

Report on the
**Regional workshop on monitoring and
evaluation of malaria programmes**

Luxor, Egypt
5–9 December 2004



World Health Organization
Regional Office for the Eastern Mediterranean

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EXECUTIVE SUMMARY

One of the main objectives of the Roll Back Malaria (RBM) partnership is to develop an effective monitoring and evaluation system. An assessment of the status of the RBM monitoring and evaluation system was done in 2002. The main findings of this assessment were a lack of focus in monitoring and evaluation indicators, lack of guidance on assessing malaria indicators and very weak capacity in monitoring and evaluation at the global, regional and national levels.

To address these shortcomings, a strengthening of the monitoring and evaluation system of RBM at the regional and national levels has begun to overcome the deficiencies of the present system.

Designing a two-stage monitoring and evaluation workshop for Eastern Mediterranean Region malaria endemic countries is the first step for capacity-building and upgrading of the malaria monitoring and evaluation system. The first stage of this workshop was conducted from 7 to 20 September in Sudan. The second stage, designed as a regional workshop, took place from 5 to 9 December 2004 in Egypt, Luxor, for malaria endemic countries, namely Afghanistan, Djibouti, Islamic Republic of Iran, Pakistan, Saudi Arabia, Somalia, Sudan and Yemen.

The main objective of this workshop was to train the participants to prepare a monitoring and evaluation plan for malaria control programmes. The secondary objective was to prepare a draft of a monitoring and evaluation plan for high priority countries as a basis for further development of a monitoring and evaluation system at the regional, national and subnational levels. The workshop was structured into several technical presentations on related subjects comprising of group works and plenary sessions. A redesigned regional annual report form on malaria surveillance was shown to participants and based on their feedback this form was finalized as another step for improving the monitoring and evaluation system. During the workshop, the decision of the WHO Regional Office for the Eastern Mediterranean to support operational research studies for an estimation of the malaria burden was announced. At the end of the workshop, all countries presented a draft of their monitoring and evaluation plan which were to be further improved and finalized in the Regional Office through regular contacts with national malaria focal points.

Recommendations

Countries

1. A finalized monitoring and evaluation plan should be submitted to the Regional Office (officially through the WHO Representative) (February 2005).
2. A monitoring and evaluation focal person should be appointed (immediate).
3. An annual WHO Eastern Mediterranean Regional Office reporting form should be submitted (April 2005).

4. Standardized Malaria Indicator Survey (MIS) questions should be included in planned surveys (as planned).

Regional Office

5. A regional monitoring and evaluation framework should be published based on country-specific monitoring and evaluation plans (June 2005).
6. A regional malaria report should be produced (June 2006).
7. A monitoring and evaluation channel should be established on regional RBM web site (June 2005).
8. Training workshops on the RBM data manager and HealthMapper database should be conducted in countries (as per country request).
9. A training module on monitoring and evaluation should be developed in collaboration with headquarters (December 2005).
10. A 2-week regional training course on monitoring and evaluation should be conducted using the modules developed (January–March 2006).
11. Operational researches to find appropriate models for better estimation of the malaria burden should be supported (annually).

1. INTRODUCTION

The first regional workshop on the monitoring and evaluation of malaria control programmes was held in Luxor, Egypt, from 5 to 9 December 2004. The workshop was held by the WHO Regional Office for the Eastern Mediterranean (WHO/EMRO) and attended by malaria programme managers and focal persons for the monitoring and evaluation of Roll Back Malaria (RBM) programmes in Afghanistan, Djibouti, Islamic Republic of Iran, Pakistan, Saudi Arabia, Somalia, Sudan and Yemen.

The objectives of the workshop were to:

- review the current experiences of countries in malaria surveillance and monitoring and to evaluate malaria interventions.
- discuss and develop a national and subnational framework for the monitoring and evaluation of the malaria programme.
- train the monitoring and evaluation focal points/data managers on management of malaria information at various levels.
- establish a network of monitoring and evaluation focal points to provide a framework for regional monitoring and evaluation systems.
- identify priority actions and key steps needed for strengthening national malaria monitoring and evaluation systems.

The chairmanship was shared on a rotating basis. The programme of the workshop entailed country presentations, group work and plenary discussion. The programme and list of participants are included as Annexes 1 and 2 respectively. An overview of the sentinel health surveillance system in Afghanistan is attached as Annex 3.

The workshop was opened formally by Dr Hoda Atta, Regional Adviser, Roll Back Malaria, WHO/EMRO who welcomed the participants and read the opening remarks on behalf of Dr Zuhair Hallaj, Director, Communicable Disease Control, WHO/EMRO. The importance of an effective monitoring and evaluation system for assessing the progress of the RBM programme towards its objectives was stressed and the need to identify required changes in current interventions and to find suitable areas for allocation of budget for the next steps. He stressed the importance of a sound monitoring and evaluation system for assessing RBM programmes. Millennium Development Goals (MDGs), and targets for countries receiving funds from Global Fund to fight AIDS, Tuberculosis and Malaria. The establishment of a network between monitoring and evaluation systems in countries of the Eastern Mediterranean Region was proposed by Dr Hallaj to facilitate coordination of malaria control programmes in this heterogeneous region.

2. FIRST DAY: CURRENT SITUATION OF MALARIA MONITORING AND EVALUATION

2.1 Technical presentations

2.1.1 Current situation of malaria monitoring and evaluation in the Eastern Mediterranean Region

Dr Hoda Atta started her presentation with a discussion of the results of external evaluation and assessment of the status of the RBM monitoring and evaluation systems in 2002. The main results of this evaluation were lack of focus in monitoring and evaluation indicators, inconsistent definition of indicators, lack of guidance in assessing malaria indicators, weakness in the present capacity of monitoring and evaluation at the global, regional and national levels, and lack of good quality data in the RBM programmes. She made reference to the fact that the main challenges of monitoring and evaluation in the Eastern Mediterranean Region were incomplete and low quality notifications on mortality and morbidity from countries, lack of reliable estimates of the malaria burden and the lack of a system for measuring outcomes. The Regional Office has started to build up monitoring and evaluation systems at different levels and with a variety of approaches which include conducting monitoring and evaluation workshops at national and regional levels, supporting research for the estimation of the malaria burden, including malaria coverage indicators in household surveys (e.g. PAPFAM in Sudan), designing a regional malaria database linked to HealthMapper, supporting development of Arabic and Farsi versions of HealthMapper and the creation of a special web site on monitoring and evaluation.

2.1.2 Malaria monitoring and evaluation system at the global level

Mr John Miller presented the current situation of monitoring and evaluation at the global level. A monitoring and evaluation reference group and its task forces were established in response to recommendations of an evaluation of the RBM programme. The first global malaria report after *Africa malaria report 2003* tries to establish an accountable and transparent malaria monitoring and evaluation system at the global, regional and national levels.

2.1.3 Malaria monitoring and evaluation system in the African Region

The third technical presentation by Dr Nathan Bakayita was focused on the current situation of monitoring and evaluation system in the African Region. Achievements of the monitoring and evaluation system in this region are mainly: defining core and supplementary indicators for RBM monitoring and evaluation; development of RBM monitoring and evaluation guidelines which are currently undergoing review; conducting RBM baseline surveys in a number of countries and data used for developing malaria strategy plans; inclusion of the malaria module in demographic and health surveys and multiple indicator cluster surveys; establishment of monitoring and evaluation networks and monitoring and evaluation working groups at national level; establishment of composite databases and production of malaria country profiles annually. The Regional Office for Africa planned to

prepare countries to report on progress made towards achievement of the Abuja targets in 2005, to incorporate the core malaria indicators in the nationally representative surveys (upcoming demographic and health surveys and multiple indicator cluster surveys) and subnational surveys (RBM follow-up surveys), and to use the opportunity presented by Global Fund to fight AIDS, Tuberculosis and Malaria reporting procedures to strengthen the national malaria control programme monitoring and evaluation capacity, given that up to 7% of the budget is intended for monitoring and evaluation.

2.1.4 Results-based management and logical framework matrix

Dr Ghasem Zamani provided an overview of results-based management and logical framework matrix as a tool for planning and defining proper results for malaria control programmes. In results-based management, programme managers start by identifying what they want to achieve and estimate the resources needed to achieve those goals, rather than looking at the available resources and deciding what is achievable within the limitations of those resources. The logical approach to programme management is a disciplined systematic and structured way of thinking which makes explicit the cause-and-effect relationship between actions and results, responsibilities and time frames.

2.2 Country presentations

2.2.1 Afghanistan

The Basic Package for Health Services represents the official policy of the country for the delivery of health-care services at the primary health care level. Another basic package for secondary and tertiary levels (hospitals) was recently developed and approved by the health authorities. Malaria management is an integer part of both packages. The national health management information system completed the development of tools and indicators for the Basic Package for Health Services (including those for malaria morbidity). The standardized health management information service is expected to cover 65% of the country by the end of 2004. Development of tools for the hospitals' package is under way.

The Department of Epidemiology, Early Warning and Epidemic Preparedness in the newly established national malaria and leishmaniasis control programme is responsible, in collaboration with the health management information system, for establishing epidemiological information and feedback systems capable of generating appropriate responses, and is part of the monitoring and supervision mechanism.

The Basic Package for Health Services and the basic package for hospitals are solely for disease management. Other malaria control aspects would require a parallel information system within the national malaria and leishmaniasis control programme.

There is a monitoring and evaluation plan pending for the development of the multi-year strategic plan (March 2005). There are national and subnational monitoring and evaluation focal points in the new national malaria and leishmaniasis control programme structure.

Compliance of partners contracted the delivery of the two basic packages for health services with the procedures to be used for data collection, processing, and a feedback mechanism as formulated by the health management information system. A shortage of resources and security problems are main challenges for having a monitoring and evaluation system for the health system. To have a functional monitoring and evaluation system for the malaria control programme Afghanistan needs consultancy to carry out needs assessment for monitoring and evaluation and to develop the monitoring and evaluation plan during the multi-year strategic planning exercise. Intensive training programmes for the national malaria and leishmaniasis control programme staff assigned monitoring and evaluation responsibilities, resources to establish database networks (including electronic resources where appropriate) at different levels and financial incentives and/or fringe benefits for the staff involved in monitoring and evaluation.

2.2.2 Islamic Republic of Iran

All malaria cases are laboratory-confirmed and treatment is free of charge and based on national drug policy. Malaria cases are detected and epidemiologically investigated actively by mobile teams and passively through passive posts, laboratories and clinics. All malaria control activities are reported through 14 separate forms. Malaria cases are reported daily by rural and urban health centres to district and provincial health centres. Reporting from provincial health centres to the national malaria control programme is weekly by telephone, fax, Internet and through post offices. At the end of each month, all figures are collated and are again sent to the national programme. All epidemic situations should be reported daily. Analysis and feedback are sent to the lower levels weekly and at the end of the month. An operational provincial plan is prepared annually according to the national strategic plan but there is no specific organization, focal point or budget for monitoring and evaluation. Presence of indicators that are difficult to measure and their usage in routine management of a malaria control programme and the establishment of a monitoring and evaluation network are the main challenges.

2.2.3 Pakistan

Data collection is through the health management information system. A well-established system collects data from first level care facilities mainly on clinical malaria and laboratory data at secondary care level. Main indicators are: % of new malaria cases; % slide collection from fever cases; % of total positive cases; % positive for *P. falciparum*; and the number of days that drugs are out of stock. An integrated and parallel malaria control programme surveillance system collects data at malaria microscopy centres on a monthly basis and through active case detection and malariometric surveys. Indicators for this system are: number of confirmed malaria cases, % *P. falciparum* out of total positive cases, annual parasite index (API), annual falciparum index (AFI) and slide positivity rate (SPR). Data are analysed at Division of Malaria Control, Islamabad, and regular feedback is provided to provinces and districts.

Reports are received by the provinces from the districts on specially designed formats. At the national level they are received on a monthly basis. Compilation of data at the national

malaria control programme is on a monthly basis. This information is used for planning and management by the national and provincial health and planning and development ministries. Outbreak detection at district and subdistrict levels is reported on epidemic immediate reporting forms to the higher levels. Feedback is provided by telephone, fax and post. In the Disease Early Warning System (DEWS), functional at some facilities in some districts, cases are recorded daily and plotted on a weekly basis.

Four sentinel sites countrywide were made functional in 2003 and 2004 for monitoring insecticide resistance in Punjab province under the supervision of a provincial malaria control programme entomologist. Drug efficacy monitoring supported by WHO has been started by four sentinel sites. For epidemic detection, training of sentinel site staff in the use of DEWS weekly watch charts began, malaria early warning system plans were finalized and meteorological data collection initiated.

Several malaria knowledge, attitudes and practices (KAP) surveys on public sector financing, assessment of public and private sector health care and community perceptions and practices about malaria and its control were conducted. A baseline survey on the use of insecticide-treated nets through a public-private partnership funded by Global Fund to fight AIDS, Tuberculosis and Malaria has been completed in 11 high risk districts.

Reviewing, updating and reducing the number of existing surveillance tools and designing of new monitoring tools at different levels, selection of indicators in line with the regional and national demands, the involvement of the private sector in malaria surveillance systems are main strategies for designing a sound and effective monitoring and evaluation system.

2.3.4 Sudan

The malaria surveillance and information system is part of the general health information system. There is a separate system for the notification of malaria cases in epidemic-prone areas, however data collection forms are the same. Monitoring and evaluation is part of malaria strategic annual plans and the Global Fund plan. Recently after a national training workshop on monitoring and evaluation, focal points at both national and state level were nominated. A monitoring and evaluation plan at the national and regional levels has been drafted.

Communication difficulties, poor data analysis particularly at local level, financial constraints, and a lack of trained personnel are the main challenges. Planned activities for 2005 are to conduct a comprehensive malaria survey to obtain data on the agreed upon indicators (PAPFAM), to develop a monitoring and evaluation unit in 13 states and to develop a system for obtaining data and information from various sources.

2.3 Group work

In the first group work participants reviewed the logical framework matrix of Sudan's malaria monitoring and evaluation plan and after some discussion attempted to revise this

framework. Rapporteurs for each group presented the revised Sudan's logical framework matrix in a plenary session.

The second group work of the first day was to provide country-specific stated results within the logical framework matrix.

3. SECOND DAY: FRAMEWORK FOR MONITORING AND EVALUATION OF MALARIA CONTROL PROGRAMME

3.1 Technical presentations

3.1.1 General concepts of malaria indicators

Miller in the first technical presentation of the second day gave a summary of general concepts of different types of indicators of a monitoring and evaluation system. He provided some examples from the malaria control programme for these indicators including input, output, outcome and impact indicators.

3.1.2 Malaria monitoring and evaluation system

The second technical presentation was by Dr Mohammad Khalifa who presented an overview of the monitoring and evaluation system and its importance. Failure to achieve the objectives can occur at any of the three levels: input, output or outcome. Input (resources) may fail to be procured. Sometimes resources are available, but are not transformed into services or output required. Services may be provided, but fail, for a variety of reasons, to result in the anticipated outcomes.

3.1.3 RBM global indicators: logical background

Dr Bernard Nahlen summarized the logical background for the selection of the RBM global indicators. These indicators were drafted and discussed at the second RBM Global Partnership Meeting in Geneva in 2000. After further discussion with WHO Regional Offices and other RBM partners these indicators were included in *RBM Framework for Monitoring Progress and Evaluating Outcomes and Impact*, printed and disseminated in 2000. The RBM global core indicators are:

- Malaria death rate (probable and confirmed) among target groups (under-5s and other target groups): the Monitoring and Evaluation Reference Group (MERG) Task Force on Mortality recommends focus on all-cause mortality, combined with good evaluation of coverage of treatment and prevention and to have special studies (sentinel sites, demographic surveillance systems) in a few areas for more in-depth information to interpret trends in malaria-specific mortality.
- Number of malaria cases, severe and uncomplicated (probable and confirmed) among target groups (under-5s and other target groups): in areas of the highest burden, most

malaria cases are treated outside the formal public health care system and data from the health management information service provides only a minimal estimate; need to include estimate of completeness of reporting.

- Proportion of households having at least one treated bednet: insecticide-treated nets reduce malaria transmission by 90%; malaria-related morbidity in young children and pregnant women, and all-cause child mortality is reduced by as much as one-third across a range of transmission settings.
- Percentage of patients with uncomplicated malaria receiving correct treatment at health facility and community levels, according to national guidelines, within 24 hours of onset of symptoms: access to prompt and effective treatment is the key element in successful reduction of the malaria burden in areas where there is rapid onset of illness and severe health outcomes related to *P. falciparum*, especially among young children and other non-immune populations.
- Percentage of health facilities reporting no disruption of stock of antimalarial drug (as specified in the national drug policy) for more than 1 week during the previous 3 months: presumably was chosen as an indicator of health system functioning. It is not clear how useful this is for reporting at the global level and measuring this indicator in a standard way is difficult. The third MERG Meeting in Geneva during May 2004 decided not to use this indicator as a global indicator although identified it as useful, even crucial, for country-level monitoring.

3.2 Group work

Participants continued to work on Sudan's logical framework matrix in three groups. They presented the finalized logical framework matrix in a plenary session. After the plenary session, participants started to finalize their country-specific logical framework matrix.

3.3 Country presentations

3.3.1 Djibouti

A monitoring and evaluation system does not exist in Djibouti. However, monitoring and evaluation units will be part of the newly established multisectoral secretariat executive to fight against AIDS, tuberculosis and malaria. The malaria component at the ministry of health undertakes quarterly routine surveillance and the monitoring and evaluation unit will use the data to produce the annual monitoring and evaluation report. With the new epidemiological surveillance system, malaria has been included among epidemic prone disease. From this perspective health centres must declare malaria cases on a weekly basis. In order to avoid overloading the system, health personnel are requested to transmit only information regarding the number of diagnosed malaria cases by age.

Since the above may not be sufficient to assess the magnitude of the malaria problem in all its aspects, the national malaria programme is planning to introduce a malaria surveillance

system through sentinel posts to collect specific information on the morbidity and mortality of the population, including data on pregnant women and children under 5. Establishment of malaria sentinel surveillance posts, proper health information system within the ministry of health and operational research on malaria resistant to antimalarial drugs and *Anopheles* to insecticides are planned activities for strengthening the monitoring and evaluation system.

3.3.2 Saudi Arabia

Malaria is still endemic in some parts of Saudi Arabia, particularly in the Jazan and Aseer regions in the south. The population at risk is about 1.1 million representing about 5% of the country's population. The country has a competent and adequately financed malaria department and an efficient information system on malaria cases.

During the last 5 years a significant reduction in the incidence of malaria has been achieved and malaria control efforts are being directed towards elimination of the disease. Disease surveillance is through passive case detection and epidemiological investigation of positive cases in the country include areas free of local transmission. Development of an early warning system for malaria outbreaks are based on a clear understanding of malaria endemicity, and information on landscape patterns and climate at the Saudi–Yemeni border area are gained through geographic information systems (GIS) and the use of computers. Population movement across border areas and development of drug resistance and insecticide resistance are main challenges. The malaria control programmes planned to strengthen cooperation with Yemen and eliminate highly-infected malaria foci through time-limited attack measures.

3.3.3 Somalia

Numbers of established sentinel sites in different zones of Somalia are as follows: northwest zone 18, northeast zone 8, central zone 15 and southern zone 9. Zonal focal points collect data for all communicable diseases, including malaria, from sentinel sites in 4 zones. They send data received by email or phone and compilation is carried out in the Hargeisa office. Zonal focal points of RBM collect data on malaria cases, entomology and rainfall validation, compilation and feedback to the focal points is done through the communicable disease control officer and the malaria coordinator.

Lack of trained staff, finance, logistic support in carrying out malarial activities, community participation and community awareness and security constraints are the main challenges of the malaria control programme. Poor infrastructure of health facilities, and insufficient equipment and supplies for drug efficacy monitoring, lack of quality control on malarial microscopy, lack of knowledge and skills for data management are problems that need to be addressed for the establishment of a good monitoring and evaluation system. The monitoring and evaluation system is integrated; in addition there is a parallel malaria information system. There are national focal points (zonal focal points) but not subnational focal points for monitoring and evaluation. There is no specific allocated budget for monitoring and evaluation.

3.3.4 Yemen

The national health information system is still very weak. There is a plan to integrate malaria programme efforts with the department of disease surveillance despite its current weakness. There is a specific budget for monitoring and evaluation. Currently the director of epidemiology is the national focal point for monitoring and evaluation, whereas the provincial malaria coordinators (directors of malaria in the governorates) are supposed to be the subnational focal points. Evaluation of the malaria coordinators was carried out in March 2004 and the decision was taken to appoint better qualified coordinators in 6 governorates within the context of human resource development.

The surveillance system initiated matched the overall goal and objectives of the national malaria control programme. It started in 2000 as pilot tests in certain governorates and was expanded gradually to cover all the governorates. It is based on mainly passive case detection, and to a limited extent active case detection, and includes reporting of both clinical and laboratory confirmed malaria cases in addition to deaths related to malaria. Functional sentinel sites to monitor the efficacy of Africa Malaria Days have been established since December 2002. Quality control on malarial microscopy has been established in Hodeida, Socotra, Sana'a and Dhamar governorates.

There are teams ready to respond promptly to notification of a malaria epidemic anywhere in the country and to evaluate the control measures. Sustainability of political commitment and economic status of the national staff are key challenges for continuing a successful control programme.

4. THIRD DAY: IDENTIFYING DATA COLLECTION METHODS FOR MONITORING AND EVALUATION

4.1 Technical presentations

4.1.1 Routine malaria surveillance system

Dr Mohamed Khalifa provided an overview of the routine malaria surveillance system and Yemeni experiences in the implementation of this system. The important principles that were considered while establishing the surveillance system in Yemen were as follows:

- Clear objectives regarding the national malaria control programme (specific, measurable, achievable, relevant, time bound).
- Clear criteria for defining cases of malaria. The case definition is usually based on clinical findings, laboratory results, and epidemiological data concerning the time, place and persons affected.
- The intensity of the planned surveillance (active versus passive) and the duration of the surveillance (ongoing versus time-limited) must be known in advance.

- The selection of sentinel clinicians or institutions for regular reporting should be considered. These were selected during the training activities, the series of clinical meetings which were conducted and the studies of monitoring the efficacy of Africa Malaria Days.
- The items of data to be collected and the manner in which each item will be used in the analysis must be carefully determined.
- In order to reduce the attendant costs of the information system and to maintain the interest of staff, it is advisable to obtain only the minimum level of accuracy.
- The kinds of analyses needed (e.g. analyses of incidence, prevalence, case fatality ratios) should be stated in advance.
- In addition, there should be plans for the dissemination of findings, or how the information will be shared.
- The above objectives and methods should be developed with the aid of those who will collect, report and use the data. This ensures sustainability.
- A pilot test should be performed and evaluated in the field in one or a few demonstration areas before the full system is attempted.
- When the full system is operational, it too should be subjected to continual evaluation.

In brief, key components of developing a surveillance system are training (informative written guidelines or standard operating procedures), remuneration (motivation), supervision (monitoring, quality control, feedback and evaluation).

4.1.2 Designing sentinel surveillance systems

Mr Kamal Mustafa summarized the situation of the sentinel surveillance system in Afghanistan. Sentinel health surveillance systems as an initiative by WHO, USAID/REACH and ministries of health aim to develop a sentinel surveillance system that focuses on a small number of diseases and conditions of major public health importance, and which require urgent action for disease control complementing the work of the current health management information system.

The sentinel surveillance system in Afghanistan was initiated in June 2004 through discussions between WHO, USAID/REACH and the Ministry of Public Health as a result of the lack of quickly accessible epidemiological information concerning major diseases in Afghanistan, the need for proper national diseases surveillance and quick response systems as a function of public health, and the importance of collaborative efforts in developing these systems.

The overall goal of this initiative is to develop a functional national sentinel health surveillance and response system in Afghanistan focusing on a set of diseases of public health importance to produce actionable data in a timely manner. Specific objectives, guiding principles, strategies and processes of the sentinel health surveillance system in Afghanistan are included in Annex 3.

4.2 Group work

The first group work on the third day was designed to continue the work on the logical framework matrix and to identify appropriate data collection methods for indicators in country-specific logical framework matrices.

Terms of reference for the second group work were to review the RBM annual report on malaria surveillance form and to provide appropriate recommendations considering the specific and diverse eco-epidemiology of malaria in the Region. Participants were divided into three groups. Recommended changes were discussed in a plenary session and the form was edited according to these recommendations and discussions. This form will be tested in the Region for the reporting of malaria information in 2004.

5. FOURTH DAY: FINALIZING COUNTRY SPECIFIC MONITORING AND EVALUATION PLANS

5.1 Technical presentations

5.1.1 Indicators for vector control interventions

Dr Abraham Mnzava provided an overview of scientific basis of selected and appropriate indicators for vector control interventions. Vector-borne diseases are of major public health importance in the Eastern Mediterranean Region. To control these diseases, in addition to providing adequate case management, prevention is essential. Technical capacity is required to plan, implement, monitor and evaluate needs, human resources and physical infrastructures.

In epidemiological terms a good tool for control of vector-borne diseases must be able to reduce transmission to the lowest level, i.e. impact on vectorial capacity¹. A primary vector, if given the choice between biting humans or animals, will bite humans (human blood index); lives longer, thereby increasing its chance to transmit (parous rates, ovarian dilatations); is susceptible to parasites (sporogony); and has the ability to reproduce in large numbers (density). Based on these assumptions, insecticide-treated nets/long-lasting insecticide-treated

¹ Vectorial Capacity = $c = \frac{ma^2bp^n}{-\ln p}$

nets impact on biting rates, survivorship, sporogony and densities. Indoor residual spraying impacts on survivorship, sporogony and densities whereas larval control methods impact only on densities.

It is preferable to collect all indicators, ranging from process to impact and including entomological: biting; resting; densities; survivorship, etc. But given the reality the programmes should concentrate on impact/coverage indicators.

Indoor residual house spraying/Indoor residual spraying

- Proportion of house structures/units/rooms sprayed out of those targeted.
- Proportion of population living in sprayed house structures/units/rooms out of those targeted.

Insecticide-treated nets/long-lasting insecticide-treated nets

- Proportion of people possessing an insecticide-treated net/long-lasting insecticide-treated net out of those targeted.
- Proportion of people reported sleeping under an insecticide-treated net/long-lasting insecticide-treated net out of those targeted.

Entomological indicators

- Entomological inoculation rate (EIR): numbers/person/night \times sporozoite rate.

Monitoring of resistance in sentinel sites is mandatory. In conclusion, it is always important to institute a monitoring and evaluation system when implementing vector control, and as vector control implementation is influenced by many factors, including behavioural (vectors and hosts) and ecological factors, it is necessary to focus on indicators that can be achieved by the control programme.

5.1.2 Structure of monitoring and evaluation plan for malaria control programme

Dr Ghasem Zamani presented a summary of the basic structure of a monitoring and evaluation plan. A good monitoring and evaluation plan should include concise background information, a robust logical framework matrix, brief descriptive details for each indicator (impact, output and outcome) and a detailed and appropriate plan of action.

Background information provides a brief outline of the malaria situation, a brief overview of the national malaria control programme and a detailed description of monitoring and evaluation units at national and subnational levels which include number and qualifications and experience of key staff, needs and gaps, responsibilities and lines of accountability, detailed description of the data management at national and subnational levels

(hardware and software), data collection, analysis, feedback and an integrated system if one exists.

In the logical framework matrix of a monitoring and evaluation plan results should be clearly expressed, indicators clearly defined, solid baseline data provided (or plans made to develop a baseline), and targets unambiguous and realistic.

During planning for a monitoring and evaluation system one is reminded that indicators are only intended to indicate, and not to provide scientific “proof” or detailed explanations of changes. It is important to note that the measurement of change should not be transformed into a burdensome workload and that it is better to have approximate answers to a few important questions than to have exact answers to many unimportant questions.

In the monitoring and evaluation plan, for each selected indicator detailed information should be included providing justifications for selection of this indicator, the pros and cons, definition, unit of measurement, formula, subdivisions and details of data collection methodology (source, frequency), details of arrangements for providing feedback (person responsible, frequency), quality assurance measures and details and responsibilities of any partners involved should be provided.

A detailed plan of action including time frames, responsibilities, budget and the source of budget for planned activities should be provided.

5.1.3 Operational research: estimation of the malaria burden

Dr Amal Bassili gave an announcement in her presentation of 13th Call for Proposals of the EMRO/TDR Small Grants Scheme for Operational Research in Tropical and Other Communicable Diseases. Due to great uncertainty about the malaria burden in the Region, one of the research priorities in this round of training in tropical diseases and small grants is “Building sensitive models for estimating the malaria burden in different epidemiological situations”.

Eligible countries are Group 4 countries in the Region: Afghanistan, Djibouti, Somalia, Sudan, and Yemen. The study area will represent different epidemiological strata which will depend on the degree of malaria endemicity within each of these countries.

5.2 Group work

During country-specific group work of morning and afternoon sessions, participants continued to prepare a draft of a monitoring and evaluation plan.

6. FIFTH DAY: PRESENTATION OF MONITORING AND EVALUATION PLANS

Mr Hany Farouk introduced the first version of RBM data manager. This tool will be used for automatic data entry and data validation from data collection forms in Word format.

The data entered will be transferred to HealthMapper database. The secondary objective of this tool is to design data collection forms in Word format based on a standard database and its indicators.

Country representatives presented their monitoring and evaluation plans. Country specific monitoring and evaluation plans will be finalized through direct contact between regional monitoring and evaluation units and a monitoring and evaluation focal person for each country.

7. RECOMMENDATIONS

Countries

1. A finalized monitoring and evaluation plan should be submitted to the Regional Office (officially through the WHO Representative) (February 2005).
2. A monitoring and evaluation focal person should be appointed (immediate).
3. An annual WHO Eastern Mediterranean Regional Office reporting form should be submitted (April 2005).
4. Standardized Malaria Indicator Survey (MIS) questions should be included in planned surveys (as planned).

Regional Office

5. A regional monitoring and evaluation framework should be published based on country-specific monitoring and evaluation plans (June 2005).
6. A regional malaria report should be produced (June 2006).
7. A monitoring and evaluation channel should be established on regional RBM web site (June 2005).
8. Training workshops on the RBM data manager and HealthMapper database should be conducted in countries (as per country request).
9. A training module on monitoring and evaluation should be developed in collaboration with headquarters (December 2005).
10. A 2-week regional training course on monitoring and evaluation should be conducted using the modules developed (January–March 2006).
11. Operational researches to find appropriate models for better estimation of the malaria burden should be supported (annually).

Annex 1**PROGRAMME****Sunday, 5 December 2004**

	Chair: Dr Naeem Durrani
08:00–8:30	Registration
08:30–9:15	Opening session Opening remarks Workshop objectives and expected outcome Nomination of moderator, rapporteurs and facilitators
09:15–10:00	Current situations of malaria monitoring and evaluation and expected results at global and regional levels Current situation of malaria monitoring and evaluation in Eastern Mediterranean Regional Office Current situation of global malaria monitoring and evaluation Current situation of malaria monitoring and evaluation in WHO Regional Office for Africa Objective 1: to prepare national expected results for malaria control programme
10:30–11:00	Logical framework matrix: a tool for results-based management
11:00–11:30	National malaria control programme and monitoring and evaluation system in Sudan, presentation of logical framework matrix (LFM)
11:30–12:30	Group work to discuss and redefine expected results of Sudan's malaria monitoring and evaluation logical framework matrix
13:30–14:30	Plenary session: presentation of expected results of LFM (each group 20 minutes)
14:30–16:00	Group work to develop country-specific expected results
16:00–17:00	Plenary session: presentation of current monitoring and evaluation system of malaria control programme (Afghanistan, Islamic Republic of Iran, Pakistan, Sudan)

Monday, 6 December 2004

	Objective 2: to finalize framework for monitoring and evaluation system of malaria control programme Chair: Dr Waqar Butt
08:00–08:30	Plenary session: presentation of country-specific expected results (Afghanistan, Islamic Republic of Iran, Pakistan)
08:30–09:30	Indicators General concepts Impact indicators Outcome and output indicators
09:30–10:00	RBM global indicators: logical background for their selection
10:30–11:00	Monitoring and evaluation system for Integrated Vector Management: Indicators and data collection tools

11:00–12:30 Group work to discuss and redefine indicators of Sudan's malaria monitoring and evaluation logical framework matrix (LFM)

Monday, 6 December 2004

12:30–14:30 Plenary session: presentation of finalized LFM (each group 20 minutes) and discussion

14:30–16:00 Group work to finalize country LFM

16:00–17:00 Plenary session: presentation of current monitoring and evaluation system of malaria control programme (Djibouti, Saudi Arabia, Somalia, Yemen)

Tuesday, 7 December 2004

Objective 3: to identify appropriate data collection methods for monitoring and evaluations of malaria control programme

Chair: Dr Mohamed Khalifa

08:00–08:30 Plenary session: presentation of country-specific LFM (Djibouti, Saudi Arabia, Somalia, Yemen)

08:30–09:30 Data Management
Routine surveillance system
Sentinel sites surveillance system
Surveys

09:30–10:00 Data management: RBM Global Data Management System and discussion

10:30–11:00 Data management: RBM Regional Data Management System and discussion

11:00–11:45 Group work to identify appropriate data collection methods for indicators in LFM

11:45–12:30 Plenary session: presentation of appropriate data collection methods for indicators in LFM (each group 20 minutes) and discussion

12:30–17:00 Computer practice to design appropriate data collection for malaria surveillance based on indicators selected in country-specific LFM

Wednesday, 8 December 2004

Objective 4: to finalize country-specific monitoring and evaluation plan

Chair: Mr Kamal Mustafa

08:00–09:30 Plenary session: feedback and discussion on regional data management tool

09:30–10:00 Monitoring and evaluation plan: general structure of monitoring and evaluation plan, instructions for group work

10:30–14:30 Group work to develop country-specific monitoring and evaluation plan

14:30–15:00 Operational research for monitoring and evaluation, estimation of the malaria burden

15:00–16:30 Group work to develop a research proposal for estimation of the malaria burden

16:30–17:00 Group discussion

Thursday, 9 December 2004

08:00–10:00 Plenary session: presentation of finalized monitoring and evaluation plan by all countries

10:30–12:00 Conclusions and recommendations

12:00–12:30 Closing session

Annex 2

LIST OF PARTICIPANTS

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Annex 3

OVERVIEW OF THE SENTINEL HEALTH SURVEILLANCE SYSTEM IN AFGHANISTAN

(WHO, USAID/REACH and MOH)

Specific objectives

- To develop a surveillance system that is simple, feasible, affordable and sustainable.
- To develop a system that complements current HMIS systems by producing data from a wider variety of sources and linking it with rapid response health teams for intervention.
- To make use of facilities and resources which are already functional and reliable, such as the WHO polio/EPI surveillance network.
- To measure the burden of a limited number of diseases of high public health importance in a rapid and continuous manner.
- To have a training and capacity-building component for field epidemiologists through regular training and mentoring at the provincial level.
- Improve data quality at the local level through rigorous application of epidemiological methods and simple tools such as the 'weekly watch' chart.

Principles

Guiding principles of the proposed sentinel surveillance system are to establish baseline prevalence, detect outbreaks and epidemics, develop rapid response to epidemics/outbreaks, monitor changes of disease over time and focus resources to solve problems and syndromic approach as appropriate.

Proposed priority diseases to be initially addressed by the sentinel health surveillance system include tuberculosis, malaria, severe acute respiratory infections/pneumonia (under 5s), severe diarrhoea/diarrhoea with dehydration and maternal deaths (pending review of feasibility for study).

Strategies

Following strategies have been selected for establishment of new surveillance system:

- Use of whole, or subsample of, WHO polio surveillance focal points at the district level. WHO currently has a system encompassing 458 sentinel sites and up to 4000 community-based reporting points throughout Afghanistan primarily set up to monitor polio and measles cases.

- Expanding focal points' responsibility to include extended list of diseases for surveillance (such as tuberculosis and malaria).
- Define syndromes more precisely and develop workable case and outbreak definitions.
- Define surveillance roles and responsibilities of staff at each level of the system.
- Develop procedures for notification, investigation and control action for each disease or condition (cases and outbreaks).
- Encourage active and rigorous use of the WHO 'weekly watch' chart as a method of improving data collection and use at the local level.
- Encourage focal points to visit sites for confirmation of cases, also to make more efficient use of regular visitations of focal points to sites.
- A staged implementation of the surveillance system in the provinces of Baghlan and Takhar.
- Expand involvement to a range of stakeholders and interested parties such as the Technical Deputy Minister of Health, Directorate of Planning, MOH, Directorate of HMIS, UNICEF, CCM/Global Fund, CDC Atlanta and PHC providers at the provincial level.
- A stakeholder analysis and definition of responsibilities be carried out to include those who provide data for the system and those who use the information generated by the system, such as health-care providers, provincial health officials, government officials at local and central levels, community residents, nongovernmental organizations, and donor organizations. All involved stake holders must be consulted and given an opportunity to provide feedback in order to establish a system acceptable to all.
- Particular attention should be paid to the particular geographical, environmental, political and economic conditions present in Afghanistan when establishing the surveillance system.

Description of the surveillance process

When establishing a surveillance system, all aspects of the system and its procedures should be described in detail to allow stakeholders to review and validate the description of the system and for other involved parties to understand the complexity and resources needed to operate such a system. Duplication and repetition of existing gathering strategies data and systems should be avoided. The description of the surveillance process should address:

1. System wide characteristics, including data and transmission standards to facilitate inter-operability and data sharing between information systems, security, privacy, and confidentiality.

2. Data sources used broadly in this framework to include the data-producing facility (such as, the reporting point), the data type (e.g. chief complaint, survey form, diagnosis, laboratory test), and the data format (e.g. electronic or paper, text descriptions of events or illnesses, or structured data stored in standardized formats).
3. Data processing before analysis (the data collation, filtering, transformation, and routing functions required for public health to use the data).
4. Statistical analysis (tools for automated screening of data for potential outbreaks).
5. Epidemiologic analysis, interpretation, and investigation (the rules, procedures, and tools that support decision-making in response to a system signal, including adequate staffing with trained epidemiologists who can review, explore, and interpret the data in a timely manner).
6. Type of outbreak response.
7. Provincial level procedures design—a process by which the provincial surveillance team is established and participates in applying the case definitions and recommended notification, investigation and control procedures to the specific condition of the provinces with clear definition of local responsibilities.
8. Effective programme evaluation is a systematic way to improve and account for public health actions by involving procedures that are useful, feasible, ethical and accurate. Regular evaluation, and monitoring in particular, is an essential component of a surveillance system.

Next steps

To review mechanisms of information flow and data reporting and drafting of action plans, including implementation of sentinel surveillance systems in Afghanistan and response to outbreaks, estimations of budget costs and resources needed and specific definitions of indicators and cases.

Malaria inputs for the new surveillance system include national treatment guidelines and case definitions, national epidemic preparedness and response (EPR) and trained EPR focal points, sentinel site with trained staff to monitor drug resistance in Takhar province, a national insecticide-treated net strategy and trained insecticide-treated net implementers, national social mobilization strategy (COMBI) and trained facilitators, standardized training materials in local languages and national and subnational monitoring and evaluation focal points.