



WHO

REGIONAL OFFICE FOR EUROPE



EUR/ICP/CMDS 08 03 01
ENGLISH ONLY
UNEDITED
E67223

PREVENTION OF CROSS-BORDER TRANSMISSION OF MALARIA

Report on a WHO Coordination Meeting

Baku, Azerbaijan
24–25 August 1999

SCHERFIGSVEJ 8
DK-2100 COPENHAGEN Ø
DENMARK
TEL.: +45 39 17 17 17
TELEFAX: +45 39 17 18 18
TELEX: 12000
E-MAIL: POSTMASTER@WHO.DK
WEB SITE: [HTTP://WWW.WHO.DK](http://www.who.dk)

EUROPEAN HEALTH21 TARGET 7

REDUCING COMMUNICABLE DISEASES

By the year 2020, the adverse health effects of communicable diseases should be substantially diminished through systematically applied programmes to eradicate, eliminate or control infectious diseases of public health importance

(Adopted by the WHO Regional Committee for Europe at its forty-eighth session, Copenhagen, September 1998)

ABSTRACT

Problems with malaria in the majority of participating countries are clustered in areas with inadequate health infrastructures resulting from the interaction of various factors, sometimes aggravated by insecticide-resistant vectors and drug-resistant parasites. In general, the problems are compounded by uncontrolled large-scale population movement, non-rational use of antimalarial drugs and the lack or ineffective vector control. The review of the malaria situation at the Coordination Meeting indicated that the majority of participating countries share common epidemiological features of malaria, so the countries represented agreed to institutionalize the collaborative programme on malaria in the WHO Eastern Mediterranean and European regions, particularly in border areas. Participating countries are expected to exchange timely standardized epidemiological information, which can be linked to province and district maps. This information will facilitate the harmonization of the timing, location and methods of antimalaria measures in both regions. The participants requested WHO, through the new initiative Roll Back Malaria, to continue its support for disease management, selective vector control, and the prediction, early detection and control of malaria epidemics. WHO was also requested to support capacity building and operational research.

Keywords

MALARIA – prevention and control
INTERNATIONAL COOPERATION
HEALTH PLANNING TECHNICAL ASSISTANCE
EPIDEMIOLOGIC SURVEILLANCE
HEALTH PRIORITIES
TRANSIENTS AND MIGRANTS
EUROPE
EASTERN MEDITERRANEAN

© World Health Organization – 1999

All rights in this document are reserved by the WHO Regional Office for Europe. The document may nevertheless be freely reviewed, abstracted, reproduced or translated into any other language (but not for sale or for use in conjunction with commercial purposes) provided that full acknowledgement is given to the source. For the use of the WHO emblem, permission must be sought from the WHO Regional Office. Any translation should include the words: *The translator of this document is responsible for the accuracy of the translation.* The Regional Office would appreciate receiving three copies of any translation. Any views expressed by named authors are solely the responsibility of those authors.



CONTENTS

	<i>Page</i>
Introduction.....	1
Scope and purpose	1
Opening of the Meeting	2
Contemporary malaria situation and trends	2
Global situation: Roll Back Malaria.....	2
Eastern Mediterranean Region	3
European Region	5
WHO assistance to control malaria in both Regions	7
Working groups	8
“East” Group	8
“West” Group	10
Recommendations.....	12
General recommendations	12
Specific recommendations.....	12
Annex 1 Programme.....	14
Annex 2 Provisional list of working papers and background material.....	15
Annex 3 Epidemiological situation in countries bordering the WHO European and Eastern Mediterranean Regions.....	16
Annex 4 Participants	17

Introduction

A few countries of the WHO European and Eastern Mediterranean Regions share similar problems with regard to malaria, particularly in relation to *P. vivax*, often in adjacent border areas. In recent years, the large population movements within countries and across frontiers resulting from various political and socioeconomic factors have affected control measures and contributed to the spread of malaria, including in some instances drug-resistant strains of *Plasmodium falciparum*. It is important that the malaria situation and control measures in these countries as a whole, and in border areas in particular, should be examined in order to identify collaborative control activities, training needs and operational research requirements in affected countries in the two Regions. There is also an urgent need, whenever possible, to pool regional and bi-regional resources to address these issues and to define achievable targets in malaria prevention and control in the participating countries.

Scope and purpose

This Meeting between the two Regions was the first to be convened to discuss common problems associated with the epidemiology and control of malaria in neighbouring countries in general and in adjacent border areas in particular, and to plan solutions to these problems.

The specific objectives of the Meeting were:

- to discuss effective malaria control measures in the sub-regions;
- to discuss national drug policies, drug regimens and methods to improve patient compliance;
- to discuss information systems and the need for common availability of essential data (through exchange between participating countries);
- to discuss areas of operational research and training relevant to the above.

The Meeting was held in Baku, Azerbaijan, on 24 and 25 August 1999. Participants included representatives of selected Member States of the WHO European and Eastern Mediterranean Regions and of international, bilateral and nongovernmental organizations (NGOs) based in Azerbaijan, one Temporary Adviser and staff from the two WHO Regional Offices and headquarters (Annex 4). Dr Abbas Soltan Ogly Velibekov, Deputy Minister of Health of Azerbaijan, and Dr Mohammad Zareh, Malaria Programme Manager, Disease Control Department, Ministry of Health and Medical Education, Islamic Republic of Iran, were nominated as Chairperson and Co-Chairperson, respectively. Dr A. Kondrachine, WHO headquarters, was rapporteur.

The programme of the meeting is given in Annex 1. Detailed country reports had been submitted in advance by representatives of the Member States and were circulated at the Meeting. The first day was devoted to presentations on the malaria situation and trends in the two Regions as a whole and in each participating country. A list of the country reports and background documents is in Annex 2. The second day was devoted to discussions in working groups and plenary and formulating the Meeting's recommendations.

Opening of the Meeting

Professor Ali Insanov, Minister of Health of Azerbaijan, opened the Meeting, which was held at the Training Centre of the Republican Centre of Epidemiology and Hygiene. Dr A. Beljaev (Regional Malaria Adviser, WHO Regional Office for the Eastern Mediterranean (WHO/EMRO)), representing the WHO Regional Director for the Eastern Mediterranean, read out a message emphasizing that malaria continues to be an important debilitating disease, drawing attention to the WHO Director-General's Roll Back Malaria initiative, and stressing the importance of bi-regional cooperation for tackling common problems in malaria control.

Dr Steven Wassilak, representing the WHO Regional Director for Europe, read out a message emphasizing that malaria had re-emerged in a few countries of the Region as a serious public health problem. Intrasectoral and intersectoral cooperation were essential for its successful control. Information, education and communication were important in organizing malaria control, particularly in border areas.

Contemporary malaria situation and trends

Global situation: Roll Back Malaria

Malaria accounts for a large part of the disease burden of poor countries (those with the lowest GNP per capita), causing over 300 million episodes of acute illness worldwide and over a million deaths a year, mainly among African children. Recent reports indicate a steady rise in malaria-related mortality in Africa since the late 1970s. Malaria poses a major threat to global health in a world experiencing social, economic and environmental change, movements of population, civil unrest, and biological changes in the parasite and mosquito vector.

Efforts to control malaria in the past fifty years have achieved a decline in mortality in some regions, but progress is now threatened primarily by the emergence of drug-resistant malaria. In some parts of the world, especially Asia, the parasite is resistant to most of the commonly used anti-malarial drugs and very few new options are becoming available. Recently, there has been a resurgence of malaria in epidemic form in previously low-risk areas, and predicted climate change is expected to lead to changes in intensity of transmission in areas of high endemicity and to areas where malaria was previously controlled or eradicated, such as central Asia.

Upon her appointment, the new Director-General of WHO took stock of the situation and decided to make the reduction of suffering and death from malaria her highest priority. She introduced a new Roll Back Malaria (RBM) initiative, with the goal of reducing by half the number of malaria-related deaths throughout the world by 2010. RBM is a global partnership including the governments of malaria-affected countries, United Nations agencies, development banks, bilateral development agencies, nongovernmental organizations and the private sector, working in concert to reduce the burden of malaria-related disease.

The core concepts of RBM are:

- a social movement with main focus on action at country level, involving community groups and outside the formal health sector;
- the RBM global partnership; and
- RBM cabinet project, providing the secretariat for the global partnership and ensuring a coherent and unified approach across WHO.

RBM has been given the task of creating an environment that helps countries to develop evidence-based policies and allows them to implement relevant elements of the RBM strategy effectively, sustainably and in the context of local conditions.

There are six core elements of the strategy:

- early detection of malarial illness
- rapid treatment of those who are ill
- multiple means of preventing infection
- a well developed health sector with full intersectoral activities
- a powerful and sustained social movement, and
- focused research for new tools and better implementation.

In Europe, central Asia and the Middle East, where epidemic and *P. vivax* malaria are common, the elements of the strategies will address issues such as:

- the availability of rapid diagnostics;
- effective treatment;
- effective means of environmental management, including judicious use of insecticides;
- better systems for surveillance and for managing national health information and sharing information across the Regions;
- new skills-based approaches to effective training and capacity development, and
- monitoring of the disease burden, which should lead to a better mechanism for the effective handling of malaria epidemics.

Country-level partnerships will be expected to develop key indicators for measuring success, while the global partnership is developing broad indicators to measure success. Some of the areas where success will be measured are:

- the development and state of the country and the global partnerships
- the state of the health sector
- strategic investments
- the number of people gaining access to malaria prevention and treatment, and
- the impact on the malaria burden.

The preparatory phase of the RBM initiative has started and will be completed by the end of 1999. By the beginning of 2000, the global partnerships expect to have mobilized additional resources, started baseline studies and intensive country action, and made plans for regular reviews with a significant amount of resources being available and used.

Eastern Mediterranean Region

About 45% of the population of the Eastern Mediterranean Region live with the risk of contracting both *P. vivax* and *P. falciparum* malaria, and an additional 5% are at risk of contracting *P. vivax* alone. Some 95% of the total number of malaria cases in the Region are found in four countries in the Region (including Afghanistan). The estimated annual number of malaria cases is about 14 million.

The malaria situation has been aggravated in a few countries in the Region which have suffered from wars and political instability. A major epidemic of *P. vivax* malaria occurred in Iraq between 1992 and 1996 in the wake of the Gulf War and international sanctions. In Afghanistan, where there had been a successful malaria eradication programme in the 1960s and 1970s, malaria reverted to its primordial status after the civil war broke out.

The epidemiological situation (only malaria incidence) in the countries that border the WHO European Region is shown in Annex 3.

In *Afghanistan*, about 80–80% of all malaria cases are due to *P. vivax*. Cases of *P. falciparum* are mainly confined to the southern part of the country and to Badakhshan. The annual number of cases is estimated at 2–3 million. Because of the civil war, there were for many years no organized large-scale anti-malaria activities other than those organized by various NGOs. During the last two to three years, however, organized malaria control is taking shape in a few areas. The main activities are the management of malaria cases and personal protection through the use of insecticide-impregnated materials.

In the *Islamic Republic of Iran*, 12% of the population lives in areas with sporadic malaria transmission, mostly of *P. vivax*, and only 6% in areas of continuous transmission with a high proportion of *P. falciparum*. The latter areas include the south-eastern provinces of Sistan and Baluchistan, Hormozgan and part of Kerman province, with a population of about three million. Some 77% of the total number of reported cases are found in this region, and the source of many cases elsewhere in the country can be traced to this area.

The principal anti-malarial activities are early detection and treatment of cases and indoor residual spraying in active foci.

In *Iraq*, following the Gulf War, the situation deteriorated in the three north-eastern governorates of Erbil, Suleimania and Dohuk. Malaria (*P. vivax* exclusively) soon spread outside this area and became established in the south (Basra). The peak of the malaria epidemic occurred in 1994–1995, with about 100 000 confirmed cases annually. The epidemic was checked in 1996–1998 through the deployment of indoor spraying with insecticides, supported by WHO. A relatively high incidence of malaria is still observed in the north-eastern governorates and the adjoining Ninawa and Tamim governorates.

In *Syria*, transmission of *P. vivax* only happens along the western part of the border with Turkey and in the north-eastern part of the country. Malaria control measures include early detection and treatment of cases, larviciding and indoor residual spraying in areas of continuous transmission.

The following three areas cause concern along the borders between the European and Eastern Mediterranean Regions:

1. Afghanistan, which is a source of importation of malaria to all its neighbours, including cases of *P. falciparum*;
2. areas on the borders between Iran, Azerbaijan and, to some extent, Armenia.;
3. the area centred on northern Iraq where there is a chronic problem of *P. vivax* malaria and high epidemic potential, mainly covering four northern governorates of Iraq and parts of south-eastern Turkey, with repercussions in Syria and, to a lesser extent, in Iran along its western borders.

European Region

A few countries in central Asia and in the Caucasus have experienced a resurgence of malaria (Annex 3). Disruption of traditional links among the former republics of the USSR has resulted in large-scale migration and in a reduction of the quality of health services. The shortage of anti-malarial drugs, essential equipment and supplies for malaria prevention and control has also contributed to the deterioration in the malaria situation. Lack of knowledge and experience in malaria prevention and control among health service staff is another obstacle in the planning and effective implementation of these measures. As a result of these and other factors, malaria epidemics are now affecting five countries in the Region: Armenia, Azerbaijan, Tajikistan, Turkey and Turkmenistan. About 62 000 cases were reported in 1998, but in Tajikistan alone more than 100 000 cases are estimated to occur annually. Although the majority of cases are due to *P. vivax*, the prevalence of *P. falciparum* in certain areas of Tajikistan is about 16%. As a result of importation of malaria cases from the countries with epidemics, local transmission was established in 1998 in a few places in Georgia, Kazakhstan, Kyrgyzstan and the Russian Federation.

Increasing international travel and movements of population have led to the importation of about 13 000 malaria cases annually into the malaria-free countries of western Europe.

In *Armenia*, imported malaria led to an epidemic occurring in foci in a number of areas bordering Turkey. In 1997, there were 841 cases of malaria, 567 of which were locally transmitted. Although 30 out of 81 districts recorded malaria cases, 89% of the indigenous cases were registered in the Ararat valley bordering Turkey. In 1998, although the total number of cases increased to 1156, the epidemic was successfully contained (542 indigenous cases) in districts where malaria control activities had been implemented with WHO assistance.

In *Azerbaijan*, malaria was almost eradicated in the 1960s but a rapid deterioration in the situation set in after 1990, when 22 cases were reported. The number increased to 667 in 1994, 2840 in 1995 and reached 13 135 in 1996. The main reason for the deterioration was a sharp worsening of socioeconomic conditions and the displacement of nearly one million people from war-stricken zones. With international assistance, the Ministry of Health resumed limited malaria control activities: in 1997, 9911 cases were officially reported and 5175 cases in 1998. Approximately half the malaria cases are reported from seven districts: Nachishivan (10.4%), Imishli (14.6%), Fizuli (8.1%), Sabirabad (6.8%), Saatly (6%), Bejlagan (5.6%) and Bilasuvar (4.8%).

In *Tajikistan*, malaria was brought under control in the 1960s, although in the territories bordering Afghanistan (Shurabad, Kulab, Moskovskiy, Pyanj and, to some extent, Dangara) a low but persistent level of transmission continued. However, malaria once more became endemic in the country in the wake of the civil war that broke out in 1992 and brought about the displacement of a large number of people, led to economic collapse and undermined the health and social services. In addition, the disruption of food supplies or lack of food forced people to recultivate wetlands and fields in river valleys, which recreated favourable conditions for the development of malaria vectors. Since 1993, there has been an explosive rise in the number of malaria cases. Most are caused by *P. vivax* but there has recently been an increase in cases caused by *P. falciparum* (16% of cases). In 1997, a total of 30 054 malaria cases were officially registered in Tajikistan, of which 85.3% occurred in the Khatlon region (65.7% in Kurgan-Tjube and 19.6% in the Kuliab group of districts), 10.5% in Dushanbe region, 3.5% in Gorno-Badakhshan region and 0.7% in Leninabad region. The parts of the country most affected are

four districts of Kurgan-Tjube Zone (Bokhtar, Vakhsh, Sarband and Pyanj). Following implementation of malaria control activities with WHO assistance, the number of malaria cases officially registered in 1998 dropped to 19 361 (187 were cases of falciparum malaria).

Some parts of *Turkmenistan* were prone to malaria epidemics before eradication in the 1930s–1940s. Endemic malaria was finally eradicated in 1960. Although some undiagnosed indigenous cases probably occurred in 1997, it was in 1998 that a dramatic change occurred in the malaria situation in Turkmenistan, when 115 indigenous cases were registered and a number of other cases may not have been properly diagnosed or reported. Most cases (104) were registered in the Kushka district, in the south-east, among military service personnel. Unfortunately, due to lack of drugs, patients received no radical treatment and some of the malaria cases are therefore likely to relapse and serve as new sources of infection.

In *Turkey*, malaria control both before and during the WHO global malaria eradication effort sharply cut the incidence of malaria. By 1971, *P. falciparum* had been eradicated and no more than 2046 cases of *P. vivax* were recorded, most of which were found in a small area in south-eastern Anatolia. From the late 1960s, however, vigorous expansion of irrigation in the Adana-Çukurova plain allowed the main vector, *Anopheles sacharovi*, to proliferate. Extensive agricultural development also attracted a steady flow of migrant labour from the malarial areas of south-eastern Anatolia. Inevitably, malaria transmission quickly increased and, by 1977, over 100 000 cases of *P. vivax* malaria were reported from Adana and the adjacent provinces of Hatay and İçel (88.1% of all cases). Concentrated efforts entailing a considerable cost succeeded in reducing the number of cases countrywide to 15 000 by 1989. This could not be sustained, however, and the malaria situation deteriorated once more, the vast majority of cases being reported from south-eastern Anatolia. One of the largest development projects in the Middle East is under way in this area. The Guneysdogu Anadolu Project involves the construction of 13 dams, 19 hydroelectric power plants and an irrigation network of 1.7 million hectares of land. This irrigation project and social changes in the region have contributed to the increased risk of malaria now facing Turkey. While in 1990 only 8886 cases were reported from the entire country, the number of cases in 1991 was 12 218; in 1992 it increased to 18 676, in 1993 to 47 210, and in 1994 to 84 345. In recent years, the Government of Turkey has renewed its efforts to fight malaria, incorporating them into the Guneysdogu Anadolu Project with support from the United Nations Development Programme (UNDP) and WHO. In 1998, 36 461 cases were reported, 87.1% from south-eastern Anatolia, 8.7% from the Adana area and 4.2% from other areas of Turkey.

The epidemics in Armenia, Azerbaijan, Tajikistan and Turkey are having a considerable impact on the malaria situation in neighbouring countries of the European Region. The number of cases imported to such countries has increased significantly over the last few years. The flood of refugees from Tajikistan and the return of peacekeeping troops from the border areas between Tajikistan and Afghanistan have been accompanied by a sharp increase in the number of malaria cases imported. Indigenous cases of malaria which originated from imported cases have been reported in *Bulgaria, Georgia, Kazakhstan, Kyrgyzstan, the Republic of Moldova and the Russian Federation*.

WHO assistance to control malaria in both Regions

Eastern Mediterranean Region

In the Eastern Mediterranean Region, WHO continues to concentrate its assistance on strengthening the technical component and managerial capabilities of the national malaria control programmes, through the provision of services of technical staff/consultants, technical guidance and training.

The most relevant technical issues at the moment are development of mechanisms for prediction, early detection and control of malaria epidemics, development of a system of continuous monitoring of therapeutic efficacy of drugs, reorientation of malaria surveillance and information systems towards monitoring the incidence of severe cases and mortality due to malaria. Most of the countries require their malaria programmes to be strengthened and malaria control in PHC activities improved. There is a shortage of middle-level and senior entomological staff; the lack of guidance from such people results in inappropriate and irrational use of insecticides in a number of countries.

Training continues to be supported, including fellowships and training courses at country and intercountry levels. Two regional training centres function well, one in Wad Medani, Sudan and the other in Bandar Abbas, Islamic Republic of Iran.

In response to the programmes' current needs, applied field research in major tropical diseases is supported through an EMRO/TDR/CTD¹ small grants scheme established in 1992. Malaria was included in the scheme in 1995, and a total of 24 projects have received financial support from it.

European Region

In the European Region, WHO/EURO has rendered technical assistance to all affected countries in an effort to control the resurgence of malaria. A thorough assessment of the malaria situation in the Region has been made, and plans of action for the control of epidemics at the subregional and country level prepared jointly with the authorities of the countries affected.

An extensive programme for training health staff in different aspects of malaria control has been carried out with the assistance of the staff of two WHO collaborating centres, in Moscow (the Martzinovski Institute) and in Rome (Istituto Superiore di Sanità). Limited funds available to WHO/EURO have been used to provide anti-malarial drugs and to strengthen the countries' capacity for the immediate implementation of malaria control activities. WHO/EURO has obtained the financial support for containment of malaria epidemics in Armenia and Tajikistan from Austria, Denmark, Italy, Norway, Sweden and Japan. National policies for malaria prevention and control have been revised or updated.

WHO assistance has been coordinated with other international bilateral and nongovernmental organizations, working at the country level in the health sector.

As a result of the activities carried out in 1998–1999, the epidemics have been contained and the incidence of malaria is showing a decreasing trend in Armenia, Azerbaijan and Tajikistan.

¹ TDR – United Nations Development Programme/World Bank/WHO Special Programme for Research and Training Tropical Diseases. CTD – Control of Tropical Diseases.

The Roll Back Malaria Project established in the central Asian republics in 1999 has given a new impetus to malaria control. The main strategic directions of the programmes in the next few years will be the reinforcement of the surveillance system, strengthening of national capabilities at central and peripheral level to control malaria outbreaks, provision of drugs and basic equipment, strengthening of water management and vector control, and an increase of malaria awareness in the population.

Working groups

On the second day, participants divided into two working groups:

- (i) the “East” Group – Afghanistan, the Islamic Republic of Iran (eastern part), Tajikistan, Turkmenistan and Uzbekistan, and
- (ii) the “West” Group – Armenia, Azerbaijan, Georgia, the Islamic Republic of Iran (rest of the country), the Russian Federation, Syria and Turkey.

The terms of reference of the working groups were:

- to review the situation in the countries concerned in order to identify any common epidemiological features in the malaria situation and problems in controlling it, and to identify gaps in knowledge that need to be filled to improve malaria control;
- to propose common approaches to malaria control;
- to propose mechanisms for cross-border cooperation in:
 - exchange of information;
 - harmonization of methods for disease management;
 - harmonization of methods for vector control and synchronization of vector control operation;
- to identify the ways in which WHO may assist countries in making malaria control more effective.

Participants discussed the assigned subjects and formulated recommendations, and then discussed the records of their deliberations and the draft recommendations in order to arrive at a consensus. Finally, the recommendations were presented and discussed in a plenary session. On the basis of the working groups’ recommendations, the Meeting’s recommendations were formulated and formally adopted in a plenary session.

“East” Group

The working group’s participants identified the common epidemiological features of malaria in their respective countries as follows:

- all countries in the past had been receptive to, and heavily affected by, *P. vivax* and *P. falciparum*;
- malaria had been effectively controlled and even eliminated when the political and economic situations were stable;
- current outbreaks/epidemics of malaria had been triggered either by war or by political, social or economic instability.

The peculiar features of the present malaria situation in these countries are as follows:

- in *Afghanistan*, the level of malaria transmission is very high, while organized malaria control activities were only recently restarted;
- in *Iran (east)*, although malaria transmission continues in many places, it is by and large under control;
- in *Tajikistan*, a severe malaria epidemic occurred in 1992–1996 as a result of the civil war, but the situation was brought under control in 1997;
- in *Turkmenistan*, an outbreak of malaria occurred on the border with Afghanistan in 1998, with subsequent proliferation of malaria to other regions of the country;
- in *Uzbekistan*, only imported cases (mainly from Tajikistan) have so far been reported.

It is in this group that *P. falciparum* malaria has been reported so far among all the participating countries. On average, it is estimated that *P. falciparum* constitutes about 10–20% of all malaria cases in Afghanistan and 2–3% in Tajikistan.

The major problems in malaria control activities in these countries are related to:

- evidence that migration from Afghanistan to Iran, Tajikistan and Turkmenistan has seriously aggravated the malaria situation in these countries, and the potential for Uzbekistan to receive cases from Tajikistan and Afghanistan;
- a deterioration in the training status of health workers;
- inadequacy or lack of microscope facilities in some areas;
- unreliable microscopic diagnosis due to deficiency in quality control;
- drug regimens not always commensurate with epidemiological realities;
- inadequate knowledge of the status of sensitivity of *P. falciparum* to anti-malarial drugs and malaria vectors to various insecticides;
- insufficient or absence of entomological staff;
- inadequacies in supply and equipment for vector control activities;
- slow scientific progress towards knowledge of *P. vivax* malaria, particularly in relation to diagnostic tools (e.g. rapid test), treatment, molecular biology, ecology, epidemiology and surveillance, and new control tools.

By identifying major factors contributing to the impediment of malaria control in the participating countries, participants arrived at the following recommendations for general approaches to malaria control:

- planned anti-malaria activities should be of a complex and integrated character and should be clearly distinguished as to whether they are principal or supplementary methods of malaria control;
- implementation of control measures should be through community participation, strongly supported by health education – the latter should be considered an important element of the surveillance system.

The group made the following specific recommendations:

- consideration should be given to the establishment of a regional training centre in the WHO European Region (for example, in Samarkand, at the Isaev Institute of Medical Parasitology) to meet the personnel requirements of the entomological services in participating countries;
- capacities in laboratory diagnosis should be strengthened, particularly in border areas;
- planned spraying operations in neighbouring countries should be synchronised in time, space and the selection of insecticides;
- dissemination of printed materials and other means of information should be intensified, and strong consideration given to the establishment of e-mail, at least at the provincial level;
- managers of border provinces should establish special arrangements for regular meetings (these activities should be supported by WHO);
- all modifications related to the case management made by one country should be made known as quickly as possible to counterparts in neighbouring countries;
- WHO and the international community should assist Afghanistan more actively, in view of the large regional problem posed by the malaria situation there and the fact that its reduction will lead to an improvement in the malaria situation in neighbouring countries;
- WHO should assist participating countries exchange operational information; there is an urgent need for specialized literature and WHO publications on malaria should be made available to the participating countries.

“West” Group

The group’s participants identified the common features of the epidemiology of malaria in their countries as follows:

- *P. vivax* is the prevailing malaria species with a considerable proportion of strains with long incubation period;
- *An. sacharovi*, *An. maculipennis*, *An. superpictus* and *An. claviger* are the principal malaria vectors;
- transmission is seasonal, generally commencing in May and lasting until the end of October, with some local variations;
- all the countries are attempting to tackle their malaria problems in difficult socioeconomic conditions which are affected by natural disasters and civil unrest and leading to large-scale population movements.

Among the factors contributing to the slowing of malaria control efforts are the following:

- no sufficient or updated scientific knowledge on malaria transmission, particularly in border areas;
- the resistance of the principal vectors to conventional insecticides, leading to the use of alternative more expensive insecticides;
- changing patterns of migration.

Taking into consideration the common epidemiological features of malaria and prevailing socioeconomic conditions in the countries, the group agreed on common approaches to malaria control in their respective countries, particularly in border areas, as follows:

- laboratory confirmation of malaria cases;
- early detection and prompt radical treatment of cases of malaria (chloroquine and primaquine);
- deployment of selective vector control through the use of various methods, including indoor residual spraying, larviciding, biological control, environmental management and a targeted information, education and communication strategy.

The group made a few recommendations regarding the mechanism(s) for cross-border cooperation, as well as on the role of WHO in assisting the countries in malaria control.

The kind of information exchanged between participating countries should include:

- the incidence of malaria (indigenous and imported);
- the prevalence of malaria;
- anti-malaria measures undertaken;
- details of vector control operations.

Participants also recommended that the frequency of exchange might be monthly at the beginning and at the end of the transmission season and that malaria outbreaks/epidemics should be reported immediately.

As regards the mechanism for disseminating information, participants felt that ideally the countries should disseminate it directly between themselves as a framework for the development of an information exchange network. Monthly updated information from the countries might be sent to WHO for subsequent dissemination.

Vector control activities dealing with similar epidemiological conditions should be synchronized in terms of time and space. The *P. vivax* treatment regimen (radical treatment) should be harmonized through the use of chloroquine for 3 days and primaquine for 14 days.

The group recommended that WHO should assist the countries with:

- the development of a standardized geographical information system (GIS) and support training activities on GIS;
- the supply of standard kits to test vectors susceptibility to insecticides;
- the development of the capacities of various categories of staff engaged in malaria control;
- advocacy to intensify political commitment for malaria control;
- the provision/brokerage of technical support;
- support for annual consultations.

Recommendations

General recommendations

1. Common strategies for malaria control should be developed and agreed and, if feasible, joint action plans for border areas (districts) developed to synchronize operations in:
 - disease management
 - vector control
 - public awareness campaigns
 - meetings between the staff of border areas.
2. Information should be exchanged between the countries on a regular monthly and bi-annual basis and there should be cross-notification of disease outbreaks.
3. Epidemic preparedness and response should be strengthened, particularly in border areas.
4. There should be collaboration in monitoring susceptibility of malaria vectors to various insecticides as well as drug-resistant parasites (where applicable) in border areas.
5. There should be collaboration in training activities by using existing training centres and facilities in the regions and WHO-supported/organized courses.
6. The research capability of the participating countries should be strengthened, particularly in relation to research on biological and epidemiological features of *P. vivax*.
7. The malaria control activities in the border areas in individual countries should be assessed annually with the collaboration of WHO.
8. A country-level partnership for more effective and sustainable malaria control should be developed.
9. A cross-border coordination meeting on malaria should be held annually.

Specific recommendations

To participating countries

1. In order to achieve the best possible preparedness for malaria epidemics, each country should identify epidemic-prone areas and situations such as:
 - districts (areas) with an originally high malariogenic potential
 - population movement from non- and low-endemic areas to highly malarious areas
 - natural disasters, and
 - unusual meteorological conditions.
2. Countries should develop (if they have not already done so) suitable epidemic warning and reporting systems as part of their epidemiological surveillance systems to monitor and recognize early signs of impending epidemics. Malaria outbreaks/epidemics should be notifiable diseases in each participating country.
3. Participating countries should develop a comprehensive insecticide policy, which should address all related aspects for the implementation of targeted selective vector control, including insecticide resistance monitoring and management.

4. Participating countries should consider the sustainable use, as part of their malaria control strategies, of insecticide-impregnated materials for the prevention of malaria morbidity and mortality among the targeted vulnerable population groups.
5. Personal protection methods such as mosquito-proofing of houses, use of repellents, vaporizing mats and aerosols, should be encouraged as a supplementary effort to reduce the contacts between humans and mosquitos.

To WHO

1. WHO should continue to strive for the harmonization of malaria treatment policies of neighbouring countries through the dissemination of information on therapeutic regimens. It should provide access to services related to quality control of anti-malarial drugs to countries where such facilities do not exist.
2. WHO should help the countries to assess and monitor the drug response of malaria parasites as a prerequisite to updating national policies on the use of anti-malarial drugs. WHO should also provide them with standardized guidelines and materials for this purpose and promote the relevant training of personnel.
3. WHO should help national programmes to identify border districts (areas) where there is a high risk of malaria epidemics. These data will serve as a baseline for subsequent annual updates on the progress of control efforts, thereby leading to the establishment of a malaria GIS in both Regions.
4. WHO/EURO and WHO/EMRO should continue to support capacity-building efforts through intercountry training programmes (e.g. seminars on malaria control in the newly independent states, the Samarkand course on planning malaria control, and the activities of the regional training centres at Bandar Abbas in the Islamic Republic of Iran, Adana in Turkey, etc.)
5. WHO should exert tight scrutiny of the cost of anti-malarial drugs, diagnostic testing materials (rapid tests) and materials used for vector control.
6. WHO should provide support to the annual border coordination meeting on malaria control between the two Regions.

Annex 1

PROGRAMME

Tuesday, 24 August 1999

13.00 – 13.30	Registration of new participants and opening of the malaria section
13.30 – 13.45	The malaria situation in the WHO Eastern Mediterranean Region
13.45 – 14.00	The malaria situation in the WHO European Region
14.00 – 15.00	Country presentations – Afghanistan, Tajikistan, Uzbekistan, Turkmenistan (10 minutes each, followed by 5 minutes for clarification; real discussion will take place in the working groups)
<i>15.00 – 15.30</i>	<i>Coffee break</i>
15.30 – 17.15	Country presentations – Azerbaijan, Armenia, Georgia, Iran, Iraq, the Russian Federation, Syria, Turkey (10 minutes each, followed by 5 minutes for clarification; real discussion will take place in the working groups)

Wednesday, 25 August 1999

08.30 – 10.00	Working groups on coordination of “border activities” (territories, high risk groups, strategies, activities, resources) Afghanistan, Tajikistan, Uzbekistan, Turkmenistan Azerbaijan, Armenia, Georgia, Iran, Iraq, Syria, The Russian Federation, Turkey
<i>10.00 – 10.30</i>	<i>Coffee break</i>
10.30 – 12.00	Continuation of working groups
<i>12.00 – 13.30</i>	<i>Lunch break</i>
13.30 – 15.00	Drafting of recommendations
<i>15.00 – 15.30</i>	<i>Coffee break</i>
15.30 – 16.30	Presentations from working groups
16.30 – 17.00	Conclusions and closure

Annex 2

PROVISIONAL LIST OF WORKING PAPERS AND BACKGROUND MATERIAL

Working papers

EUR/ICP/CMDS 08 03 01 1998/1	Provisional list of working papers and background material
EUR/ICP/CMDS 08 03 01 1998/2	Scope and purpose
EUR/ICP/CMDS 08 03 01 1998/3	Provisional agenda (N/A)
EUR/ICP/CMDS 08 03 01 1998/4	Provisional programme
EUR/ICP/CMDS 08 03 01 1998/5	Provisional list of participants
EUR/ICP/CMDS 08 03 01 1998/6	The malaria situation in the European Region of WHO Dr Guido Sabatinelli, WHO/EURO
EUR/ICP/CMDS 08 03 01 1998/7	The malaria situation in the Eastern Mediterranean Region of WHO, Dr Andrei Beljaev, WHO/EMRO
EUR/ICP/CMDS 08 03 01 1998/8	Country presentation – Turkey
EUR/ICP/CMDS 08 03 01 1998/9	Country presentation – Tajikistan
EUR/ICP/CMDS 08 03 01 1998/10	Country presentation – Uzbekistan
EUR/ICP/CMDS 08 03 01 1998/11	Country presentation – Turkmenistan
EUR/ICP/CMDS 08 03 01 1998/12	Country presentation – Azerbaijan
EUR/ICP/CMDS 08 03 01 1998/13	Country presentation – Armenia
EUR/ICP/CMDS 08 03 01 1998/14	Country presentation – Georgia
EUR/ICP/CMDS 08 03 01 1998/15	Country presentation – Russian Federation
EUR/ICP/CMDS 08 03 01 1998/16	Country presentation – Afghanistan
EUR/ICP/CMDS 08 03 01 1998/17	Country presentation – Islamic Republic of Iran
EUR/ICP/CMDS 08 03 01 1998/18	Country presentation – Syria

Background material

WHO/EURO Regional Strategy – Roll Back Malaria
WHO/HQ Roll Back Malaria

Annex 3

EPIDEMIOLOGICAL SITUATION IN COUNTRIES BORDERING THE
WHO EUROPEAN AND EASTERN MEDITERRANEAN REGIONS

Number of recorded cases in Eastern Mediterranean Region countries bordering the European Region

Countries	Cases 1996		Cases 1997		Cases 1998		Species involved in local transmission
	Total	Indigenous	Total	Indigenous	Total	Indigenous	
Afghanistan ^a	303 955	Most	202 767	Most	288 014	Most	<i>P. vivax</i> > <i>P. falciparum</i>
Cyprus ^b	4	0	4	0	2	0	0
Iran ^b	56 362	Most	38 684	Most	32 951	Most	<i>P. falciparum</i> <i>P. vivax</i>
Iraq ^{b,c}	58 349	Most	14 006	Most	9 594	Most	<i>P. vivax</i>
Syria	345	280	130	83	67	Most	<i>P. vivax</i>

Notes: > = Predominance of one species.
≈ = Approximate parity of two species.

^aGrossly underestimated.

^bParasitologically confirmed cases only.

^cConsiderably underestimated.

Number of recorded cases in European Region countries bordering the Eastern Mediterranean Region

Countries	Cases 1996		Cases 1997		Cases 1998		Species involved in local transmission
	Total	Indigenous	Total	Indigenous	Total	Indigenous	
Armenia	347	149	841	567	1 156	542	<i>P. vivax</i>
Azerbaijan	13 135	Most	9 911	Most	5 175	Most	<i>P. vivax</i>
Tajikistan ^a	16 568	Most	30 054	Most	19 361	Most	<i>P. vivax</i> > <i>P. falciparum</i>
Turkey	60 884	Most	35 456	Most	36 461	Most	<i>P. vivax</i>

Notes: > = Predominance of one species.

^a Underestimated.

Annex 4

PARTICIPANTS

Afghanistan

Dr Kamal Salih Mustafa

Armenia

Dr Vladimir Davidiants
Deputy Minister of Health
Ministry of Health
Toumanian Street 8
375001 Yerevan

Tel.: +374 2 580303
Fax: +374 2 151097
e-mail: cdc@arminco.com

Dr Gajane Grigorian
Manager, Malaria Control Programme
Republican Sanepid Station
c/o Ministry of Health
Toumanian Str. 8
Yerevan 375001

Fax: +374 2 151098 (LO)

Azerbaijan

Dr Suleyman Mammedov
Chief, Parasitology Unit
Republican Centre of Hygiene and Epidemiology
c/o Ministry of Health
Kickik Daniz str. 4
370014 Baku

Tel.: +994 12 212161
Fax: +994 12 988559

Dr Abbas Soltan ogly Velibekov (*Chairperson*)
Deputy Minister
Ministry of Health
Kickik Daniz str. 4
370014 Baku

Tel.: +994 12 212161
Fax: +994 12 988559

Dr Svetlana Zmitrovich
Deputy Director, Republican Centre of Epidemiology and Hygiene
34 J. Jabbarly str.
370065 Baku

Tel.: +994 12 947 012
Fax: +994 12 947 846

Georgia

Dr Levan Baidoshvili
Coordinator, Immunization Programme
National Centre for Disease Control
Asatiani Str. 9
380077 Tbilisi

Tel.: +995 32 39 89 46
Fax: +995 32 94 04 85
e-mail: cdc@iberiapac.ge

Dr Paata Imnadze
Director, National Centre for Disease Control
9 Asatiani St.
Tbilisi 380077

Tel.: +995 32 39 89 46
Fax: +995 32 94 04 85
e-mail: cdc@iberiapac.ge

Islamic Republic of Iran

Dr Shahnam Arshi
Deputy for Health
Ardebil University of Medical Sciences
Islamic Republic of Iran

Dr Mohammad Reza Attari Barough
Responsible Officer, Disease Control Department
East Azerbaijan University of Medical Sciences
Islamic Republic of Iran

Dr Mohammad Zareh (*Co-Chairperson*)
Malaria Programme Manager, Disease Control Department
Ministry of Health and Medical Education
Islamic Republic of Iran

Russian Federation

Dr Arkadey Jasinsky
Deputy Director, Federal Centre SanEpid
c/o Ministry of Health
Rahmanovskij pereulok 3
101431 Moscow GSP K-51

Fax: +7 095 2000212

Dr Galina Lazikova
Head, Department of State Sanepid Surveillance
Ministry of Health and Medical Industry
3, Rahmanovskij pereulok
101431 GSP-4 Moscow K-51

Tel.: +7 095 973 26 66
Fax: +7 095 2000212

Dr V.P. Sergiev
Director, E.I. Martsinovskiy Institute of Medical Parasitology
and Tropical Medicine
M. Pirogovskaya 20
119830 Moscow G.435

Tel.: +7 246 8049
Fax: +7 246 9047

Syria

Dr Fouad Mohamed Fouad
Director, Primary Health Care
Ministry of Health
Syria

Tajikistan

Dr Samaridin Aliev
Director, Republican Tropical Centre
Chapaev St. 8
Dushanbe

Dr Mahmatali Rashidov
Director, Centre for Immunoprophylaxis
Ministry of Health
Aini str. 12a
Dushanbe

Tel.: +7 3772 27 68 25
Fax: +7 3772 21 48 71

Turkey

Dr Tarik Coskun Tabuk
Director, Malaria Control Department
c/o Ministry of Health
Ankara

Tel.: +90 312 431 4874
Fax: +90 312 435 1302

Dr Seher Ülger
Medical Doctor, Malaria Control Department
c/o Ministry of Health
Ankara

Tel.: +90 312 431 4874
Fax: +90 312 435 1302

Turkmenistan

Dr Kaka A. Amangeldiev
Head, Department of Epidemiological Control and Parasitology
Pr. Mahtumkuli 90
744000 Ashgabat

Tel.: +993 12 39 57 07
Fax: +993 12 355838
e-mail: sei.cat@glasnet.ru

Uzbekistan

Dr Shavkat A. Razakov
Director, Isaev Scientific Research Institute of Medical Parasitology
Isaev, 38
Samarkand 703005

Tel.: +998 71 2415343 (LO)
Fax: +998 71 2418614 (LO)

Dr Shoanvar Shomansurov
Head, Childhood Nervous Diseases Branch
Institute of Postgraduate Education
c/o Ministry of Health
Tashkent

Tel.: +998 71 241 5343
Fax: +998 71 241 8614

Temporary Advisers

Dr Gassan Souleimanov
8th of March zapect 96, 717
Moscow
Russian Federation

Tel.: +7 095 2128009
Fax: +7 095 9451042

Representatives of Other Organizations

United Nations Children's Fund (UNICEF)

Dr Nazim Agazade
Project Officer, Health
Azerbaijan

Observers

PolioPlus

Mr Tony Hooper

Rotary International

Mr Lutful Kabir
Rotary Club Baku
Azerbaijan

Médecins sans frontières

Sonya van Osch
Natalia Valeeva
Adil Younis

World Health Organization

Regional Office for Europe

Dr Guido Sabatinelli
Short-term Professional
EMD/Malaria

Tel.: +45 39 171228
Fax: +45 39 171851
e-mail: gus@who.dk

Dr Steven Wassilak
Medical Officer, Poliomyelitis Eradication

Tel.: +45 39 171258
Fax: +45 39 171863
e-mail: swa@who.dk

Ms Camilla Horneman Haahr
Secretary

Tel.: +45 39 171345
Fax: +45 39 171863
e-mail: cho@who.dk

Ms Natalia Golovyashkina
Secretary
Almaty, Kazakhstan

Tel.: +7 3272 301 655
Fax: +7 3272 301451
e-mail: who@kaznet.kz

Regional Office for the Eastern Mediterranean

Dr Andrei Beljaev
Regional Adviser
Roll Back Malaria

e-mail: BeljaevA@who.sci.eg

Headquarters

Dr Fred Binka
Roll Back Malaria

Tel.: +41 22 791 3670
Fax: +41 22 791 4824

Dr Kabir Cham
Roll Back Malaria

Tel.: +41 22 791 3842
Fax: +41 22 791 4824

Dr Harry Hull
Medical Officer

Tel.: +41 22 791 4406
Fax: +41 22 791 4193
e-mail: hullh@who.ch

Dr Anatoly Kondrachine (*Rapporteur*)
Medical Officer

Tel.: +41 22 791 3741
Fax: +41 22 791 4199

Interpreters

Ms Ludmila Funso
Conference Interpreter/Translator
c/o WHO Liaison Office
Almaty
Kazakhstan

Tel.: +7 3272 301655
Fax: +7 3272 301485

Mr Georgy G. Peegnasty
Conference Interpreter/Translator
152, Leninsky Prosp. Apt. 41
117571 Moscow
Russian Federation

Tel.: +7 095 935 3304
Fax: +7 095 935 3304
e-mail: antonag@orc.ru