

Report on the

**Fourth intercountry meeting of national
malaria programme managers**

Isfahan, Islamic Republic of Iran
25–28 May 2004



World Health Organization
Regional Office for the Eastern Mediterranean
Cairo
2005

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EXECUTIVE SUMMARY

The fourth intercountry meeting of national malaria programme managers of countries of the WHO Eastern Mediterranean Region was held in Isfahan, Islamic Republic of Iran, from 25 to 28 May 2004. The meeting was attended by representatives from 19 countries of the Region plus representatives from the WHO Regional Office for Africa as well as several Roll Back Malaria (RBM) partners, technical advisers and other experts together with the Secretariat from the WHO Regional Office for the Eastern Mediterranean (WHO/EMRO) and WHO headquarters, totalling 51 participants.

In the context of Roll Back Malaria (RBM), country status reports were presented on progress towards RBM targets, and plans of action for the coming year. The main themes emphasized at the meeting were: malaria epidemics, indicating early detection, prevention and response; vector control needs assessment; strengthening the process of monitoring, evaluation and reporting, in terms of working towards an annual malaria report; relationships between countries and the Global Fund for AIDS, Tuberculosis and Malaria, and assessment tools for human resource needs.

Other topics on which expert presentations were made included: implementation of integrated vector management (IVM) in Region; implementation of RBM interventions at the global level; RBM progress in the WHO African Region; malaria control and immunization: the role of *Bacillus thuringiensis* in malaria control; molecular identification of vector species and resistance mechanisms; and the experience of the Regional Office for Africa in vector control needs assessment. Participants were provided with a CD-ROM containing full illustrated texts of all presentations and background documents for the meeting, together with other relevant items from the RBM/EMRO website.

Recommendations

1. All malaria endemic countries should establish or strengthen systems for monitoring and evaluation including:
 - assignment of national focal point for monitoring and evaluation
 - development of national indicators and forms for data collection and reporting, national databases, annual malaria report
 - monitoring of coverage indicators related to access to treatment and coverage of insecticide-treated nets (ITNs) by conducting household surveys and collaborating with other ongoing surveys.
2. Malaria epidemic prone country countries should establish/strengthen a system for early detection of malaria epidemic including:
 - identification of epidemic-prone areas
 - establishment of sentinel surveillance sites with laboratory facilities for weekly monitoring of malaria cases in those areas, ensuring proper communication and transport systems
 - building capacity for early detection, epidemic preparedness and response including developing a national guideline

- urgent initiation of the process of registration for artemisinin derivatives for possible use in epidemic response.
- 3. Countries should strengthen resource mobilization efforts and take an active role in accessing resources, including considering the following:
 - Collaboration with the Islamic Development Bank for financial support and capacity-building
 - Submitting proposals to the Global Fund in future rounds, with the cost of technical support from WHO for developing and implementing Global Fund proposals included in the submitted proposal
 - Seeking more national funds at local level
 - Adoption of specific projects for demonstrating success stories, with technical support from WHO.
- 4. Countries should start the process of vector control needs assessment as part of the IVM strategic plan, if relevant.
- 5. Countries, particularly those with projects approved by the Global Fund, should start the process of assessment of human resource development, making use of the WHO draft guidelines for individual and institutional assessment.
- 6. Countries should maintain and strengthen border coordination activities.
- 7. WHO should provide technical support to countries to strengthen monitoring and evaluation activities.
 - Develop standard data collection and reporting forms and support national capacity building activities
 - Modify regional annual surveillance form according to country situation (3 different forms may be developed to address the indicators of the different groups of countries: highly endemic, low/moderate endemicity, malaria free/residual foci)
 - Strengthen feedback from the Regional Office to countries
 - Share information by developing a regional database of malaria information to be posted on the regional RBM website
 - Provide technical support in conducting malaria surveys to monitor outcome indicators.
- 8. WHO should provide technical support in the implementation of the vector control needs assessment. The draft guidelines on vector control needs assessment should be reformulated and finalized.
- 9. The Regional Office should continue to support border coordination activities among countries of the Region and with neighbouring countries in the African and European regions.
- 10. WHO should continue efforts towards human resources development by supporting the following intercountry workshops and training courses in 2004–2005.
 - Diploma in Malaria Programme Planning and Management, Bandar Abbas (suggested dates are 8 January to 10 March 2005)
 - Intercountry course on vector control in Sudan
 - Epidemic early detection and management course, suggested to be held in Cairo
 - Training of trainers on quality assurance/control laboratory diagnosis in Oman
 - Monitoring and evaluation workshop
 - National courses for training of trainers on insecticide resistance monitoring in Yemen, including participants from Somalia and in Sudan.

1. INTRODUCTION

The fourth intercountry meeting of national malaria programme managers of countries of the WHO Eastern Mediterranean Region was held in Isfahan, Islamic Republic of Iran, from 25 to 28 May 2004. (See Annex 1 for agenda and Annex 2 for programme). The meeting was attended by representatives from 19 countries of the Region plus representatives from the WHO Regional Office for Africa (WHO/AFRO) as well as several Roll Back Malaria (RBM) partners, technical advisers and other experts together with the Secretariat from the WHO Regional Office for the Eastern Mediterranean (WHO/EMRO) and WHO headquarters (see Annex 3).

The meeting was opened by Dr Massoud Pezeshkian, Minister of Health and Medical Education, Islamic Republic of Iran, who welcomed the participants to the meeting. Dr Mubashar Sheikh, WHO Representative, Islamic Republic of Iran delivered a message from Dr Hussein A. Gezairy, WHO Regional Director for the Eastern Mediterranean in which Dr Gezairy reminded the participants that malaria remained a serious problem in the Region. While some countries had essentially eradicated malaria, and others had reduced it to small foci, the Region still included some of the worst affected countries in the world. Although RBM had been successful in many areas in the Region, access to effective malaria treatment, and imperfect vector control continued to be major impediments. Dr Gezairy pointed out that prompt access to effective malaria treatment was the backbone of any effective control programme. The technical support to strengthen malaria diagnosis, monitoring of treatment efficacy, and the subsequent revision of national drug policies were areas which must be further expanded and strengthened in the years to come. Other areas that required more attention were identified: national programmes should be able to monitor and evaluate the implementation of various interventions. Dr Gezairy said that this implied that national plans of action should include key measurable indicators, and he was pleased that the meeting would be dealing specifically with the subject of monitoring and evaluation.

2. THE ROLL BACK MALARIA INITIATIVE

2.1 Progress of Roll Back Malaria implementation in the Eastern Mediterranean Region

Dr Hoda Atta

Overview

The three main objectives of the Roll Back Malaria (RBM) programme in the Eastern Mediterranean Region are to:

- strengthen WHO capacity at the Regional Office for provision of technical support to the countries
- support intercountry action and interregional cooperation
- support the countries in implementing effective interventions.

Grouping countries by current malaria operational status shows the malaria problem concentrated in a few countries, with more than half (14/22) of the Region's countries having achieved successful control or elimination of malaria (Table 1).

Table 1. Current malaria operational status in countries of the Eastern Mediterranean Region

Group 1	Bahrain, Jordan, Kuwait, Lebanon, Libyan Arab Jamahiriya, Palestine, Qatar, Tunisia, United Arab Emirates	Malaria free countries/areas
Group 2	Egypt, Morocco, Oman, Syrian Arab Republic	Countries with very limited foci and targeting malaria eradication
Group 3	Islamic Republic of Iran, Iraq, Pakistan, Saudi Arabia	Countries with low/moderate endemicity and well established control programmes
Group 4	Afghanistan, Djibouti, Somalia, Sudan, Yemen	Countries with severe malaria problem and/or threatened by epidemics and complex emergency situations

With regard to resource mobilization activities, Afghanistan, Pakistan, Somalia, Sudan and Yemen have had funding proposals approved by the Global Fund to Fight AIDS, Tuberculosis and Malaria. Global Fund money has been partially disbursed to Yemen and Pakistan. Afghanistan, Djibouti, Islamic Republic of Iran and Pakistan have submitted proposals to the fourth round of applications to the Global Fund. Funds for malaria control in Afghanistan have been mobilized from USAID, and another proposal has been submitted in 2004. The slowness with which approved funds are being disbursed is cause for concern. Other resource mobilization activities include a proposal to the Global Environmental Facility (GEF) on strengthening national vector control to reduce reliance on and prevent the re-introduction of DDT. A proposal has been submitted to the Arab Fund to strengthen vector surveillance and monitoring of insecticide resistance in Djibouti, Sudan and Yemen. A proposal has been submitted to AGFUND to support human resource development in the region, and other potential regional funding agencies are being explored (Islamic Development Bank and GCC). A regional proposal has been made to USAID for monitoring and evaluation support.

New technical documents are being produced including guidelines for establishing a system of quality assurance of malaria laboratory diagnosis and protocol for monitoring insecticide resistance. Regional courses are planned for 2004–2005 pending availability of funds and include the following: a course on monitoring insecticide resistance (Cairo); a malaria planning course (Islamic Republic of Iran); intercountry workshop on quality assurance of laboratory diagnosis (Oman); intercountry course on integrated vector management (Sudan); monitoring and evaluation workshop including malaria surveillance and early detection of epidemics (location to be decided); geographic information systems workshop in Arabic. Planned activities to support institutional development include: evaluation and support of the national training centres in Saudi Arabia, Sudan and Yemen;

identification and support of regional 'centres of excellence' in quality assurance of malaria microscopy (Islamic Republic of Iran, Oman); strengthening the regional network for monitoring insecticide resistance (Egypt, Islamic Republic of Iran); supporting the regional training centre for IVM (Sudan). With regard to operational research: six malaria projects have been selected this year for support under the annual EMRO Small Grants Scheme. Border coordination meetings, with WHO support, have been held for Afghanistan, Pakistan and Islamic Republic of Iran, the Horn of Africa countries, and in March 2004 for Syrian Arab Republic, Iraq and Turkey. Saudi Arabia and Yemen have periodic meetings. Meetings are planned for Afghanistan, Islamic Republic of Iran and Pakistan (August 2004), and for Afghanistan and Tajikistan in December 2005.

Countries have been supported in the development of malaria case management. Technical support has been provided to Afghanistan, Islamic Republic of Iran, Saudi Arabia and Sudan to update antimalarial drug policy. Policy has been updated, and artemisinin-containing treatment (ACT) adopted (but not yet implemented) in two countries: Afghanistan and Sudan. The process of policy change has started in the Islamic Republic of Iran, Somalia and south Sudan, and policy has been modified for the treatment of imported falciparum malaria in Morocco (lumefantrine-artemether) and United Arab Emirates (mefloquine-artesunate). Sentinel sites for monitoring malaria treatment have been established in four countries, Islamic Republic of Iran, Somalia, Sudan and Yemen, and technical support has been provided to Afghanistan and Pakistan to develop sites. There is consensus for a regional network, to enhance mutual support and provide scientific input into the monitoring of antimalarial treatment in Djibouti, Somalia, Sudan and Yemen from the Eastern Mediterranean Region, together with Eritrea and Ethiopia from the African Region. The basic format of the network was established at a meeting in Cairo in March 2004. The steering committee will meet in Nairobi in July 2004 to finalize the constitution, investigate funding and commence network activities. A second network is planned, involving Afghanistan, Islamic Republic of Iran and Pakistan.

Efforts to support malaria eradication continue (plan of action for malaria elimination in Morocco and the Syrian Arab Republic; verification of malaria-free status in the United Arab Emirates; finalization of malaria-free strategy for Saudi Arabia). Support has also been provided for projects in high malaria burden countries, Sudan and Yemen.

Malaria epidemiology

Low-moderate endemicity (Group 3). In Saudi Arabia the decline in the caseload continues (700 autochthonous cases in 2003, mostly on the border between Saudi Arabia and Yemen). Cases continue to decline in Iraq, despite the conflict, with one specific malaria focus in the north. The caseload in the Islamic Republic of Iran has not changed appreciably over the past three years, and there was a significant increase 2002-2003 (9122 to 16 637 autochthonous cases) this is attributed to population movements, and also drug resistance. Data for Pakistan are incomplete, but a conservative estimate of total case load (2001) is 1.5 million. Intense malaria transmission with chronic, complex emergencies (Group 4). These countries, representing 16% of the regional population, have 95% of the malaria burden (Table 2).

Table 2 Group 4 countries malaria case load by country

Country	Year	Total cases reported	Cases confirmed	Cases estimated (million)
Afghanistan	2003	511 654	348 158	2.5
Djibouti	2001	4312	4312	0.1
Somalia	2002	15 772	1851	2.0
Sudan	2002	3 587 132	1 434 853	7.5
Yemen	2002	172 482	68 122	3.0

The RBM regional extrabudgetary plan of action for 2004–2005 has an estimated cost of US\$ 5 216 000. Extrabudgetary funds available to the Regional Office total US\$ 800 000. Regular Budget funds allocated to the Region at regional and country levels for 2004–2005 are US\$ 1 687 000. This amounts to a shortfall of around US\$ 4.3 million, requiring new approaches to donors.

The major restraints to malaria control in the Region are: weak monitoring and evaluation, lack of data on the coverage of the RBM interventions, especially access to effective treatment, insecticide-treated nets (ITNs), and malaria in pregnancy; inadequate estimates of the malaria burden at country level (essential for estimates of ACT requirements); incomplete epidemiological surveillance; and inadequate national capacity for planning and evaluation in the more highly endemic countries.

2.2 RBM progress in the WHO African Region

Dr Edwin Afari

Of the 42 endemic countries needing to change antimalarial drug policy (ADP), 22 have made the change. Of these, 19 have adopted combination therapy (CT) and 4 have implemented artemisinin-containing therapy (ACT), namely Burundi, South Africa, United Republic of Tanzania and Zambia. Implementation of ACT policy in these countries is providing the region with 'early implementation lessons'. Fully functional monitoring networks, with annually updated databases are operative in west and central Africa (WANMAT 1, WANMAT 2 and CANMAT), and east Africa (EANMAT). Uganda is employing strip-packaged drugs in a programmatic manner, 12 countries have plans to scale-up home management of malaria (HMM).

More partnerships are being formed to support countries in defining malaria in pregnancy (MIP) policies and implementation strategies. Fifteen countries are implementing MIP; a further five are at the pilot stage. The use of ITNs by the most vulnerable groups remains low (about 10%). Epidemic preparedness programmes are well designed and supported in southern Africa. New forecasting tools are being developed and field-tested, but this item remains a major challenge in countries with low resources.

The Global Fund is supporting malaria control in the African Region, with successful awards for a number of countries. A major problem is that the release of approved funds is

dependent upon demonstrated performance, but this is difficult to achieve with the weak monitoring and evaluation capability of most of the countries. As well, cumbersome procurement procedures for commodities lead to delays, which affect performance.

2.3 Implementation of integrated vector management in the Eastern Mediterranean Region

Dr Abraham Mnzava

Entomology and vector control capacity are weak in many countries: in many countries; in some countries there is no national focal point for vector control. Technical support has been provided to Somalia (strengthening vector control activities and ITNs), Saudi Arabia (vector control activities and monitoring insecticide resistance), Afghanistan (ITN implementation), Morocco (monitoring insecticide resistance), and Yemen (national vector control training). The regional integrated vector management (IVM) strategic framework has now been endorsed and published. Countries need to conduct vector control needs assessment, and then develop the national IVM plan of action. This process has commenced in Afghanistan, Djibouti, Pakistan and Sudan, but there is no information for the other countries. Five countries (Afghanistan, Djibouti, Saudi Arabia, Sudan and Yemen) have produced national ITN strategic plans; status is uncertain in the Islamic Republic of Iran, Pakistan and Somalia. Countries are now expected to develop a plan for pesticide management, as part of the national IVM plan. Regional guidelines on the monitoring of insecticide resistance will be published. The first meeting of the regional network on vector resistance (EMNVR) is planned for 2005. A global IVM framework has been developed, with Oman representing the Region and a document is in press. Under this umbrella, a working group recently reviewed vector control strategies for various malaria epidemiological situations (Oman and Egypt represented the Region). Major challenges remain. Basically, vector control systems are too weak to deliver the available tools, and countries are unable to achieve target coverage for significant impact. There is an urgent need to strengthen national capability and infrastructure.

2.4 Implementation of RBM interventions at the global level: progress and challenges

Dr Mohammadou Kabir Cham, on behalf of Dr Fatoumata Nafou-Traoré

Malaria is on the rebound. Over the past decade, *P. vivax* has re-emerged in several countries, and there is an increasing problem with *P. falciparum* in parts of Africa, Asia and South America. The reasons are poverty, population movements and warfare, resistance to antimalarial drugs and insecticides and fragmented efforts to combat malaria. The RBM approach aims to harness international advocacy for malaria, greater funding for malaria, and the use of partnerships. Recent progress is exemplified by improved strategies and plans and some successes with ITNs (Eritrea and Malawi). In Africa, 26 out of 44 countries have replaced chloroquine as first-line treatment, and 14 countries have now changed policy to ACT. However, ITN usage is low, and this requires urgent action. Major challenges for 2004–2005 are to: obtain effective national implementation plans for IVM; obtain affordable prices for treated nets; scale up production and distribution of long-life insecticide nets (LLINs); and increase access to antimalarial combination therapy.

2.5 Malaria control and immunization: new initiative for scaling up ITNs

Dr Mohammadou Kabir Cham

Immunization programmes and malaria control programmes share many common elements. They have similar programme components, the same physical infrastructure and staff at the operational level, similar logistical requirements, survey and monitoring techniques, etc. There are many areas of potential collaboration, and there are a number of practical examples where collaboration has taken place. The Accelerated Child Survival and Development Programme (ACSD) has the target of increasing routine EPI coverage, and distributing ITNs to pregnant women and immunized children. UNICEF and WHO are in the process of consolidating experiences, and developing a framework for further action. Training packages for malaria control will, in the future, include EPI concepts, methodologies and tools, etc.

3. ANTIMALARIAL DRUG POLICIES AND EPIDEMIC RESPONSE

3.1 Malaria epidemics: reporting, early detection, prevention and response

Dr Jose A. Najera

An epidemic is characterized by a significant rise in malaria cases and deaths, at a particular time and place. It can only occur in a population with low immunity, at a time of high transmission, being thus an abnormal event. Most often, this exceptional coincidence may occur when: a) there is a very high temporary increase in vectorial capacity; b) a large displaced non immune population settles in an endemic area; or c) an area of low endemicity is invaded by a very efficient vector. Malaria incidence may also rise in epidemic proportions due to the premature interruption of effective control. Recently, malaria epidemics have occurred in many areas of the world, including the traditional epidemic fringe, along the limits (in latitude or altitude) of the distribution of malaria endemicity. The rise of transmission, causing epidemics, is often linked with rainfall (increasing vector breeding), humidity (increasing vector survival) or temperature (speeding parasite development in the vector). Epidemics may be forecasted when associated with periodic phenomena, such as El Niño Southern Oscillation (ENSO) in the Pacific. Epidemic preparedness plans involve the identification of epidemic prone areas, their determinant intrinsic and extrinsic factors, and their relations with long-range weather forecasts. Prediction is only possible if sufficient information is available about past events. Recent developments in geographic information systems (GIS) technology and satellite-derived meteorological information offer useful tools for epidemiological studies. The latter do, however, depend upon a real understanding of local significance. Malaria early warning systems (MEWS) are now being developed which require the study of local epidemiology, collating data from a wide variety of sources. Early warning may be followed, if resources are available, by preventive measures, such as indoor residual spraying, which should be done only if it could complete full coverage before the expected rise in transmission. This is seldom possible unless a proper preparedness plan is in place. Moreover warning of epidemic risk often refers to a relatively large area, where the cost of vector control may be prohibitive; it is necessary, nevertheless to ensure an adequate supply of effective antimalarial drugs to cope with the potential emergency, taking into account that during the epidemic period communications may become difficult in certain areas.

In all cases, warning of epidemic risk should lead to a sharpening of epidemiological surveillance aiming at the early detection of the start of epidemic rise. This will require the definition of thresholds or seasonal normal channels and the improvement of the reporting system (e.g. routine weekly reporting and immediate reporting of detected abnormalities). It is often helpful to select sentinel sites, provided they are representative of the areas at risk and excessive confidence in them does not detract from analysing all available information. In all cases the detection of alarm signals should lead to the strengthening of diagnostic and treatment facilities, including in some areas the setting up of additional (temporary) health posts or emergency hospitals. It is important that the treatment is of high efficacy; in many areas this will now mean the use of artemisinin-containing treatment (ACT). It is also important to ensure effective treatment for cases of severe malaria, since these increases markedly in an epidemic. Although it is seldom feasible to carry out effective emergency vector control once an epidemic rise is detected, mass fever treatment may be an effective emergency control measure. In contrast, space spraying, a common response to an epidemic, has very limited indications, as it is only effective against flying mosquitoes.

3.2 Working group on recent experiences with epidemics: challenges and needs

Group 1 and 2 countries

A surveillance system (monitoring epidemiological, entomological, meteorological and environmental indicators) is necessary to prevent, detect and control epidemics. Numbers of arrivals coming from malaria endemic countries, the proportion of positive breeding places for larvae and rooms for adult mosquitoes, the density of vector larvae per dip and adults per room, and number and timing of rainfall or floods are example, of these indicators.

With establishment of a warning system, appropriate vector control and case detection measures should be taken in response to change in indicators. The reporting system at the national level is through immediate notification and the regional level through notification forms and annual reports.

A temporal and spatial database should be designed at regional level including: 1) total number of cases; 2) number of indigenous cases; 3) mortality; 4) locality of epidemic; 5) type of malaria; 6) efficacy of antimalarials. This is necessary for information exchange between countries in the Region.

- **Disease management:** For management of severe cases, the most efficacious drugs should be provided and available.
- **Needs for improvements:** training on entomology, microscopy and surveillance; intercountry meeting for epidemics detection and management; technical support from WHO.
- **Emergency stocks of diagnostic kits and supplies, antimalarials, insecticides, spraying equipment, at national and regional levels.**

Group 3 countries

- Forecasting, early warning and early detection: It is necessary to design a database to describe the history of malaria epidemics, with appropriate meteorological and demographic data. A system is needed to monitor population movements and to ensure the collection of relevant data from neighbouring countries and areas. For malaria epidemic control, the focus should be on early detection through weekly reports at peripheral level, especially from epidemic-prone sites, based upon early diagnosis by microscopic examination or rapid diagnostic test. The use of meteorological and entomological data for early warning systems should be considered when appropriate and available.
- Control measures: These were prioritized as: 1) rapid diagnosis and prompt treatment; 2) selection of vector control measure according to situation and vector behaviour; 3) high coverage with residual spraying at least one month prior to epidemic peak.
- Management of severe cases: The important priorities were: intravenous quinine injection for inpatient treatment; intermuscular artemether injection for remote areas; use of suppository formulations where appropriate; regular revision of national drug policy; use of RDT when microscopic examination is not possible.
- Reporting frequency should be *weekly* (country level); *monthly* (WHO); every 6 months and annually (national and WHO)
- Designing a database for temporal and spatial monitoring of malaria epidemics in the region: regarded as necessary.
- Capacity building: Important activities were considered to be: designing national guidelines for epidemic preparedness by the end of 2004; training at different levels; and malaria detection and management workshop at regional level.
- Emergency subregional stocks: This will require close collaboration between malaria control programme managers over choice and quantities of drugs, insecticides, rapid diagnostic test, spraying equipment and ITNs.

Group 4 countries

Activities were prioritized as follows:

1. Early detection system comprising 1) mapping of epidemic prone areas; 2) strengthening sentinel sites; 3) developing functional rapid response teams; 4) buffer stock of effective antimalarial drugs, insecticides, ITNs and laboratory supplies.
2. High priority for treatment. However, there is room for vector control if considered early and if resources are available. ACT is preferable in Afghanistan and Sudan. Other

countries should consider the most effective drugs. Health education surveillance should be strengthened.

3. For severe malaria, intravenous quinine should be available at hospital level and artesunate suppositories for children – as pre-referral treatment. Intermuscular artemeter should be available in remote areas if there are difficulties over microscopic examination and referral.
4. Reporting should be obligatory from local to provincial to national levels, and to WHO.
5. For epidemic detection and management capacity building; training, communication and transport facilities, development plan and guidelines, computer based system for case related data, meteorological and other data including health mapping for spatial stratification are needed.
6. Emergency stocks are needed at country and regional level (60% WHO, 40% country and partners) including anti-malaria drug policy, insecticides, rapid diagnostic tests, laboratory supplies, spray pumps, LLINs, forms.

The proposed structure for a rapid response unit at the level of district health centre and sentinel site is as follows.

District health centre

Rapid response team

Medical doctor
Entomologist/public health officer
Laboratory tech
Driver

Premises

Buffer stock
Car with communication
Plan
Guidelines
Contingency funds

Sentinel site team

Medical doctor/medical assistant
Laboratory tech
Statistical clerk

Communication tool
Registration mapping format
Laboratory supplies and equipment
Wall chart

4. SURVEILLANCE: MONITORING, EVALUATION AND REPORTING

4.1 Monitoring, evaluation and reporting: key to the 2004 Global Malaria Report

Mr J Miller

Progress with monitoring and evaluation in the first few years of RBM has been disappointing. No database exists for tracking global trends in malaria; this database is

necessary to trap the kind of data presented by malaria control programme managers at the meeting. In addition, a common reporting format needs to be agreed upon, so that a global malaria report can be produced every few years. At present there are too many indicators and sources of data, and insufficient guidance has been provided to countries on data collection methodology. It is intended to build an effective system for international comparative purposes by strengthening country capacity in data collection, around a few (e.g. 5) standardized indicators that cannot be modified by countries, and which employs standardized measurements. The RBM Monitoring and Evaluation Reference group (MERG) was established in 2003, has met three times and oversees five task forces: mortality trends; anaemia; malaria prevalence indicators; survey and indicator guidance; and framework for strengthening national capacity task forces.

4.2 Global Malaria Report: expectations from countries and regions

Mr J Miller

The Africa Malaria Report 2003 has generated mixed feedback. Other global reports are based on an established data collection process, rather than on 'what is reported to headquarters'. Also, the Africa Malaria Report has been criticized in that countries were not engaged adequately, and it is intended that this aspect should be improved. The next step, following the Africa Malaria Report 2003, is the Global Malaria Report 2004. This will involve continued compilation of country data by the regional offices, and compilation of Regional Office data by WHO headquarters. Draft country profiles will be prepared, and it is intended that a pilot reporting form will be enabled on the Global Atlas. Following consultations with countries on profiles in June/July, the draft report will be circulated for comment in August. The revised report will be published and available in November. The report will address burden and trends in malaria; drug policy, resistance and treatment coverage; prevention including ITN, indoor residual spraying and intermittent preventive treatment; epidemic prevention and response; equity issues; and financing and planning.

4.3 Working group on surveillance

The groups discussed the current malaria surveillance form and found the tools very useful as part of monitoring and evaluation exercise in countries of the Region. The groups agreed to the suggestion that information from the surveillance form should be posted on the RBM website. Some modification and additions were proposed in revising the form. These were very useful in guiding the Regional Office to revise and update the surveillance form that will be used starting from 2005. The groups also discussed the possibility of online transfer of data from national to regional level by e-mail.

Every country may have an additional set of specific indicators, in line with its strategic plan, selected on the basis of their national needs. The mechanism for the selection of these indicators will be through the national level technical committee or national expert committee through a national level workshop, which would be attended by WHO technical expert(s) to assist in the selection. After consensus is achieved, the set of indicators will be shared at the subnational level. After obtaining the necessary feedback, the technical committee will finalize the indicators.

5. GUIDELINES ON VECTOR CONTROL NEEDS ASSESSMENT

5.1 Roll of *Bacillus thuringiensis* H-14 in malaria control

Dr N Moazami

Highly pathogenic strains of *B. thuringiensis* (Bt), with insect-specific activity, were discovered in the 1960s. Bt produces endotoxins, and around 50 genes that produce Cry toxins have been sequenced. Bt H-14 was isolated in the Islamic Republic of Iran; the toxin produced by this bacterium has high efficacy against *Anopheles* and *Culex* mosquitoes. Bt H-14 is being grown in industrial scale fermenters, and a slow-release, floating formulation has been produced in granular form. The formulation has been assessed against anopheline and culicine larvae in the Islamic Republic of Iran, and against *A. arabiensis* in Sudan. The intervention had high activity against surface-feeding mosquito larvae, and an effective duration of 17–20 days. A commercial preparation ('Bioflash') is now available. Studies have shown 100% kill rates against mosquito larvae with this preparation, although no data are yet available on the extent to which operational use of Bt H-14 reduces malaria incidence.

5.2 Molecular identification of vector species and resistance mechanisms

Dr Navid D. Djadid

The goal of the regional network on vector resistance (EMNVR) is to assist countries in the optimal use of insecticides, within a system of integrated vector management. There are three arms to this objective: to develop standard test protocols for monitoring insecticide resistance; strengthen country capacity for monitoring vector resistance; develop a regional database. A regional reference laboratory can support this process by participation in training workshops, the introduction of new techniques and basic research to identify vectors and resistance mechanisms. Currently, there are six major research projects under way: 1) molecular genetics and detection of malaria parasites (Pf and Pv) and anopheline vectors; 2) molecular study and genetic structure of vaccine candidate genes (Pf and Pv); 3) molecular analysis and detection of mutations in antifol-resistance genes; 4) molecular analysis of insecticide resistance in malaria vectors; 5) population genetics in Iranian anopheline species; and 6) molecular systematics of different anopheline species.

5.3 Vector control needs assessment guideline development and implementation in the WHO Africa Region

Dr Messay Fettene Gebremariam

IVM is the strategic approach for vector control. The implementation of IVM requires an enabling policy framework, building country capacity in trained manpower and research, and stakeholder participation. The vector control needs assessment (VCNA) is a questionnaire which addresses the status of epidemiology of related diseases, existing interventions, health sector and resource needs and relevant regulatory policies. It is designed to identify gaps and barriers to IVM implementation. Once the prevalent problems have been identified, needs can be categorized:

- Is there a policy on vector control?
- Is there a need to strengthen institutions for effective operational research?
- Are there adequate managerial and decision-making skills?
- Are there adequate human resources for the work required?
- Are the environmental and agricultural policies appropriate?

In conducting the VCNA, stakeholder collaboration is essential, and requires clear stakeholder identification. It is advisable to have a steering committee to guide the VCNA process, and to set the timeline for the exercise, and identify data collectors. Data are collected through interviews of stakeholders and programme managers at district and national levels, analysed and a report written. The Steering Committee should decide upon the acceptability of the report. In the WHO African Region, 6 DDT-user and 5 non DDT-user countries have completed VCNA and found it to be useful: Burkina Faso, Chad and Congo were stimulated to establish new vector control units. Swaziland and Namibia realized that they lacked policy for insecticide registration.

5.4 Working group on VCNA: comment and recommendations on draft guidelines for vector control needs assessment in the Eastern Mediterranean Region

The groups found that the draft guidelines (tools) are not user-friendly, and need to be re-formulated, preferably close-ended question, the questions and tables should be numbered. They suggested that information required should be limited to a time period and country profile data should be added.

The draft guidelines were not ideal for countries of Groups 1–2 except Egypt, Morocco and the Syrian Arab Republic. These three countries have serious problems with other vector-borne diseases such as leishmaniasis and/or lymphatic filariasis. Much of the information requested is already available in most countries of the Region, e.g. on pesticide management, insecticides used and amounts. In others, they have to be collected through the VCNA. Some countries that have found that these tools are relevant have provided a plan of action for VCNA with appropriate timeline, budget, activities and individuals responsible for these activities.

6. COUNTRY REPORTS: ACHIEVEMENTS AND CHALLENGES

Achievements 2003–2004

All the group 4 (G4) countries have improved their monitoring of antimalarial treatment efficacy, by establishing sentinel sites, and conducting WHO *in vivo* tests, and this process is well established among the group 3 (G3) countries also. All countries have taken steps to improve malaria diagnosis, and to update treatment guidelines. Although most countries have relevant projects (community health workers in villages, facilitated drug distribution schemes), no country has documented improved access to treatment for its population. Monitoring and evaluation systems are needed to measure impact.

All countries have active vector control programmes. Strategies for the improved distribution of insecticide-treated materials are reported by the G4 countries, especially, although only Afghanistan has reported a comprehensive COMBI plan and targets for ITN distribution, retreatment and social mobilization. Indoor residual spraying is widely employed by both G3 and G4 countries, but there is limited information on progress towards targets. Monitoring of insecticide resistance is not undertaken widely, although several countries have plans. The Islamic Republic of Iran, Somalia and Sudan have reported other vector control activities: biological control with larvivorous fish and larviciding. Monitoring and evaluation systems are needed to measure impact and progress towards targets.

With regard to epidemic preparedness, G3 and G4 countries are developing early warning systems, although there is to date limited information on the effectiveness of the methods, or evidence upon which to choose the most suitable methodology for countries of the Region. Pakistan has piloted a MEWS plan, including a major training project, which may provide information of region-wide application. Malaria surveillance is generally acknowledged to be inadequate across the region, and countries are actively pursuing new initiatives. Again, monitoring and evaluation systems need to be established to assess progress. G4 countries are assessing the value of intermittent preventive treatment and there may be a need to establish regional guidelines.

All G3 and G4 countries have reported moves to improve partnerships and advocacy. Agencies involved in the partnerships are the pharmaceutical industry, GFATM, DFID, World Bank, WHO and various nongovernmental organizations. Capacity building has been a major activity of all countries, primarily through the organisation and conduct of training courses. Afghanistan and Yemen, in particular, have reported extensive training programmes. None of the countries have yet established monitoring and evaluation for their training programmes, although this is generally agreed to be necessary to ensure that training does translate into measurable impact. The monitoring and evaluation of malaria control activities is not yet an established, standardized process. Countries will require considerable assistance to formulate strategy, and the Regional Office has a crucial role to play.

Challenges encountered

Sustainable progress in malaria diagnosis and treatment at the periphery of the health care system are frequently cited challenges. Countries are attempting to improve malaria diagnosis, but the problems of malaria microscopy in peripheral facilities, and the high cost of alternative diagnostic tools are significant restraints on progress. Most countries have revised national antimalarial treatment policy, or are in the process of revision, but for the G4 countries, especially, this process is severely compromised by ever worsening parasite drug resistance, and the shortage of affordable replacement drugs. New, expensive antimalarial drugs complicate access to treatment, and home management of malaria.

Vector control in the Region is hampered by inadequate numbers of trained personnel, resources and indecision over strategy. The new focus on IVM is a welcome development, although the great differences in malaria endemicity in the Region, including marked differences within countries, may act against the development of a standardized regional approach to IVM.

Epidemic preparedness is a matter of extreme importance to the countries in the Region which have low or variable malaria transmission, or are epidemic-prone. Countries appear to be making important links between malaria surveillance, and early warning systems, although the latter are at an early stage of development. The presentation by Dr Najera, and subsequent discussion in the meeting has improved the understanding of the importance of comparatively simple observations: intensive measurement of malaria caseload in at-risk locations can effectively provide early warning of an emergency situation. Countries require region-based advice and assistance to develop these tools, which will need to be effectively monitored and evaluated.

Impediments to capacity building are identified as inadequate budgets and staff (G4); and inadequate technological capacity (G3). Pakistan is redefining roles and responsibilities of personnel in seeking the optimal use of limited human resources; a process which could usefully be monitored and recorded because of its potential wider applicability within the Region. Resource mobilization has suffered from the delays in receipt of Global Fund awards.

Operational research is of crucial importance to the solution of defined, local (and regional) problems, but the research agenda reported for the Region is not particularly strong, with the exception of Yemen. Few reasons have been provided for this, under this section, and it may be necessary for the Regional Office to investigate both the research agenda itself (in terms of suitable attention to both country and regional problems), and to obtain further information on the problems encountered in its development. Follow-up is required to consolidate and tabulate this information in conjunction with the plans of action for each country.

7. CONCLUDING DISCUSSIONS

7.1 Working groups

Working group recommendations on epidemic experiences, surveillance (monitoring and evaluation), and vector control needs assessment in the Region were presented and discussed in plenary.

Recommendations were unanimously adopted for: WHO-based support for monitoring and evaluation activities, revision of guidelines on vector control needs assessment, and human resource development. Recommendations were unanimously adopted that countries within the Region should: establish a system of monitoring and evaluation for all malaria control activities, and establish a system for the early detection of malaria epidemics (epidemic-prone countries). Countries also agreed to strengthen efforts for resource mobilisation, to start the process of VCNA, to establish assessment of human resource development, and to maintain and strengthen border coordination activities.

Participants were provided with a CD-ROM containing full illustrated texts of all presentations and background documents for this meeting, together with other relevant items from the regional RBM website.

7.2 Country experiences

Countries summarized their experiences with applications to the Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM) (highly endemic countries only), addressing the processing of submission, principal recipient of funds, amounts received to date, and associated problems. Each country was asked for its vision with regard to the funds requested, the role of partners, future plans with GFATM, the role of WHO, and thoughts in regard to countries which were not yet moving to ITNs and ACT.

Somalia: Somalia had started to measure treatment efficacy in all zones, in order to formulate the Somalia drug policy. Somalia had applied to the GFATM in round 2; an award had been made, but no funds had been received. Principal recipient: UNICEF and UN agencies.

Yemen: Dr Amran said that Yemen had tried to make an application to GFATM under round 1, but it had not been possible to constitute a CCM. A round 2 application was approved in February 2003, and the first allocation received in December 2003. There had been problems with Ministry of Finance and Ministry of Planning over the utilization of the funds, but these had been largely resolved at a recent meeting. Recent emails to the GFATM had received no response. Procedure changes in the GFATM had been a factor. No further applications had been made.

Afghanistan: Mr Kamal Mustafa described the round 2 applications, for US\$ 3.1 million approved January 2003. There had been debate over the principal recipient: UNDP was not available, and the Ministry of Public Health was chosen, with assistance

provided by international consultants. A team from the GFATM is expected shortly to sign the agreement with the Ministry of Health the overall goal is to improve capacity in the control of infectious diseases. UNICEF is responsible for procurement. Afghanistan has made a further application under round 4, with separate components for AIDS, tuberculosis and malaria. The malaria component is US\$ 10.6 million: to scale up ITNs and epidemic preparedness, and to strengthen national malaria control programme. No funds have been received for this award.

Pakistan: Pakistan applied to GFATM under round 2, and this was approved in September 2003. There have been delays: fund release process very slow. Also, a US\$ 7.5 million application (mainly for monitoring and evaluation) is approved under round 3, and a round 4 application (diagnosis and treatment facilities; no drugs involved) has been made, which is under review.

South Sudan: An application under round 2 was approved in 2003. The principal recipient is UNDP. The CCM has been concerned about the delay in receipt of funds. UNDP has charged 7.5% for administration, which has caused more delays. Changing the antimalarial drug policy has further delayed the process. MSF is responsible for procurement. No funds have been released to date.

North Sudan: A round 1 application was not considered because the country was in a 'complex emergency'. A round 2 application has been awarded, of total value of US\$ 33 million, with the Federal Ministry of Health as the principal recipient: this was agreed during the GFATM visit in late 2003. 'Funds would be available by the end of 2003', but no funds were received, and emails to GFATM receive no reply. In early 2004, GFATM required a change of principal recipient from the Ministry of Health to UNDP, and said that 'funds would come by 1 May'. No funds have been received to date.

Discussion: Several members thought that WHO should have a role in speeding up the disbursement of GFATM funds, once an award had been made. Dr Cham, however, made it clear that WHO could not be involved in the fund distribution process, although it could channel concerns to the GFATM. Several members felt that WHO should be the main technical resource for the GFATM, certainly for the malaria component of proposals. The fact that the GFATM had not used WHO technical expertise in assessing proposals and resulted in the funding of inappropriate antimalarial drugs. In summary, Dr Cham said that WHO has a technical role in connection with GFATM applications, and this will be expected in future, but WHO cannot facilitate fund release or distribution. WHO is willing to pass on messages to the GFATM.

8. RECOMMENDATIONS

Member States

11. All malaria endemic countries should establish or strengthen systems for monitoring and evaluation including:

- assignment of national focal point for monitoring and evaluation
 - development of national indicators and forms for data collection and reporting, national databases, annual malaria report
 - monitoring of coverage indicators related to access to treatment and coverage of insecticide-treated nets (ITNs) by conducting household surveys and collaborating with other ongoing surveys.
12. Malaria epidemic prone country countries should establish/strengthen a system for early detection of malaria epidemic including:
- identification of epidemic-prone areas
 - establishment of sentinel surveillance sites with laboratory facilities for weekly monitoring of malaria cases in those areas, ensuring proper communication and transport systems
 - building capacity for early detection, epidemic preparedness and response including developing a national guideline
 - urgent initiation of the process of registration for artemesinine derivatives for possible use in epidemic response.
13. Countries should strengthen resource mobilization efforts and take an active role in accessing resources, including considering the following:
- Collaboration with the Islamic Development Bank for financial support and capacity-building
 - Submitting proposals to the Global Fund in future rounds, with the cost of technical support from WHO for developing and implementing Global Fund proposals included in the submitted proposal
 - Seeking more national funds at local level
 - Adoption of specific projects for demonstrating success stories, with technical support from WHO.
14. Countries should start the process of vector control needs assessment as part of the IVM strategic plan, if relevant.
15. Countries, particularly those with projects approved by the Global Fund, should start the process of assessment of human resource development, making use of the WHO draft guidelines for individual and institutional assessment.
16. Countries should maintain and strengthen border coordination activities.

WHO

17. WHO should provide technical support to countries to strengthen monitoring and evaluation activities.

- Develop standard data collection and reporting forms and support national capacity building activities
 - Modify regional annual surveillance form according to country situation (3 different forms may be developed to address the indicators of the different groups of countries: highly endemic, low/moderate endemicity, malaria free/residual foci)
 - Strengthen feedback from the Regional Office to countries
 - Share information by developing a regional database of malaria information to be posted on the regional RBM website
 - Provide technical support in conducting malaria surveys to monitor outcome indicators.
18. WHO should provide technical support in the implementation of the vector control needs assessment. The draft guidelines on vector control needs assessment should be reformulated and finalized.
19. The Regional Office should continue to support border coordination activities among countries of the Region and with neighbouring countries in the African and European regions.
20. WHO should continue efforts towards human resources development by supporting the following intercountry workshops and training courses in 2004–2005.
- Diploma in Malaria Programme Planning and Management, Bandar Abbas (suggested dates are 8 January to 10 March 2005)
 - Intercountry course on vector control in Sudan
 - Epidemic early detection and management course, suggested to be held in Cairo
 - Training of trainers on quality assurance/control laboratory diagnosis in Oman
 - Monitoring and evaluation workshop
 - National courses for training of trainers on insecticide resistance monitoring in Yemen, including participants from Somalia and in Sudan.

Annex 1

AGENDA

1. Opening session
2. Objectives and expected outcomes of the meeting
3. Progress in the implementation of the Roll Back Malaria Initiative at global, regional and country levels: success, problems and constraints
4. Follow up of the recommendations of previous meeting
5. Review of regional and country activities for the 2004–2005 biennium
6. Review of antimalarial drug policy and access to treatment
7. Strengthening of monitoring and evaluation of malaria control programmes as part of the Global Malaria Report
8. Summary of malaria epidemic response and reporting
9. Linking malaria activities, particularly ITN implementation, with EPI – a new initiative for scaling up of ITNs at national level
10. Review guidelines for national vector control needs assessment as a basis for developing National IVM plans of action
11. Progress and challenges in implementation of GFATM proposal
12. Recommendations
13. Closing session

Annex 2

PROGRAMME

Tuesday, 25 May 2004

- 08:30–09:00 Registration
- 09:00–10:00 Opening Session
Message from Dr Hussein A. Gezairy, Regional Director, WHO/EMRO
(Given by Dr Mubashar Sheikh, WR/Iran)
Address by H.E. Dr Masoud Pezeshkian, Minister of Health and Medical
Education
Welcome remarks by Dr Rezaie, Chancellor of Isfahan University
- 10:00–10:10 Nomination of officers. Objectives of the meeting and method of work
- 10:10–10:30 RBM Evaluation and Progress Report for 2003, Dr H. Atta
- 10:30–10:50 IVM implementation in the Region, Dr A. Mnzava
- 10:50–11:20 Implementation of RBM interventions at the global level – progress and
challenges, Dr M. Cham
- 11:20–12:00 RBM progress in AFRO, Dr E. Afari
- 12:00–12:15 Innovative approaches and update on scaling ITNs – EPI/TTN partnership,
Dr M. Cham
- 12:15–14:00 Discussions
- 14:00–15:15 RBM update in high endemic countries (Afghanistan, Somalia, Sudan,
Yemen): Country presentations
- 15:15–16:00 Discussions
- 16:00–17:00 RBM update in low/moderate endemic countries (Islamic Republic of Iran,
Iraq, Pakistan, Saudi Arabia): Country presentations
- 17:00–17:10 Discussions
- 17:10–18:00 RBM update in countries with residual malaria transmission and those free
from malaria (Morocco, Syrian Arab Republic, Oman, Egypt, United Arab
Emirates): Country presentations
- 18:00–18:10 Discussions

Wednesday, 26 May 2004

- 08:30–10:30 Revision of the national drug policies: current status, implementation
challenges
Group work
- 10:30–11:30 Malaria epidemics—reporting, early detection and prevention and response,
Dr J. Najera
- 11:30–14:00 Recent experiences with epidemics, challenges and needs
Group work
- 14:00–14:30 Roll of *Bacillus thuringiensis* H-14 in malaria control, Dr N. Moazami
- 14:30–15:00 Molecular identification of vector species and resistance mechanisms, Dr
Djadid

- 15:00–15:15 AFRO experience in vector control needs assessment, Dr Fettene
Introduction and discussion of vector control needs assessment guidelines,
Dr A. Mnzava
- 15:15–16:35 Working groups
- 16:35–17:40 Presentation of guidelines
Plenary

Thursday, 27 May 2004

- 08:30–09:00 Monitoring, evaluation and reporting: key to 2004 Global Malaria Report,
Mr J. Miller
- 09:00–09:20 Global Malaria Report: objectives and expectations from countries and
regions
- 09:20–09:40 Household and health facility survey tools
- 09:40–10:30 Discussions
- 10:30–10:50 Introduction to working groups on monitoring and evaluation, Mr J. Miller
and Dr G. Zamani
- 10:50–14:00 Working groups
- 14:00–14:30 Introduction and discussion of human resource needs assessment tools, Dr
Hoda Atta
- 14:30–16:00 Working groups
- 16:00–17:00 Presentations by the working groups
Plenary

Friday, 28 May 2004

- 09:00–11:00 Presentations and discussions of RBM Expected results for 2004–2005
- 11:00–11:15 Progress and challenges of implementation of Global Fund proposals
- 11:15–12:30 Conclusion and recommendations
- 12:30–13:00 Closing session

Annex 3

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