malaria epidemic is defined as the occurrence of malaria in a community or geographical area in excess of the normal (for the part of year) that is of public health significance. For conditions where an accurate diagnosis of malaria is not feasible, preparations to combat an epidemic must begin if an increase of fever cases is reported to the PHC /Dispensaries by the community or are clinically suspected to be suffering from malaria, or there are deaths reported in the media that have followed fever episodes.

Epidemic preparedness must include forecasting and early detection of epidemics, systems that can be mobilised at short notice for countering the epidemic, and guidelines for effectively responding to the outbreak or epidemic.

18.2 Epidemic Forecasting

The importance of epidemic surveillance cannot be denied especially in light of the number of malaria epidemics and fatalities that follow the epidemics in the region.

Epidemic forecasting relies heavily on the reliability of routine epidemiological surveillance data, and on the analysis of reports generated regularly. District health authorities and Medical Officers in-charge of PHCs should ensure that the surveillance systems are functioning effectively. They must also make an endeavour to involve and motivate other health agencies in the district like private laboratories, private practitioners, medical associations, and hospitals/ NGOs belonging to the voluntary sector in forecasting and early detection of epidemics.

how ? give examples.

There are a number of indicators that the District Health Authority must monitor to forecast a malaria epidemic at the earliest. These are:

18.3 Parasite load

Rapid increase in number of fever cases/clinical malaria cases/ Slide positivity rate or a change in P.v:P.f ratio in favour of the latter.

18.4 Vector Dynamics

Rapid increase in mosquito / Anopheles density. A simpler way may also be to monitor the increase in number of vector breeding places.

18.5 Population Dynamics

Influx of migrants from non-endemic area to endemic area or vice versa for wages, conflict, calamity; movement of labour to forests, for seasonal agriculture or for large construction projects.

why ? how to monitor .

18.6 Ecological Changes

Early and heavy rains in pre-transmission period; intermittent heavy rains; natural disasters like floods, cyclone and earthquake and large-scale deforestation, etc. Also, large construction activities, like dams and irrigation channels need to be kept in mind for their large and widespread malariogenic potential.

18.7 Epidemic preparedness:

A)Establishment of Epidemic Response Team

Because of the fact that malaria epidemics can kill swiftly and in large numbers, it is felt that all epidemic-prone areas should provide for **a Epidemic Response Team (ERT)** at the District level. The ERT must take physical shape at very short notice from existing district resources and should be trained and be available for other epidemic diseases as well.

Resources like personnel and drugs required for the ERT should be generated from the existing district resources. A buffer stock of anti-malaria drugs, insecticides and other essential supplies should be maintained for this purpose.

B) Response to an Epidemic

The District health authority should keep him/herself abreast of the formal and informal health data arising in the district and monitor them for epidemic surveillance. Even if a high number of fever cases / deaths are reported to the OPDs/ private practitioners/ NGO health facilities by members of the community of which a majority are clinically suspected to be of malarial origin, the first response to an epidemic must be started, it is necessary to investigate and confirm(or deny) the reports so that timely action can be initiated.

- The District health authority should organise the investigation of epidemic so that confirmation of the epidemic and mobilisation of the ERT can be effected within the shortest possible time. The mobile ERT should quickly be able to delineate the affected population or geographical area, and rapidly assess the extent of involvement by Rapid Fever Survey or Mass Survey Methodology. Blood smears to confirm malaria on the spot must be made by establishment of mobile field laboratories and appropriate treatment provided to all cases. Anti-vector, anti - parasitic and anti-larval measures must also be commenced starting from the identified foci of epidemic/outbreak. It is important that the entire anti-malarial exercise is completed within ten to fifteen days so that secondary cases are prevented.

- Sample villages from the area must be randomly selected for a follow-up for rapid fever survey/mass survey at the end of three and six weeks of completion of remedial measures.

- The District health authority should ensure that prescribed malaria activities should also be resumed at the earliest, and that the full complement of health staff is kept posted to the area to prevent a relapse.

- The malaria core group must be kept informed about the developments and the District health authority must call for reinforcements of personnel and material if required.

- IEC material based on area specific strategy like pamphlets, posters and through PA systems and AV aids must be used for dissemination of malaria specific information.

- Information on the epidemic should be disseminated through the media so that speculative reporting that tends to create panic can be avoided.

C) Training

Training and refresher training of the health personnel in a district and others is very important because of the changes that take place on account of transfer, promotion and retirement. Hence it must form an integral part of the epidemic preparedness of a district.

- District Health Authorities, MOs i/c PHCs, and other medical and paramedical staff especially those earmarked for the ERT should undergo initial and refresher training in responding to epidemics at regular intervals.

- Human resources that would need to be mobilised from within and outside the district during an epidemic must be identified with the help of appropriate authorities and training must be provided for such personnel also.

The training manuals and schedules must be developed by district health authorities and must include clearly laid out stepwise procedures that are rehearsed during the training.

GUIDELINE NINETEEN

MAPPING OF MALARIA AND GEOGRAPHIC RECONAISSANCE (GR)

19.1 Why Mapping and GR?

Countries of the region are beset with the problem of resurgence of malaria. Major constraints include drug resistance, vector resistance and resistance of the communities to insecticidal spray. Global Malaria Control Strategy formulated by WHO has been adopted by the countries of the region. Among other elements it emphasizes on selective and sustainable vector control. Vector control strategy therefore does not follow umbrella approach but lays emphasis on evidence based vector control strategies for properly mapped malaria foci with active intersectoral and community participation.

19.2 Mapping and GR

Geographical Reconnaissance (GR) can be defined as a field survey for collection of preliminary information required for scientific studies or implementation of a disease vector control programme. The scope of GR varies with the objective(s) of the study or the control programme to be undertaken.

Before conducting GR, inventory of the existing material such as maps, survey reports, tabular information on entomological components, disease scenario and control measures taken in past should be made. Preliminary interpretation based on this data and the local knowledge of the interpretation team can optimize the data collection.

Mapping can be defined as the process and set of procedures for plotting Disease surveillance case data at the appropriate geographical locations on National Maps.

19.3. GR in Malaria Control

There are four objectives of GR:

- For mapping basic receptivity
- To serve as a guide for establishing control priorities
- Cost effective control methods and
- Monitoring and intervention schedule.

19.4 GR to Map Basic Receptivity and for Formulation of Control Studies

Rural Area

GR for mapping the basic receptivity of the area information regarding topological and ecological parameters need to be collected both at macro and micro levels as follows:

Macro Level	Micro Level
Contour map/altitude Local temperature, relative humidity and rainfal Drainage Social, cultural & economic practices Major projects Forest cover Irrigation pattern Crop pattern	Soil type Surface water bodies species and breeding sites Ground water Meteorological data

In general , district map showing PHC boundaries may be taken as a base map. All the land marks, viz. roads, canals, villages, religious places, swamps, forest areas etc. should be clearly marked.

All the geographic areas may then be classified into well-defined ecological-geographic areas viz. Forested areas, foothill areas, swampy areas, riverine plains, etc. Data analysis collected at macro level will permit to identify the basic receptivity of each geographic area.

Malaria foci, then in each geographic area can be explained by interactive analysis of micro level data to define the dynamics of transmission and for building up locally adopted vector control strategies for transmission centre.

Urban areas

In the urban areas, malaria is generally transmitted by *An.stephensi,* domestic species using stored water for breeding. However same urban areas are also under the influence of *An. culicifacies* in the peripheral areas. Therefore, a complete GR needs to be carried out to map all breeding foci for planning an integrated anti-larval programme for control of malaria.

Depending on the area for manual analysis, three to four important parameters from the above list may be selected. Maps of these parameters may be transferred to transparency sheets for overlaying and identifying receptive areas.

Because of population growth and rapid urbanization, urban areas become wider and peri-urban areas get less attention in all aspects. Health problems are mainly contributed from peri-urban areas. Because of these reasons, GR should emphasized on peri-urban area to delineate the foci of breeding places for effective vector control.

Border areas

In border areas, health infrastructures are less developed and communication is poor. Spread of drug resistance problem along with the uncontrolled population migration is also seen in these areas. Above information should also be included in GR for effective management of cases , prevention and control. This will help synchronization of control measures across the border and strengthen inter country collaboration.

need to know ?

GUIDELINE TWENTY

RESEARCH AND DEVELOPMENT

Malaria Research is restricted to a few institutions / organizations. Reasons are (a) Malaria research under funded, (b) At the university level, there is inadequate importance given to communicable diseases, and (c) Research is disorganized.

Inadequate funding on research is hampering even the ongoing research project. Hence sufficient funding should be provided.

Under Roll Back Malaria initiative, the following areas are highlighted which need proper research for better implementation of the ongoing control operations.

20.1 Socio-economic studies

1. Studies on sociological, behavioural (anthropological) and economic dimensions
   - KAP and how it can help IEC programmes
   - Prescription practices
   - Costing of malaria programme at regional / district level
   - HRD studies (health education courses at university level)
   - Policy studies to examine appropriateness of some on going health care programmes (eg., the adaptability of society model in addressing public health issues)
   - Policy studies to examine the relevance of market economy approach in addressing public health issues.
   - Encourage universities / other research organizations to undertake research on tropical diseases.
2. Studies to examine how we can restructure primary health care system for strengthening RBM.
3. Demonstration of costs and benefits of control measures, eg., school attendance increased, increased crop yield, hospitalization decreased, anaemia decreased, etc.

20.2 Vector Studies

4. Studies on impact of ecological changes on mosquito biology with specific reference to weather changes, natural calamities viz., recent super cyclone of Orissa, epidemic forecasting. (Consolidate existing meteorological data base at local level for the above mentioned studies).
5. Conduct studies on distribution of vector species, their biology in relation to transmission dynamics in persistant malaria area.

20.3 Drug Studies

6. Conduct studies on combination drug and on efficacy of quinine and other alkaloids. It must be emphasised that the knowledge existed in pre-synthetic era (pre 1930s) should be brought to light in furthering research in the area.
7. Studies on monitoring of drug resistance both in P.vivax and P.falciparam.
8. Research into herbal remedies and natural insecticides.
9. Research on alternative personal protection methods

- evaluating side-effects of the existing personal protection should be researched. Also studies on social marketing, of personal protection method should be undertaken.

20.4 Epidemiological Studies

10. Studies on dry land rice farming to control vector breeding especially for JE.
11. Studies on wet land farming – uses of urea, neem cake, azolla and other aquatic fauna, eg., local fishes.
    - ✦ Establish demonstration sites of non-chemical control measures eg., good drainage and engineering practices. Their comparative cost-effectiveness can be demonstrated.
12. To undertake risk assessment studies and develop appropriate methodologies for conducting rapid assessment of malaria.
13. Developing a sound malaria information system for conducting studies at all levels.
14. Border malaria – highly neglected area of research
    - ✦ it is essential to take up a wide range of studies (all the above)
    - ✦ very little is known about the type of vectors in these areas.

20.5 Control Strategies

15. Studies to explore ways to involve community in adopting control strategies
    - ✦ link with income generation activities
    - ✦ link with district malaria societies
    - ✦ special IEC measures should be designed to promote correct practices and de promote wrong practices and beliefs in vector control.
16. Studies on why alternative malaria control strategies (eg., bio-environmental measures) are not being tried adequately.
17. All these R & D activities should be encouraged in all local research institutions and universities.

Strengthening the Socio-Cultural-Economic-Political Dimension of Problem Analysis

- ❖ Behavioural sciences approaches and socio-anthropological and socio-economic/health economic research competence must be urgently built into the 'problem analysis' and 'problem solving' structures at all levels – to ensure that these dimensions are no longer ignored.
- ❖ Well planned, multidisciplinary action/operations research must be initiated and a more holistic effort strongly rooted in the social sciences must be encouraged.
- ❖ From Action/Operations research practical, realistic operational guidelines can be evolved on all the above areas and these then incorporated into the planning process, the training process and the action process at all levels.

Source: Towards an Appropriate Malaria Control Strategy – VHAI/SOCHARA, 1997

Case Study - 6
Madras City Experience

A seven-point action plan was prepared for malaria control. An action committee was constituted. Students made house-to-house visits and interacted with residents. One of the main misconceptions that was addressed was that overhead tanks should not be closed – it would make water stale, therefore the overhead tank should be only partially covered so that air could enter and maintain the water fresh. A student action group was formed under Prof. Swaminathan. The students were drawn from various schools and colleges. They also monitored the status of the fish in overhead tanks after they were released. All the schools in the city with grades 6th to 12th were targetted.

The handouts consisted of:

1. Procedures for schools
2. Posters
3. Fact sheets for teachers
4. Handouts for the students
5. Pamphlets for the community

School principles were informed about the campaign through letters. One or two teachers per school were oriented; they, in turn, oriented the students.