**ASSESSMENT OF THE POTENTIAL FOR INTEGRATION OF THE MALARIA CONTROL PROGRAMME IN KWAZULU-NATAL INTO DISTRICT HEALTH SYSTEM.**

**INTRODUCTION:**

South Africa has a long-standing malaria programme aimed at controlling both the vector and the parasite of the disease. It has been extremely successful as evidenced by the low mortality rate, the low incidence rate (Strebel et al. 1986, Sharp and le Sueur 1996, Ngxongo 1994) and the large areas of the country freed from epidemics in relation to the situation prior to control (Sharp et al. 1985, Le Sueur et al. 1993). The programme is thus an excellent example of preventative health care, which it should be borne in mind, has a number of components some of which are structured as a vertical programme.

National Health Policy in South Africa is to develop health care to District Health System (DHS). Several questions arise as to how the current malaria control activities would fit in and whether in fact they could be integrated into DHS. It is not possible for the Provincial Malaria Advisory Group at this stage to come up with a plan on how to decentralise the malaria control programme but to facilitate informed decision-making towards this objective.

**1. FOUR DIFFERENT DOCUMENTS HAVE ADDRESSED INTEGRATION**
**These are:**

**1. 1. KwaZulu-Natal Province, Malaria Control Amalgamation and Restructuring Plan.**

A debate into integration was first formally addressed by the KwaZulu-Natal Malaria Advisory Group, as part of it's brief in putting together the Malaria Advisory Plan. The following is quoted from this document:

**POTENTIAL FOR INCORPORATION IN PHC.**

In 1978 the World Health Assembly adopted a new policy urging member states to re-orient their anti-malarial programs as an integral part of their National Health Programmes. In 1985 Resolution WHA38.24 was passed which recommended that malaria control should be developed as an integral part of national primary health care systems.

This new approach of transforming time-limited malaria eradication programmes into malaria control

coupled to the main principles of primary health care as outlined at the Alma-Ata Conference in 1978 has not been extensively debated, tested or implemented in regard to malaria in South Africa.

The periodic re-assessment of any large scale control programme is both desirable and necessary, but the WHO cautions that, The integration of vertical malaria control programmes into the general health services is desirable in all the malarious countries that have in the past launched a time limited eradication programme. Although integration may be the National Policy, this policy must be implemented very carefully to avoid disrupting an effective organisation, which at a considerable cost has improved the health conditions of the people by significantly reducing malaria. Where malaria control has produced dramatic and widely recognised benefits in recent decades, maintenance of these improvements is likely to remain a high social priority. In this situation, the primary health care strategy should be developed in such a way as to maintain the most important gains achieved, particularly the reduction in mortality due to malaria? (WHO 1984).

There are no perfect systems and as a result there are advantages and disadvantages to both vertical and horizontal control programmes. The decision in respect to integration of a successful vertical control programme into a primary health care system is one of balancing the advantages and disadvantages of the two strategies to obtain the most efficient and cost effective balance. One of the major criticisms levelled at vertical control programs is their costs; in contrast to this there are few examples of successful malaria control programmes in disease endemic countries that are integrated into the PHC system.

The viewpoint of the World Health Organisation and its members in regard to integration of malaria control into the PHC system was recently included in the World Declaration on Malaria (Amsterdam 1992) and states, "We commit ourselves and our countries to control malaria, and we implement malaria control in the context of primary health care, seeing it as an opportunity to strengthen health and social infrastructures and to promote the fundamental right of all populations affected by malaria to have access to early diagnosis and appropriate treatment?.

The malaria control programme in the province offers a health care infrastructure that stretches into the most rural and underdeveloped areas. This infrastructure has in the past facilitated numerous community-based endeavours (e.g. drought relief) and it is envisaged that it can facilitate the development of community based primary health care infrastructure in the malarious areas of the province.

The control programme in its present structure had resulted in significant gains being made in the

control of malaria. Vast areas of the province previously devastated by the disease are today free, mortality has been reduced dramatically and this enabled both agricultural and industrial development to take place.

It is believed that the programme workers in many regards are similar to community health workers and that an effort should be made to increase their PHC training. Thus, facets of this programme, mainly at the surveillance level, would be able to facilitate the strengthening of PHC in these areas (or even act partially as the vehicle? whereby PHC was implemented in the region) and in certain instances be amalgamated to a significant extent to a PHC structure. Examples include:

**i. The Decentralization of Microscopic screening to the Clinic Level**

This will reduce costs of transporting slides to a central laboratory, results in early diagnosis and prompt treatment and may further reduce costs by enticing more patients to the clinic and thereby reducing the need and cost of active surveillance. These decentralised microscopists could further perform other microscopic diagnostic services for the clinic/community (e.g. Schistosomiasis/internal helminths, especially during the low malaria transmission period) but statistics relating to the various parasitic diseases should support any future identifying potential needs in this regard.

**ii .** Surveillance agents are in daily contact with the community and may well be able to fill a greater role as community health workers.

**iii**. If surveillance for other diseases is carried out as suggested in ?i? above, then the malaria control programme could provide a platform, from which an intervention program for other parasitic diseases could be launched.

**Potential changes such as these, which are in line with health policy, should, however, be evaluated under a strict scientific protocol to ensure that they are more effective both in terms of cost and service provision before being instituted widely.** There are future differences at the local level that may affect the institution of such changes, these include differences between areas such as population density, whether people live in villages, in scattered homesteads or on farms/estates and clinic distribution. Also to be given consideration is the proximity of an area to an international border and the amount of imported malaria when deciding on the needs for active surveillance. Area specific factors that exacerbate malaria control such as agricultural development require specialised and specific attention. These factors further indicate

that one central policy in respect to surveillance would be difficult to achieve and control needs to be tailored to local provincial circumstances and especially to geographical disease incidence.

Complete decentralization or incorporation into the PHC structure of vector control is a complex issue with numerous arguments for partial incorporation.

**1. 2. Department of Community Health: Dr D. Buso and Dr. Jinabhai**

This document was just concerned with interviews of people involved in Malaria Control and Primary Health Care and their views on integration.

**1. 3. Integrating the Malaria Control Program into the General Health Services? L. Molineaux, P.M. Mohloai and C.A. Green.**

Concerning ?Integration? with (into) the GHS: see the document prepared jointly by PM Mohloai and C.A. Green (Appendix 1). This document is central to the current debate and largely forms the basis for the current discussion. Further, as part of a report by Molineaux to the South African Medical Council he says: ?A key point is that Integration (unification of budget and administration, rather than co-operation) should not be a priori and blanket decision, but that, after defining the appropriate malaria control activities, each of these activities should be considered in turn, in terms of the most cost-effective mode of implementation, including the administrative level at which it is appropriate to integrate it with the GHS (at the Ministry of Health level, all health programs are integrated)?.

**1. 4. Malaria in the new South Africa: Are district health systems and current malaria control strategies compatible? Mnzava et al, Editorial: SAMJ., 37 (4): 585-587, 1997.**

The editorial outline the potential future use of bednets, which might facilitate the integration into DHS.

**2. OBJECTIVE:**

To look at the four categories of activities used in the WHO global malaria control strategy and in South Africa malaria control program *vis a vis* case management, vector control, management of epidemics and malaria information and to see how these can be devolved into DHS without loosing:

Ë. Quality malaria control

Ë. Core group expertise

Ë. Cost effectiveness.

These strategies cannot be uniformly implemented in the different districts affected by malaria. The level of risk, will determine how, which and when these strategies should be implemented in specific districts.

In order to achieve these, all districts will have to be stratified according to risk and this will have a direct impact on manpower, equipment, finance etc. The decentralization of functions will be effected according to availability of resources and other criteria determining stratification. Data requirements to complete this stratification will include case data, case detection and follow-up, manpower, equipment, structures sprayed, active and passive cases and clinic distribution.

The data will be used to create data maps of the districts, which will include information relevant to decision-making as regards decentralization. It is essential that time frames be built into any decentralization strategy but this will be influenced by factors like the finalization of district boundaries and issues raised hereafter in relation to decentralization.

## 3. MALARIA CONTROL CATEGORIES.

**Table 1.** The four categories and sub-categories used in the WHO global malaria control strategy and in South Africa.

**CASE MANAGEMENT**

Guidelines for antimalarial treatment

Guidelines for diagnosis

Spatial deployment of diagnosis and health care facilities

Active detection, diagnosis, treatment

Passive detection, diagnosis, treatment

**VECTOR CONTROL**

Guidelines-type, usage of insecticides

Guidelines-water management

Indoor spraying (households)

Selective use of larvicides

Alternative interventions e.g. bednets

**MANAGEMENT OF EPIDERMICS**

Early detection of abnormality high number of cases

Early warning from environmental factors

Rapid response

**MALARIA INFORMATION**

Monitoring therapeutic response

Monitoring mosquito response to vector control

Collation distribution of cases

Development of indicators for early warning of epidemics

Example of the type of data analysis needed for decentralization decision-making.

**1. TYPE OF DATA ANALYSIS NEEDED FOR DECENTRALISATION/DECISION MAKING.**

**ACTIVE DETECTION, DIAGNOSIS , TREATMENT.**

This is further broken down into the following components:

i. Special surveys (border post screening)

ii EPI.

iii. MBEs.

iv. Suspects.

v. Case detection and follow-up.

vi. Positivity rate.

vii. Active surveillance should be looked at primarily in the Southern districts i.e. migration routes

(migrant labour).

i. Rapid diagnosis tests form part of active surveillance.

Fundamental to effective malaria control is early diagnosis and prompt treatment.

**4. MALARIA CONTROL ACTIITIES AND THE POTENTIAL FOR GREATER INTEGRATION AND MANAGEMENT AT DISTRICT LEVEL**

The table addresses the possible integration of the Malaria Control Program activities into the general health system. In addition, it should be mentioned that some activities, especially those

relating to information systems (including GIS) have reached a level of development that allows them to crucial

assistance to other services, e.g. in dealing with other vector-borne diseases and other epidemics like Cholera in 1982.

The recommendations are based on the combined experiences of the Provincial Malaria Advisory Group and include the most important issues to be considered in further integration:

**Integration is defined as follows:**

Molineaux et al, in their document on integration (Appendix 1) have this to say: “A practical answer is to say that two programs are integrated if their administrative responsibilities and budgets are merged, so that the converse of integration is not vertically but administrative and budgeting autonomy.” Integration thus goes beyond co-ordination. While co-ordination is always desirable, the desirability of integration must be assessed facet by facet, while co-ordination between irrigation and health programs is desirable, their integration, i.e. administration merging, is not). Further, co-ordination, in the technical, problem-solving sense, does not follow automatically from integration.

Rather than assume a priori, that the problem can be reduced to a single question: “Should the Malaria Control Program be integrated into the GHS?” to be answered by a single yes or no, it will be prudent to consider the question of integration for each of the various activities which contribute to malaria control, and to allow for the possibility that integration may be desirable for some, but not for others.

These specific malaria control activities are addressed in the following table and explanatory notes thereafter. This table outlines the views of this group on the potential devolvement of malaria specific activities to the districts and whether this is possible in the short, medium and long term.

| **CASE MANAGEMENT** | Current Status Co-ordinated | Integrated | Further Integration desirable | Time frame S.T. | M.T. | L.T. | N/A |
|---|---|---|---|---|---|---|---|
| guidelines for antimalaria treatment | yes | no | no | | | | X |
| guidelines for diagnosis | partial | no | no | | | | X |
| Spatial deployment of diagnosis and health care facilities | yes | partial | yes | X | X | X | |
| Active detection, diagnosis, treatment | yes | no | yes | | | X | |
| Passive detection, diagnosis, treatment | yes | no | yes | X | X | X | |
| | | | | | | | |
| **VECTOR CONTROL** | | | | | | | |
| Guidelines : type, usage of insecticides | yes | no | yes (usage) | | X | X | |
| Guidelines : water management | yes | no | no | | | | X |
| Indoor spraying (household) | yes | no | no | | X | X | |
| Selective use of larvicides | yes | no | no | | | | X |
| Alternative interventions e.g. bednets | yes | no | no | | | | X |
| | | | | | | | |
| **MANAGEMENT OF EPIDEMICS** | | | | | | | |
| Early detection of abnormally high number of cases | yes | no | yes | X | X | X | |
| Early warning from environmental factors | yes | no | no | | | | X |
| Rapid response | yes | partial | partial | X | | | |
| | | | | | | | |
| **MALARIA INFORMATION** | | | | | | | |
| Monitoring therapeutic response | yes | no | no | | | | X |
| Monitoring mosquito response to vector control | partial | no | no | | | | X |
| Collation distribution of cases | yes | no | yes | X | X | X | |
| Development of indicators for early warning of epidemics. | yes | yes | yes | | X | X | |
| | | | | | | | |

S.T. Short term. As soon as districts are in place.

M.T. Medium term. Once district health systems rare in place.

L.T. Long term. When certain research questions have been addressed.

## 5. EXPLANITORY NOTES:

### 5.1. CASE MANAGEMENT

#### 5.1.1 Guidelines for anti-malaria treatment

Expertise is needed in the formulation of these guidelines. It is done at present by the National Malaria Advisory Groups (MAG) Subcommittee on Drugs (SCAT). Provincial Government feeds back to National as well as all Provincial MAGS occur. We therefore recommend that this activity cannot be integrated should stay a National policy formulating responsibility. It should be noted that districts would not have the expertise to carry out this activity unlike currently where members of this committee are experts drawn from various South African institutions.

#### 5.1.2. Guidelines for diagnosis

Partially co-ordinated. In South Africa malaria infections are notifiable and are based on definitive microscopic diagnosis. There should be clearly set guidelines by National and Provincial Malaria Advisory Groups as well as continuous training. Further integration is not desirable.

#### 5.1.3. Spatial deployment of diagnosis and health care

Not all clinics have malaria diagnosis capabilities and should be developed to serve all communities in all malarious areas. The new clinics should be built with diagnostic capabilities in order to render a comprehensive service. However, training will be required of a multi-service technician and the GIS would be utilised to place these new health services. As outlined elsewhere, we need to analyse available data for the purpose of knowing where these facilities are and where new ones should be placed for easy access by communities.

#### 5.1.4. Active detection, diagnosis and treatment

Active detection, diagnosis and treatment should be further integrated and data collation, outlined earlier in this document is necessary to enable resource allocation at district level. However, the

feeling of the group is that Active Surveillance should not be phased in certain instances, but maintained in high risk areas. Active Surveillance should not be phased out in areas with an epidemic potential and which draw immigrant workers (asymptomatic) from neighbouring countries. The data analysis outlined earlier will clarify this.

### 5.1.5. Passive detection, diagnosis and treatment

Currently diagnosis at clinic level is being carried out by the malaria control program. In some clinics on the other hand, some degree of decentralization has taken place. It is recommended that this activity be taken over by PHC (refer to 3 above). The financing and acquisition of drugs for the treatment of such cases should be the responsibility of the general health care service. It is to be noted however, that in some malaria areas, over 70% of the cases are detected actively as opposed to only 30% by the clinics. This should be taken into consideration when putting up new health services and deciding on reduction of active surveillance.

## 5.2. VECTOR CONTROL

### 5.2.1. Guidelines: type, usage of insecticides

This activity is currently co-ordinated Provincially between research (MRC) and service (MCP) both in the field and in the laboratory. There is very little co-ordination at national level. It would be desirable in future if this activity would be co-ordinated nationally like the MAGs subcommittee on drugs (SCAT). The subcommittee duties would be made easier if data was available on how much insecticide would be required in each district. No true guidelines on the application of insecticides and decisions to buy pumps, larvicides and safety equipment are taken at provincial level. The data analysis needs to be undertaken to assess the insecticide requirement at district level. This part of malaria vector control requires a core-group of experts , which can not be reproduced at district level. The group consists of people with specialised skill.

### 5.2.2. Insecticide

It is felt that the decision to use a particular type of insecticide should be co-ordinated nationally taking into account the technical aspects involved (residual and insecticidal efficacy, susceptibility of mosquitoes to the insecticide etc.)

### 5.2.3. Pumps, safety equipment, water trailer and vehicles

Information must be collected to determine how many pumps and safety equipment will be needed in each district for effective decentralization.

### 5.2.4. Larvicides.

In collaboration with a group of expertise.

### 5.2.5. Training

It should be co-ordinated by a core group of expertise.

### 5.2.6. Guidelines-water management

No further integration but would require greater intersectorial collaboration and co-ordination by a core group of expertise.

### 5.2.6. Insecticide spraying of homes

Amount of insecticides required for spraying houses at district level need to be calculated based on the historical data on the number of structures to be sprayed. Spraying of houses per se can be done at the district level with guidance from the core group of expertise in regards to training of spray men, timing and coverage.

### 5.2.7. Selective use of larvicides.

This is a specialised function, which should be carried out at the district level with guidance of the core group of expertise. Indiscriminate use of larvicides can be very costly.

### 5.2.8. Alternative intervention e.g. Bednets

Current policy is to spray houses with insecticides. Use of other alternatives would require change in policy. Bednets as a potential alternative to insecticide house spraying are still part of a scientific evaluation.

## 5.3. MANAGEMENT OF EPIDEMICS

### 51. Early detection of abnormally high numbers of cases.

Once the districts are in place, the activity of early detection of abnormally high numbers of cases should be carried out by the respective districts. But this would require an appropriate health

information system to be in place. In some districts such systems are in place and this activity can be implemented in the short term whereas in others they will take longer time to implement.

### 5.3.2. Early warning from the environmental factors.

This relies on climatologists, meteorologists and malaria experts to analyse the data and cannot be integrated.

### 5.3.3. Rapid response

Can only be partially integrated as some districts do not have the capabilities to do this at present, but has to be co-ordinated by a core group of expertise at a central point. Malaria epidemics could occur in areas that are inexperienced to handling such epidemics. In responding to such epidemics would require relying on a core group of expertise.

## 5.4. MALARIA INFORMATION

### 5.4.1. Monitoring therapeutic response

Currently done by case follow-up and also by community-based in-vivo testing once every two years. In vivo testing is a specialised activity and because of this, such an activity should be carried out and co-ordinated by the core group of experts.

### 5.4.2. Monitoring mosquito response to vector control

Currently not co-ordinated at national level but partial at provincial level *vis a vis* bioassays and susceptibility testing. Bioassays and susceptibility testing require insectary facilities to raise mosquitoes. The fact that these are rather specialised techniques should be the responsibility of the core group and research institutions.

### 5.4.3. Collation of case distribution by geography, season, age and sex.

The collation of case distribution by geography, season, age and sex is currently co-ordinated. This information is essential both at the district, regional provincial and national level for planning purposes. It is therefore the view of this group that this activity be integrated in the future.

### 5.4.4. Development of indicators for early warning of epidemics

It would be useful to develop indicators at district level but given the prevailing circumstances, this is a research question, which needs further evaluation. An efficient Health Information System is

central to development of indicators for early warning of epidemics.

## 6. CORE GROUP OF EXPERTISE.

With decentralisation, a core group of expertise is lost. This group of experts is essential to analyse data, respond to epidemics, co-ordinate training, give guidelines to types and usage of insecticides/larvicides, monitor and co-ordinate therapeutic responses etc. districts would not have this expertise. Numerous other functions that the core group will be responsible for co-ordinating including the above are not exhaustive. Such other functions include:

Quality control- all aspects
Localised outbreaks
Costing of Active versus Passive Case detection.
Vector surveillance
IEC (Information, Education and Communication) for communities, training, etc.
Structured / Monitor progress. Whole program quality control
Training
Epidemic control
Time frames
Districts co-operation
Intersectorial co-operation
National MAG

## 7. CONCLUSIONS.

Malaria control is not a single activity; it consists of many facets, which stretch from policy through the various tasks required for the control of the disease as outlined. Many of these activities can be devolved to the district level; however, in some districts it may take longer to put the relevant systems in place.

For devolvement to magisterial level, the district boundaries need to be finalised.

It is considered central to this process that malaria case data from the province is analysed to enable stratification of districts according to risk in relation to malaria case distribution/community; active surveillance slide positivity prevalence; number of houses to be sprayed; staff distribution; equipment (pumps, safety equipment) needed based on the above. The above information will be needed for planning of which aspects of malaria control are required and can be devolved to specific districts and the equipment and personnel needed to undertake such activities. It is

suggested that this activity be put out to tender. Once these data are analysed, costing studies will be possible as will planning of resources and personnel in relation to malaria control requirements in specific districts.

For effective co-ordination of malaria and its control in the province, an efficient Health Information System needs to be in place.

Malaria is a dynamic disease with emerging problems such as drug resistance and increasing cases regionally. The feeling of the group is that although numerous activities can be devolved to the districts, there is a need to retain a core group of experts in the province to drive this process and to perform specialised support functions central to malaria control.