WORLD HEALTH ORGANIZATION
EUROPE

# WHO meeting on cross-border collaboration on malaria elimination

Antalya, Turkey
23 – 25 September 2008

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## ABSTRACT

The rationale for organizing this meeting was to promote cross-border cooperation, and to share experiences on malaria elimination among countries and between Regions (the WHO European and Eastern Mediterranean Regions).

Since 2008, all malaria-affected countries of the European Region have moved to the elimination phase and their national strategies on malaria have been revised to reflect the new elimination realities. Turkmenistan and Armenia have had zero locally acquired malaria cases for three consecutive years (2006-2008), and they can officially request WHO to certify their malaria-free status.

Participants reaffirmed their commitments to the Tashkent and Kabul Declarations, and stressed the importance of the Tallinn Charter 2008, "Health Systems for Health and Wealth," for actions against malaria with the goal of eliminating malaria in the European Region by 2015. The need to ensure that malaria-affected countries are fully supported by WHO and its partners in their efforts to eliminate malaria was emphasized. Particular emphasis should be given to situations where a risk of spread of malaria across shared borders exists.



**Keywords**

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## Executive summary

The meeting took place three years after the endorsement of the Tashkent Declaration, "The Move from Malaria Control to Elimination", by all malaria-affected countries of the WHO European Region. In the context of malaria elimination, particular emphasis is given to situations, where there is a risk of spread of malaria between countries and regions. The rationale for organizing this meeting was to stress the need to strengthen cross-border collaboration for solving common malaria-related problems.

The substantial reduction in the incidence of malaria and, as a result, in the number of malaria cases (from 37 173 cases in 1999 to 1226 in 2007) over the past nine years (1999-2007) is the evident achievement of the regional malaria programme. Since 2008, all malaria-affected countries of the European Region have moved to the elimination phase and their national strategies on malaria have been revised to reflect the new elimination realities. Turkmenistan and Armenia have had zero locally acquired malaria cases for three consecutive years (2006-2008), and they may officially request WHO to certify their malaria-free status.

Participants reaffirmed their commitments to the Tashkent and Kabul Declarations, and stressed the importance of the Tallinn Charter, 2008 "Health Systems for Health and Wealth" for actions against malaria with the goal of eliminating malaria in the European Region by 2015. The need to ensure that malaria-affected countries are fully supported in their efforts to planning, implementing, monitoring and evaluating malaria elimination programmes, and capacity building by WHO and partners was emphasized. Particular emphasis should be given to situations, where a risk of spread of malaria across shared borders exists. In order to achieve the declared goals and objectives of the regional strategy, participants urged partners to increase the level of financial assistance for malaria elimination. A shortfall in funding would limit the scope of malaria elimination activities in the Region. A severe shortage of anti-malaria drugs for treatment and chemoprophylaxis of imported malaria, in particular *P. falciparum,* at national level is a major obstacle for successful implementation of malaria elimination programmes. Small amounts of these drugs are required in the elimination phase and bureaucratic procedures can cause long delays in drug delivery to the countries in question.

**It was recommended for Member States:** (1) to consider previous commitments to malaria elimination and cross-border collaboration expressed in the Tashkent and Kabul Declarations as one of the priority tasks of public health and socio-economic development of the countries; (2) to assess malaria elimination programmes in Turkmenistan and Armenia, in collaboration with WHO; (3) to continue implementing, monitoring and evaluating malaria elimination programmes in Azerbaijan, Georgia and Turkey, in collaboration with WHO; (4) to ensure that training programmes are adapted to and appropriate for the implementing strategy on malaria elimination, in collaboration with WHO; (5) to continue the strengthening of epidemiological services and information systems, including an operational research component, capable of adequate planning, implementing and evaluating interventions related to malaria elimination, in collaboration with WHO; (6) to design adequate malaria surveillance, in order to discover any evidence of continuation of malaria transmission and its underlying causes at the malaria elimination phase, (epidemiological investigation and classification of all cases of malaria should be carried out without any delays); (7) to revise drug policy related to treatment and chemoprophylaxis of imported malaria, particularly *P. falciparum,* and to ensure the availability of drugs for this purpose, in collaboration with WHO; (8) to promote cross-border collaboration

and cooperation on malaria elimination among neighbouring countries of the WHO European and Eastern Mediterranean Regions; and (9) to enhance collaboration on malaria elimination with existing and potential partners and donors, including the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM).

**It was recommended for WHO (European Region):** (1) to continue supporting countries in their efforts towards implementing, monitoring and evaluating the national malaria elimination programmes; (2) to continue supporting countries in conducting malaria-oriented operational research activities, particularly on issues related to elimination; (3) to assist in the organization of a regional training workshop on vector biology and control, to be held in 2009; (4) to assist in the organization of a regional training course on malaria elimination, to be held in 2009-2010; (5) to assist in the organization of an inter-country meeting between Azerbaijan and Georgia in March-April 2009, (outcome: a joint plan of action for interruption of malaria transmission in the border areas of both countries); (6) to consider establishing a regional mechanism for supplying anti-malaria drugs of assured quality to countries where malaria transmission has been interrupted or is relatively low (for treatment of imported malaria and as emergency stock of necessary drugs); and (7) to assist in the mobilization of additional resources for malaria elimination.

**It was recommended for WHO (European and Mediterranean Regions):** (1) to establish a regional or inter-regional task force, comprising representatives of the countries concerned, WHO staff and experts, in order to review the progress made with malaria elimination and advise on the next steps; (2) to assist in the organization of inter-regional meetings and study tours, in order to learn about and share experiences on malaria elimination between countries and regions; (3) to continue assisting in developing and submitting joint malaria project proposals for neighbouring countries of the two Regions; and (4) to assist in the organization of an inter-country meeting between Turkmenistan and Afghanistan in March-April 2009, (outcome: a joint action plan to coordinate and synchronize malaria control and elimination activities in border areas of these two countries).

**It was recommended for WHO (headquarters):** to develop tools for assessment of malaria elimination programmes, including (1) technical guidelines on monitoring and assessment of these programmes with a description of recommended indicators; (2) technical guidelines on the reorientation from elimination to prevention of the reintroduction of transmission; and (3) a model epidemic preparedness plan with a description of mechanisms to predict, detect at early onset and rapidly respond to any abnormal situation related to malaria.

**It was recommended for partners (including the GFATM):** (1) to assist in promoting malaria elimination efforts within the European Region, paying particular attention to strengthening health systems and human resource capacities, improving epidemiological services and research capabilities, and promoting social mobilization; and (2) to support the development of inter-country project proposals on malaria elimination.

## Резюме

Данное совещание проводилось три года спустя после ратификации Ташкентской Декларации «Вперед от борьбы к элиминации малярии» всеми странами Европейского Региона, пораженными малярией. В контексте элиминации малярии, особое внимание уделяется ситуациям, где существует риск распространения малярии между соседними странами и регионами. Обоснованием для проведения данного совещания послужила необходимость усиления трансграничного сотрудничества для решения общих проблем, связанных с элиминацией малярии.

Значительное снижение уровня передачи малярии и, как результат, количества её случаев (с 37 173 случаев в 1999 году до 1226 в 2007 году) на протяжении последних девяти лет (1999-2007), является очевидным достижением региональной противомалярийной программы. С 2008 года, все страны пораженные малярией в Регионе окончательно вошли в фазу элиминации, и их национальные стратегии по малярии были пересмотрены в соответствии с изменившимися ситуациями и новыми поставленными задачами по элиминации малярии. Туркменистан и Армения, в которых не было зарегистрировано ни одного случая местной передачи малярии на протяжении последних трех лет (2006-2008) могут официально запросить ВОЗ для проведения сертификации элиминации малярии.

Участниками совещания были подтверждены обязательства в отношении Ташкентской и Кабульской Деклараций, и важность положений недавно принятой Таллиннской Хартии, 2008 «Системы Здравоохранения для Здоровья и Благополучия» для деятельности, направленной на элиминацию малярии в Европейском регионе ВОЗ к 2015 году. Была также подчеркнута необходимость гарантировать всем странам, пораженным малярией полную поддержку со стороны ВОЗ и партнеров в планировании, проведении, мониторинга и оценки национальных программ по элиминации малярии, а также в подготовке национальных кадров. Особое внимание должно быть уделено ситуациям, где существует риск распространения малярии между прилегающими пограничными территориями соседних стран. Для достижения поставленных целей и задач осуществляемой региональной стратегии, участники призвали партнеров и доноров увеличить размер финансовой помощи для проведения программ по элиминации малярии. Недостаток финансов ограничит объем мероприятий, направленных на элиминацию малярии в Регионе. Значительным препятствием для успешного проведения программ по элиминации малярии является отсутствие надежного снабжения лекарственными препаратами для лечения и профилактики завозной малярии, в частности её тропической формы на уровне страны. Главным образом это случается из-за того, что на стадии элиминации малярии требуются небольшие количества препаратов и бюрократические процедуры создают непреодолимые препятствия для получения лекарственных препаратов в срок.

**Следующие положения были рекомендованы для стран-участников:** (1) считать обязательства, взятые странами в области элиминации малярии и трансграничного сотрудничества, изложенные в Ташкентской и Кабульской Декларациях в 2006 году одной из главных приоритетных задач здравоохранения и социально-экономического развития данных стран; (2) оценить состояние программ по элиминации малярии в Туркменистане и Армении, в сотрудничестве с ВОЗ; (3) продолжить работу по реализации национальных программ по элиминации малярии и их мониторингу в Турции, Азербайджане и Грузии, в сотрудничестве с ВОЗ; (4) обеспечить, чтобы программы подготовки кадров были адаптированы и соответствовали потребностям реализуемой стратегии, направленной на элиминацию малярии, в сотрудничестве с ВОЗ; (5) продолжить укрепление эпидемиологических служб и информационных систем, включая научно-исследовательский компонент, для обеспечения адекватного планирования, проведения и оценки мероприятий, связанных с элиминацией малярии, в сотрудничестве с ВОЗ; (6) адекватный эпидемиологический надзор должен быть направлен на поиск любых признаков продолжающейся остаточной передачи малярии и определение её причин в стадии элиминации малярии, (все случаи и очаги малярии должны быть подвергнуты детальному эпидемиологическому расследованию и классификации в максимально краткие сроки); (7) пересмотреть политику в области лекарственных препаратов для лечения и профилактики случаев завозной малярии, в особенности её тропической формы и обеспечить наличие необходимых лекарственных препаратов для этих целей, в сотрудничестве с ВОЗ; (8) улучшить взаимодействие между странами Европейского и Восточно-Средиземноморского регионов по координации проведения мероприятий по элиминации малярии; и (9) расширять сотрудничество в вопросах элиминации малярии с существующими и потенциальными партнерскими и донорскими организациями, включая Глобальный Фонд.

**Следующие положения были рекомендованы ВОЗ (Европейское Региональное Бюро):** (1) продолжить оказание помощи странам в их усилиях по планированию и проведению национальных программ по элиминации малярии; (2) продолжить оказание помощи в планировании и проведении научно-практических исследований по малярии, в частности в области её элиминации; (3) оказать помощь в организации регионального курса по подготовке кадров в области биологии и борьбы с переносчиками малярии в 2009 году; (4) оказать помощь в организации регионального курса по подготовке кадров в области элиминации малярии в 2009-2010 годах; (5) оказать помощь в организации межстранового совещания между Азербайджаном и Грузией в марте-апреле 2009 года, (результатом данного совещания должен стать совместный план действий по сотрудничеству с целью перерыва передачи малярии в пограничных районах этих стран); (6) рассмотреть возможность создания механизм обеспечения стран противомалярийными препаратами гарантированно качества для стран с прерванной или ограниченной передачей малярии ( как для лечения завозных случаев, так и в качестве запаса на случай чрезвычайных ситуаций); и (7) оказать помощь в мобилизации дополнительных ресурсов для элиминации малярии.

**Следующие положения были рекомендованы ВОЗ (Европейское региональное бюро и Восточно-Средиземноморское бюро):** (1) создать региональную или межрегиональную группу, включающую представителей всех заинтересованных стран и экспертов ВОЗ для оценки прогресса в области элиминации малярии и совета на последующие шаги в данном направлении; (2) оказать помощь в организации межрегиональных совещаний и обмена специалистами с целью обучения и обмена опытом в области элиминации малярии между

вышеупомянутыми регионами и странами; (3) продолжить оказание помощи в подготовке и предоставление для рассмотрения совместных проектов по малярии, включающих пограничные страны вышеупомянутых регионов; и (4) оказать помощь в организации межстранового совещания между Туркменистаном и Афганистаном в марте-апреле 2009 года. С целью координации и синхронизации противомалярийных мероприятий на приграничных территориях обеих стран план совместных действий с разработанными механизмами для его осуществления должен стать результатом данного совещания.

**Следующие положения были рекомендованы штаб-квартиры ВОЗ:** разработать инструменты оценки программ по элиминации включая (1) техническое руководство по мониторингу и оценке программ с описанием рекомендуемых индикаторов, (2) техническое руководство по переориентации программы элиминации на предупреждение возникновения передачи малярии, и (3) модельный план готовности к чрезвычайным ситуациям в случае эпидемической вспышки малярии с описанием механизмов прогнозирования, раннего распознавания и быстрого ответа на данную чрезвычайную ситуацию.

**Следующие положения были рекомендованы партнеров (включая Глобальный Фонд):** (1) способствовать успешному проведению программ по элиминации малярии в Регионе, уделяя особое внимание укреплению систем здравоохранения, подготовке кадров, улучшению эпидемиологических служб и укрепления научно-практического потенциала, а также мобилизации населения; и (2) поддержать разработку межстрановых проектов по элиминации малярии.

# Introduction

The WHO Meeting on cross-border collaboration on Malaria Elimination, organized by the WHO Regional Office for Europe, in collaboration with the Government of Turkey, was held in Antalya, Turkey from 23 to 25 September 2008. Officials (see annex 2) from Armenia, Azerbaijan, Georgia, Iraq, Syria, Turkmenistan, Turkey as well as WHO staff, experts and partners attended the meeting.

## Scope and purpose of the meeting

The objectives of the meeting were:

- to report on achievements and to share experiences on malaria elimination among countries and between Regions (WHO European and Eastern Mediterranean Regions);
- to review existing practical modalities on dealing with malaria and identify problems encountered in border areas of participating countries; and
- to promote cross-border cooperation and to increase coordination among countries and between Regions (WHO European and Eastern Mediterranean Regions).

## Inaugural session

The meeting was inaugurated by Dr Cihanser Erel, Deputy Undersecretary, Ministry of Health of Turkey, who emphasized the results achieved in fighting malaria in the country and the need for better cross-border collaboration in the field of malaria elimination. Dr Cihanser Erel also expressed his appreciation to the WHO Regional Office for Europe for sponsoring the meeting. Dr Aafje Rietveld, Global Malaria Programme, WHO headquarters, welcomed all participants and stressed that the meeting represented a unique opportunity for participating countries and partners to gather together in order to discuss progress with malaria elimination in their countries and exchange opinions on this matter. Dr Srdan Matic, Communicable Diseases Unit, Division of Health Programmes, speaking on behalf of Dr Marc Danzon, Regional Director of the WHO Regional Office for Europe, mentioned that this meeting was taking place almost three years following the successful endorsement and implementation of the Tashkent Declaration by all malaria-affected countries of the Region, and that particular emphasis should be given to situations, where there is a risk of spread of malaria among neighbouring countries.

## Organization of the meeting

The first day of the three-day meeting was devoted to a world update on malaria elimination, to progress towards eliminating malaria in the WHO European and Eastern Mediterranean Regions, as well as to progress with and challenges towards eliminating malaria at country level. On the second day, scientific presentations were given on strategies and approaches specific to malaria elimination, including capacity building; monitoring and evaluation of progress towards malaria elimination and prevention of the re-establishment of malaria and WHO certification of malaria elimination. Subsequently, three groups were formed to discuss the next steps for malaria elimination and cross-border cooperation in countries of Iraq, Syria and Turkey (Group 1) and Azerbaijan and Georgia (Group 2). The third group comprised of Armenia and Turkmenistan discussed issues related to the way to eliminate malaria and certify the malaria-free status. The working groups discussed the assigned subjects in depth and formulated recommendations. On

the third day, the group work continued and finally the conclusions and recommendations were presented and formally adopted in a plenary session.

Dr Dr Cihanser Erel, Deputy Undersecretary, Ministry of Health of Turkey, was elected chairman of the meeting. Dr Abbas Soltan Valibayov, Deputy Minister of Health, Azerbaijan, was elected co-chairmen. Professor Vladimir Davidyants, Director of Information and Analytical Centre, National Institute of Health, Ministry of Health, Armenia, was elected to serve as rapporteur.

## Malaria elimination: the current situation, challenges and possible scenarios

As of 2008, malaria is endemic in 109 countries and territories in tropical and sub-tropical zones, spanning all continents of the world except Antarctica and Australia, with intensities of transmission that vary from very low to extremely high.

Since the launch of the Roll Back Malaria Initiative by WHO in 1998, and particularly in the past few years, malaria control has intensified in endemic countries, supported by a greatly increased investment of financial resources and technical assistance from the international community. As a consequence of the resulting high coverage with malaria interventions, especially in sub-Saharan Africa where the burden of malaria is greatest, the malaria burden is being reduced, albeit variably, in all regions of the world:

- In some countries in Africa with high malaria burdens, there is evidence of significantly decreasing malaria incidence and deaths among children and adults.
- In countries with lower transmission intensities, such as southern Africa and Asia, the malaria burden has been reduced to such an extent that it has ceased to be a major public health problem.
- In 16 endemic countries, the risk is limited to *P. vivax* malaria, some of these countries having eliminated *P. falciparum* over the years.
- A few countries in which the malaria burden was relatively low but persistent have completely eliminated malaria. In 2007, the United Arab Emirates was certified by WHO as being malaria-free. Certification procedures have been initiated for Morocco (and Oman). Armenia, Syria, and Turkmenistan have also reported zero cases in recent years.
- In 10 countries, programmes are currently under way to eliminate the disease, 11 countries are making the transition to an elimination approach.

Unfortunately, some previously non-endemic countries have recently seen outbreaks related to the importation of malaria parasites from abroad. Such outbreaks occurred in the Bahamas, Jamaica, Oman and the Russian Federation.

The objectives of malaria control programmes range from reducing the disease burden and maintaining it at a reasonably low level, to eliminating the disease from a defined geographical area. The ultimate objective is to eradicate the disease globally. These levels of control are defined as follows:

- *Malaria control*: reducing the disease burden to a level at which it is no longer a public health problem

- *Malaria elimination*: interrupting local mosquito-borne malaria transmission in a defined geographical area, i.e. zero incidence of locally contracted cases, although imported cases will continue to occur. Continued intervention measures are required.
- *Malaria eradication*: permanent reduction to zero of the worldwide incidence of malaria infection.

In January 2008, WHO convened a meeting of experts to review, among others, the feasibility of malaria elimination, in relation to the intensity of transmission and vectorial capacity. The group was asked to make recommendations on:

- the directions and approaches that countries should take in each epidemiological situation and transmission intensity;
- the feasibility of malaria eradication, given the tools available today and the epidemiology of malaria in various regions of the world; and
- the gaps in knowledge and priorities for research and development in the next phase of malaria control.

The meeting made the following assessment of the feasibility of global malaria control, elimination and eradication:

1. With rapid scaling up of the available tools and sustained efforts, a major impact can be made on morbidity and mortality due to malaria in all epidemiological situations within a relatively short time.

2. In areas or countries with low-intensity malaria transmission, optimal deployment of the available tools will have a strong impact and might reduce parasite incidence to an extent that would interrupt local transmission. Thus, countries in areas of low, unstable transmission are encouraged to proceed to malaria elimination where feasible. It is extremely important that temporary lapses in control, elimination and prevention of reintroduction be avoided for as long as areas remain receptive to resumption of transmission and are exposed to importation of parasites.

3. The most recent experience in some African countries confirms that substantial reductions in transmission intensity (measured as reported disease incidence and parasite prevalence rates) can be achieved in areas of stable high transmission by full-scale deployment of the available tools, given a minimum of political stability and the right socioeconomic conditions.

4. There is no evidence to indicate that, given current resources and healthcare systems and the existing tools, local malaria transmission can be interrupted, nor that ‘malaria-free’ status can be sustained in high-transmission areas that have unrelentingly high vectorial capacities. Complete interruption of malaria transmission in high-transmission situations will require additional, novel control tools.

5. In areas of high stable transmission that have achieved a marked reduction in malaria transmission, a ‘consolidation period’ should be introduced, in which
(i) the achievements are sustained even in the face of limited disease;
(ii) health services adapt to the new clinical and epidemiological situation; and
(iii) surveillance systems are strengthened to respond rapidly to new cases.
This transformation phase must precede a decision to proceed with programme reorientation towards elimination.

6. Malaria control relies heavily on a limited number of tools, in particular artemisinin derivatives and pyrethroids, which could be lost to resistance at any time. The future of global malaria control and elimination depends, therefore, on the ability of research and development to deliver a steady output of replacements for tools that are being lost to resistance and to supply new tools to make elimination of malaria possible in high transmission situations.

7. Malaria eradication requires that malaria elimination in countries and regions is achieved and sustained on a cumulative basis, over decades rather than years. Although at present local malaria transmission can be interrupted in many low-transmission settings and strongly reduced in many areas of high transmission, global eradication cannot be expected with the existing tools.

The current resurgence of global interest in malaria control and the renewed goal of elimination or eradication is a tremendous new opportunity to reduce the devastating impact of malaria on human health and development. To do this, health administrations and external supporting agencies must commit themselves to strengthening local competence and infrastructure, both for supporting the development of local health services and for the control programme. Sustained investment in human development, health services, malaria control and research and development is essential to achieve and sustain the goals of malaria control and to attain malaria elimination in more countries. Such commitment may make malaria eradication a possibility in the long-term.

## Progress and challenges towards eliminating malaria in the WHO European Region

Over the past thirteen years there has been a substantial reduction in the number of reported malaria cases (90 712 cases in 1995 and 1226 cases in 2007), as a result of intensive anti-malaria interventions, and it is likely that only 400-500 autochthonous cases will be reported in the European Region in 2008. At present, autochthonous malaria continues to pose a challenge in 6 out of the 53 Member States of the Region, namely Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Turkey and Uzbekistan.

Since 2008 all malaria-affected countries have moved to the elimination phase and their national strategies on malaria have been revised to reflect the new elimination realities. All countries are confident that they will be able to proceed with their elimination programmes as planned and to interrupt malaria transmission by 2015 and subsequently eliminate the disease within all affected countries of the Region.

The transmission of autochthonous *P. falciparum* malaria reported in Tajikistan is most likely to be interrupted in 2008, and the Region as a whole will be free from this type of malaria starting from this year.

When a country has zero locally acquired malaria cases for at least three consecutive years, it can request WHO to certify its malaria-free status. It seems very probable that Turkmenistan and most probably Armenia will initiate the process of certification of malaria elimination in 2009-2010. In order to be confident that interruption of transmission has been achieved in these countries, a number of the following preconditions must be met: (1) a national malaria elimination strategy and comprehensive plan of action with continued political and financial support to carry out planned activities; (2) a good surveillance mechanism with full coverage of

all geographical areas; (3) an established national malaria register; (4) adequate health services for early detection and effective treatment and follow-ups with high-quality laboratory services to diagnose malaria, based on microscopy; (5) capacity to investigate epidemiologically every malaria case and focus; (6) a functional entomological surveillance system; (7) a functional border coordination system; and (8) capacity for early detection and rapid response to emergency situations.

In 2008 external partners, in particular the GFATM, have increased their financial support substantially for country-level activities related to malaria elimination in Azerbaijan, Georgia, Kyrgyzstan, Tajikistan and Uzbekistan. The governments of Armenia, Turkey and Turkmenistan, in cooperation with the WHO Regional Office for Europe, are presently responsible for the provision of full-scale technical and financial assistance to implement their malaria elimination programmes.

There is a lack of expert capacity and adequate manpower resources at the regional and country levels to render technical and managerial expertise and back-up on issues of direct relevance to malaria elimination, and it is essential to improve this kind of assistance to the regional malaria elimination programme with particular emphasis on countries in need.

In order to preserve the results accumulated over the past years, to keep malaria elimination issues high on the regional health agenda and to deal successfully with a growing need from countries on topics related to malaria elimination, including its certification, it is crucial to resolve the question of assuring funds for implementing the planned inter-country and regional activities in years ahead.

## Armenia

Since 2006, *P. vivax* malaria cases due to local transmission have been not reported in the country. Despite the fact that transmission of *P. vivax* malaria has been interrupted, the epidemiological and entomological situations must be monitored closely, due to the existence of favourable conditions for resumption of malaria transmission. *An. maculipennis* serves as the main malaria vector in the country. In addition to *An. maculipennis*, other malaria vectors in the country include *An. sacharovi*, *An. hyrcanus*, *An. plumbeus* and *An. claviger*. The appearance of *An. sacharovi* (the main vector in Transcaucasia) in the Ararat valley has created conditions more favourable for malaria transmission in the country.

Armenia demonstrates a strong political commitment to the Tashkent Declaration “The Move from Malaria Control to Elimination” that was endorsed by the country in 2005. In 2006, Armenia developed a national malaria elimination strategy, bearing in mind the results achieved to date and the goal to eliminate *P. vivax* malaria by 2010. A national plan of action to eliminate malaria became operational in 2008. At present, activities supported by the Armenian government and WHO are directed towards preventing the re-introduction of malaria transmission (to detect any possible continuation/resumption of malaria transmission and to notify early on all suspected and confirmed cases). Malaria elimination in Armenia could be assumed when an adequate surveillance system has not discovered any evidence of transmission or residual endemicity despite careful search for three consecutive years. The government of Armenia could officially proclaim the elimination of malaria on the whole territory of the country, but WHO should be asked to certify malaria-free status in order to give international recognition to this achievements.

## Azerbaijan

Over the course of 1997–2006, as a result of large-scale epidemic control interventions, the malaria situation in the country continued to improve with only 108 cases reported in 2007, and only 52 cases of autochthonous *P. vivax* malaria reported for the first eight months of 2008. Although the incidence of malaria is relatively low (less than 1 per 1000 population at risk in 2007), the receptivity of 80% of the territory of the country remains high. Malaria vectors in Azerbaijan comprise *An. maculipennis* (the area of the Big and Small Caucasus), *An. sacharovi* (Kura-Araksin and Lenkoran lowlands) and *An. persiensis* (Lenkoran lowlands, in areas bordering Iran).

Azerbaijan demonstrates a strong political commitment to the Tashkent Declaration "The Move from Malaria Control to Elimination", which was endorsed by the country in 2005. At present, anti-malaria activities supported by the government and WHO focus on vector control measures, disease management, training, operational research, surveillance and public health education. A national malaria elimination strategy for 2008-2013 and a plan of action have been developed with assistance provided by the WHO Regional Office for Europe, and they are to be launched in November 2008. With a GFATM grant of almost US$ 6 million over five years (2009-2013), Azerbaijan will be able to proceed with malaria elimination. The issue of cross-border coordination and collaboration in the field of malaria elimination between Azerbaijan and Georgia will be high on the health agenda for both countries in years ahead.

## Georgia

In 2007, as a result of intensive anti-malaria measures being applied, the country reported only 24 autochthonous cases from 18 districts. Almost all cases of *P. vivax* malaria were registered from two south-eastern regions, Kakheti and Kvemo Kartli, bordering with Azerbaijan. At present, the highest risk of resurgence of malaria transmission and its spread is in the areas bordering Azerbaijan and Armenia in eastern Georgia, the Black Sea coastal areas and the Kolhid lowlands in the western part of the country, where almost 70% of the total population reside, and where the transmission season may last more than 150 days. The main and secondary vectors there include *An. maculipennis*, *An. superpictus*, *An. sacharovi*, *An. atroparvus*, *An. hyrcanus*, *An. claviger* and *An. melanoon*.

Political commitment to the principles of the Tashkent Declaration "The Move from Malaria Control to Elimination" endorsed in 2005 continues to grow in Georgia. At present, the country-level malaria elimination activities are supported by the Ministry of Health, the WHO Regional Office for Europe and the GFATM. In order to support malaria control and elimination activities over eight years (2004–2011), the GFATM has provided two grants of more than US$ 4 million. Interventions carried out include disease management and prevention, training, surveillance, epidemic control, community mobilization, health education, cross-border coordination and operational research. A new national malaria elimination strategy with the goal of eliminating *P. vivax* malaria by 2013 and a relevant action plan have been developed, and they are to be launched in 2008.

## Turkey

In 2006, a total of 313 cases of autochthonous *P. vivax* malaria were reported over the entire territory of the country. Although the number of malaria cases and their active foci have

decreased dramatically over the past years, transmission of malaria continues in new and residual foci in three south-eastern provinces of the country. There are thirteen *Anopheles* species recorded in Turkey. *An. sacharovi* and *An. superpictus* are the principal malaria vectors, while *An. maculipennis*, *An. pulcherimus*, *An. algeriensis*, *An. claviger*, *An. hyrcanus*, *An. marteri*, *An. multicolour*, *An. plumbeus* and *An. sergenti* may be considered secondary or possible vectors of malaria in the country.

Turkey demonstrates a strong political commitment to the Tashkent Declaration "The Move from Malaria Control to Elimination", which was endorsed in 2005, and malaria surveillance activities have been intensified all over the country with priority given to provinces in south-eastern Anatolia. All active foci of malaria are determined, and disease management and prevention activities are supported by the Ministry of Health, other governmental entities and the WHO Regional Office for Europe. A national malaria elimination strategy and relevant plan of action have been developed and they are to be launched in 2008. The ultimate goal of the new national strategy is to interrupt the transmission of malaria by 2012 and eliminate the disease within the country by 2015.

### Turkmenistan

Starting from 2006 no cases of autochthonous *P. vivax* malaria have been reported in the country. Three principal malaria vectors are found in Turkmenistan: *An. superpictus*, *An. pulcherimus* and *An. maculipennis*.

Turkmenistan shows a strong political commitment to the Tashkent Declaration "The Move from Malaria Control to Elimination" endorsed in 2005. In order to reflect the new malaria elimination realities, the national malaria programme and action plan were revised in 2007. At present, malaria elimination activities include disease management, training, surveillance, vector control with particular attention to border areas, community mobilization, health education and operational research. A new national malaria elimination strategy with the goal of eliminating *P. vivax* malaria by 2013 and a relevant action plan have been developed and launched in 2008. The government of Turkmenistan and WHO provide support for promoting and facilitating national malaria elimination efforts. In 2009, particular emphasis will be given to (1) cross-border collaboration between Turkmenistan and Afghanistan; (2) further improvement of malaria surveillance; and (3) the establishment of mechanisms to predict, detect at early onset, rapidly respond to and prevent any abnormal situation related to malaria. Starting from 2009 Turkmenistan may request WHO to certify its malaria-free status.

## Progress and challenges towards eliminating malaria in the WHO Eastern Mediterranean Region

Malaria is endemic in nine countries of the WHO Eastern Mediterranean Region, with low intensity of transmission in most areas. High and stable transmission is limited to the southern part of Somalia and southern Sudan, which represents only 5% of the population at risk of malaria in the Region. *Falciparum* malaria is the dominant species in Saudi Arabia, Yemen and the sub-Saharan countries of the Region (Djibouti, Somalia and Sudan), while in Afghanistan, the Islamic Republic of Iran and Pakistan, both *P. falciparum* and *P. vivax* are transmitted, with *P. vivax* as the predominant species.

Since the launch of the Roll Back Malaria Initiative in the Region in 1999, and particularly in the past few years, malaria control has intensified in endemic countries and resulted in a reduction of the malaria burden. In 2008, WHO estimated 8.1 million annual malaria episodes in the Eastern Mediterranean Region compared to an estimated 15 million in 2000.

A technical discussion paper on "Malaria elimination in the Eastern Mediterranean Region: vision, requirements and strategic outline" was presented to the Regional Committee in October 2008, and a resolution was adopted supporting the way forward for malaria elimination (*EM/RC55/R.9(D)).* With the availability of new tools for case management and prevention, improvements in communication technology, availability of financial resources from the GFATM and other sources, as well as the global interest in elimination, it is considered feasible to accelerate efforts to eliminate malaria in low transmission areas by 2020. In high transmission areas in the southern part of Somalia and southern Sudan, a substantial reduction of transmission could be achieved with full-scale deployment of the available tools. Malaria elimination is expected to bring substantial benefits in terms of socioeconomic development, improvement of the living standards of the population and increase in local and international tourism. Investment in malaria elimination would help other public health programmes to achieve their goals, including the prevention and control of neglected tropical diseases.

## Iraq

In recent years thr incidence of malaria has decreased significantly from 1860 cases in 2000 to 47 cases in 2005, (40 of these cases were from Erbil, Duhok and Al Sulaymaniyeh). In 2007, only 3 malaria cases were reported form Erbil, and only 2 of them were locally transmitted. All malaria cases in Iraq are confirmed. In this year, more than 844 000 blood slides were examined, and about 1.5% of them were by active case detection.

Anti-malarial drugs are limited to the governmental health sector. Chloroquine and primaquine are used for the treatment of *P. vivax* while for *P. falciparum* the first line of treatment is artemether/lumifantrine. Quinine is used in case of treatment failure and for pregnant women. Vector surveys are carried out routinely in 10 stations in each governorate where 10-20 visits are paid monthly for observation, collection and measurement of vector density. Indoor residual spraying has been carried out in targeted areas in 2 rounds. 34 978 house structures were targeted for spraying in each round and with more than 96% coverage. In the same period more than 6 million people were protected by space spraying and 250 000 breeding sites were treated by larviciding activities. Till now and in collaboration with the leishmaniasis control programme a total of 520 000 bednets have been distributed to the targeted population.

Currently, the malaria control programme in Iraq face many challenges, including the instable and insecure political situation, the rehabilitation of marshes, the irregular provision of resources, poor communication, population movement and the possibility of imported cases from endemic countries.

## Syria

During the 1990s, the maximum incidence of local malaria (966 cases) was recorded in 1993, and these cases were recorded in two governorates (Aleppo and Al Hasakah). Since 1995, the number of malaria cases decreased from 582 cases to 6 cases in 2000 An outbreak of 61 local cases occurred in 2001, mainly in the Ras El Ain district (53 cases) and the Al Malkeih district (8

cases) in the Al Hassaka governorate bordering Turkey and Iraq . After that a few sporadic cases have been recorded along the borders with Turkey and Iraq. The last autochthonous case of *P. vivax* malaria was reported in the Al Malkia district in 2004.

The goal of Ministry of Health in the Syrian Arab Republic is to sustain the malaria free status. The following are the actions implemented by the Ministry of Health in cooperation with WHO:

- the early detection of malaria cases through active and passive case detection;
- treatment of malaria cases and follow up till complete recovery;
- recording of all treated cases in malaria eradication centres and immediate reporting to the Ministry of Health;
- special surveys and treatment of the confirmed cases;
- entomological monitoring of *Anopheles* mosquitoes, including : behaviour, density , type, insecticide sensitivity;
- implementation of vector control measures in high risk areas, including larvicide biological control, environmental sanitation;
- health education;
- training of health workers related to early detection, diagnosis, treatment, prevention.

## Implementation, evaluation and certification of malaria elimination

### Strategies and approaches specific to malaria elimination, including capacity building

The principles of malaria elimination are mostly based on those formulated for the malaria eradication campaign in 1950s and1960s but new technologies and tools for malaria control are also taken into account. A comprehensive field manual on malaria elimination has been developed by WHO in 2007.

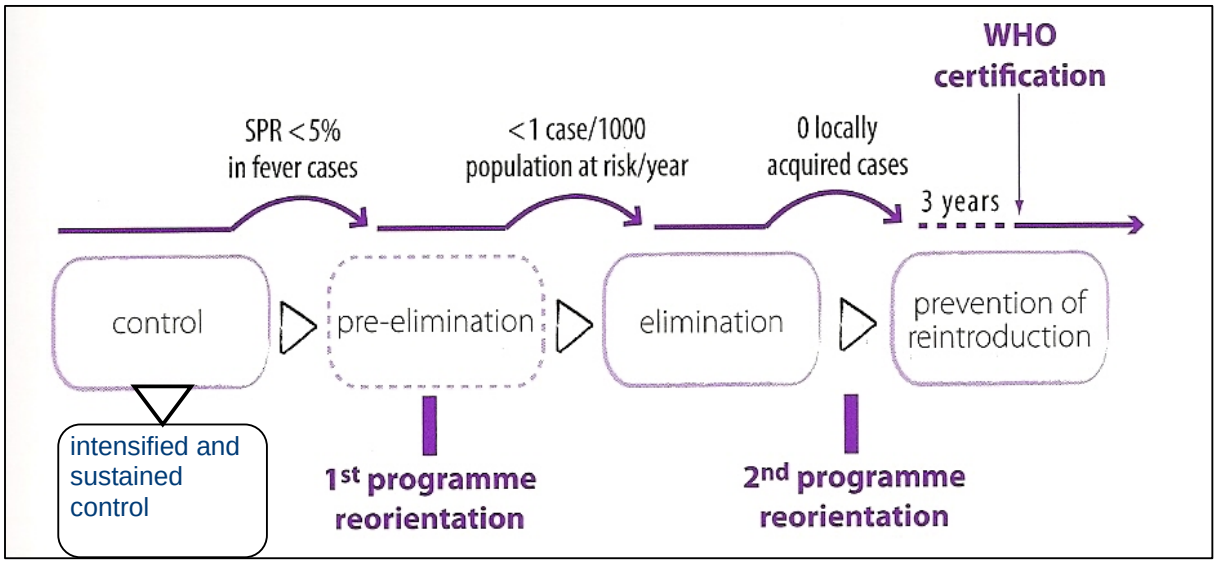
Technical feasibility of malaria elimination depends on a number of political and programmatic factors that are well described in the manual. Additionally, factors related to the natural history of malaria also need to be taken into consideration.

Refractoriness of malaria to antimalaria measures depends mostly on the climate and parasitic system of malaria. Transmission of malaria is, in principle, possible even in areas with negative average annual temperatures provided that the climate is continental with daily average temperatures above 16°C for at least a month (e.g. Yakutsk area in Eastern Siberia). However, even in comparable climates (e.g. Africa and South America), the stability of the parasitic system of malaria is much more assured in Africa.

Feasibility of malaria elimination mostly depends on the parasitic system of malaria that corresponds to 6 major zoo-geographical regions. In the Palaearctic and Nearctic regions only *P. vivax* is present by now, with the exception of a few areas of Afghanistan. Its elimination is feasible everywhere. Re-emergence of *P. falciparum* due to importation from other regions is highly improbable. In the Neotropical, Oriental and Australasian regions, *P. vivax* and *P. falciparum* co-exist at par, and elimination is feasible in limited areas. In the Afrotropical

region, *P. falciparum* overwhelmingly predominant, and elimination is principally unfeasible, except on islands and fringe areas.

Therefore, the familiar scheme of phases and milestones of malaria elimination needs to reflect the fact that many countries will not be able to proceed to malaria elimination, but will remain in the state of sustained and intensified control, until new tools appear.




Modalities of approaches in malaria elimination are as follows.

Geographical reconnaissance was described during the eradication era mainly as a method for planning of indoor residual spraying. In elimination, its scope is broader. The centrepiece is the creation of an inventory of foci in the form of a computerized database. It is instrumental for delineation of initially malarious areas with special reference to the cut-off altitude, and classification of potentially malarious areas on the landscape basis.

The Geographic Information System (GIS) was used even in the era of malaria eradication, for mapping and monitoring, however, the process was extremely time-consuming. Computerization gave it a new dimension allowing mapping in real time and having information at hand. A problem with GIS in malaria, however, is that mapping by administrative units (as it is usually done in epidemiology) often proves useless and misleading, since one administrative unit may include heavily malarious and non-malarious portions at the same time. For malaria, additional layers are needed, reflecting altitude, hydrology, vectors' areas of distribution, etc.

The minimum unit of application of measures in malaria elimination is a focus, not a case or a cluster of cases, or a household. A focus may be depicted as an ecosystem consisting of interacting biological populations (of humans, parasites, vectors and perhaps other animals providing blood meals to mosquitoes and larvivorous fish). In practical terms, a focus is represented by the territory of a rural settlement, including temporary field sheds, etc., along with the mosquito breeding and feeding places. Settlements of any size are considered a separate focus, even one isolated household, if it is separated from the others by distance or a physical barrier.

Case detection is mainly done through passive method supplemented by active detection when there is a strong suspicion that a hidden transmission of malaria is going on. Surveys are exceptional. Case detection should be rapid and followed by a treatment as soon as possible.

Cases are not considered as such unless confirmed by microscopy. If microscopic diagnosis is impossible within the same working day, a rapid diagnostic test (RDT) may be used, but every case detected by RDT needs to be reconfirmed by microscopy. In *P. falciparum* cases, it is important to record if gametocytes are present, in order to be able to say how old the given case is and possibly to decide whether an anti-gametocyte treatment should be given. Parasite densities using a logarithmic scale from 1+ to 5+ should be recorded, mostly for the purpose of quality control of the laboratory diagnosis.

For curative treatment, chloroquine 3 days and primaquine 14 days are given for *vivax* cases under medical observation (hospitalization is not compulsory). For *falciparum* cases, an Artemisinin-based combination therapy (ACT) is to be given, preferably at the hospital. An anti-gametocyte treatment with primaquine may be considered.

For epidemiological surveillance, all areas below the cut-off altitude are to be considered malaria-prone. All the malaria cases are subjected to an epidemiological investigation and classified. This is the basis for classification of foci. A roster of all settlements with a risk of malaria transmission is to be produced, and all of them will be considered foci, even those without cases that will be considered cleared-up foci. Information on the functional status of every focus is to be maintained in real time using an electronic database that will be further incorporated in GIS.

Entomological surveillance gives information pertaining to planning of indoor residual spraying, antilarval measures, if applied, and to epidemiological analysis and forecasting.

Meteorological monitoring is important using average daily temperatures and daily rainfall. Elements of the malaria season (e.g. the beginning of transmission) are to be computed using the Moshkovsky's method. The analysis will also reveal if an epidemiological link between the two given cases is probable and when secondary cases from a given imported case may be expected.

Indoor residual spraying (IRS) is the main measure to control transmission. Its objective is to reduce the longevity of mosquitoes, while a reduction in the population densities is only a by-product, albeit valuable. It affects selectively mosquitoes that come feeding on humans thus interrupting the man to mosquito transmission, but does not prevent the users from contracting malaria. It should be conducted only in active foci, and blanket, "prophylactic" IRS is not to be recommended. The unit to spray should be a focus as a whole. No so-called microfocal spraying covering the household of a case plus a number of adjoining houses is to be accepted. All structures need to be covered, including temporary sheds outside villages. If the coverage is below 85%, it is considered as no spraying at all (protection is zero).

Insecticide-treated nets are not used specifically as a measure to interrupt transmission, although they are welcome if already used by the population.

Antilarval measures may be used as additional measures: larviciding in arid areas; larvivorous fish when sustainable; and source reduction. They may be the only option in urban areas.

Mass drug administration in the form of suppressive treatment during the transmission season is contraindicated. Mass prophylactic treatment with primaquine before the transmission season may be administered to quickly empty the reservoir of hypnozoites, but this is a very costly measure that should be used judiciously.

Community involvement through information, education and communication is important. Village committees are instrumental for ensuring smooth implementation of activities, especially indoor residual spraying and lay case detection. Schools should be involved in two aspects: as places for case detection and presumptive treatment and to sensitize schoolchildren as a vehicle for dissemination of information about malaria.

Training should involve all the first contact medical workers, even specialists, starting from a one-day training course for most of them and longer training for selected groups. A short training is to be given to pharmacists as well.

In training of laboratory technicians and laboratory supervisors, attention should be paid to aspects that are currently underestimated: slide processing, including identification and correction of errors of processing, and maintenance of microscopes and small repair. Efforts should be made to replenish slide banks before the cases become too rare. Use of soft slide technique (Beljaev, 1981), should be encouraged, as this may ensure a practically unlimited source of teaching blood slides.

Training is also to be given to entomologists, vector control supervisors, and spraymen (seasonal). Lay volunteers and schoolmasters are to be trained on case detection, presumptive treatment and referral. Additionally, matters pertaining to malaria need to be included in school curricula.

Applied field research on malaria is to be conducted mostly through small projects that are likely to yield information that may be immediately used by the antimalaria programme. Various topics pertaining to parasites, vectors, human behaviour, surveillance mechanism, etc. may be considered.

## Prevention of the re-establishment of malaria and WHO certification of malaria elimination

Up to 1982, a total of 24 countries were certified by WHO as malaria-free. Up to 2007, an additional 9 countries achieved "zero cases reported", with one of these certified by WHO as malaria-free (United Arab Emirates, 2007). WHO certification of the malaria-free status can be granted once there is a proven 3-year absence of locally acquired malaria cases in an entire country, "beyond reasonable doubt".

Countries request certification as an acknowledgement of a significant operational achievement, for economic reasons such as tourism and foreign investment, etc. WHO certification of a malaria-free status is on demand only. There is no obligation or international binding agreement for countries to request it. The steps for certification are as follows:

1. requested by country
2. assessed by WHO-led team of experts
3. judged by WHO Expert Committee on Malaria
4. granted by Director-General of WHO
5. published in the *Weekly Epidemiological Record* (http://www.who.int/wer/en/)

The costs of the process are borne jointly by the country and WHO: the country identifies the required funds for all in-country costs, including surveys if needed; WHO will pay for the external assessment, including consultants and international travel.

The duration of the certification process from request to final decision depends on three factors:

- the boldness of the elimination claim: how likely is it, really?
- the completeness of the evidence base, the "elimination database"
- the administrative and staff resources at country and WHO levels

The procedures took over 3 years for the United Arab Emirates (2003 - 2007). The process for Oman had to be put on hold due to a local outbreak in 2007.

The key documents to be prepared by the national government for the certification evaluation team are listed in annex 11 of the document "*Malaria elimination, a field manual for low and moderate endemic countries*" (WHO, 2007, http://www.who.int/malaria/docs/elimination/MalariaElimination_BD.pdf). A national plan of action to prevent reintroduction of malaria is the first item on this list.

Prevention of the re-introduction of malaria

Important concepts in the prevention of re-introduction of malaria are vulnerability, receptivity and vigilance. See the definitions below. The risk of re-establishment of transmission is a function of the vulnerability and the receptivity of any given area. Both factors can change over time.

**Definitions**

**Vulnerability:** either proximity to malarious areas or resulting from the frequent influx of infected individuals or groups and/or infective anophelines.

**Receptivity:** the abundant presence of anopheline vectors and the existence of other ecological and climatic factors favoring malaria transmission.

**Vigilance:** a function of the public health service during the programme for prevention of re-introduction of transmission, consisting of watchfulness for any occurrence of malaria in an area in which it had not existed or from which it had been eliminated, and the application of necessary measures against it

Typical aspects of the prevention of re-introduction are (1) prevention and management of imported malaria, (2) vigilance through general health services, (3) case detection and investigation, (4) vector control to reduce receptivity in vulnerable areas, and (5) outbreak control. After elimination has been achieved, malaria programme staff can usually be absorbed

into other vector control and health programmes. Nevertheless, experience shows that the maintenance of a central nucleus of malaria expertise is essential to guide the programme activities for prevention of reintroduction.

Nonimmune travelllers to areas with transmission of *falciparum* malaria are at risk of serious disease and death when they get infected. Such travellers may need repellents and other measures for prevention of mosquito bites between dusk and dawn; chemoprophylaxis with either doxycycline, mefloqiuine or atovaquone-proguanil; and treatment with artemether-lumefantrıne, atovaquone-proguanıl, or quınıne in combination with doxycyclıne or clındamycın. Travellers with severe falciparum malaria require parenteral artesunate. More information is availabel in the WHO *Guidelines for the treatment of malaria* (2006), available at http://www.who.int/malaria/docs/TreatmentGuidelines2006.pdf, and WHO's *International Travel and Healt*h, http://www.who.int/ith.

## Monitoring and evaluation of progress towards malaria elimination

Monitoring is the routine (continuous) tracking of the performance of the malaria surveillance and response systems. Evaluation is the periodic assessment of changes in targeted results (objectives) that can be attributed to the malaria surveillance and response systems. Monitoring and evaluation (M&E) are vital components of the malaria surveillance and response systems. M&E of anti-malaria activities aims to provide a systematic way of determining the extent to which elimination programmes are successful in achieving the operational targets and stated objectives.

Establishing a strong M&E system to measure progress towards malaria elimination at the country level is of great importance. The M&E components of the programme have to be developed to:

1. document and guide the reorientation process of the malaria programme: (1) from a control programme to an elimination programme, and (2) from an elimination programme to a programme focusing on prevention of reintroduction of malaria;
2. document progress towards achievement of goals and objectives to support each programmatic shift; and
3. establish a credible information database for ultimate certification of malaria elimination.

Good record keeping is an essential element of a successful programme. Completeness, accuracy and timeliness of data are essential because the decisions to change to the next phase of the programme are guided by the progress made in epidemiological indicators, which narrow down to cases and foci as the programme evolves from a control programme into an elimination one.

The established malaria elimination database will serve as the national repository of all information related to malaria elimination, including the following major components:

1. National malaria case register – a single database of all individual case information from identified sources in the whole country. This register allows detailed analysis and synthesis of epidemiological information and trends that help guide the elimination programme over time.
2. Malaria patient register – a central repository of all malaria patient records.
3. Laboratory register – a single database. This register should also be linked to the parasite strain bank.

4. Parasite strain bank – samples of parasites from individual cases should be stored in a central strain bank.
5. Entomological monitoring/vector control records – a central repository of information related to entomological monitoring and application of vector control interventions.

Ideally, management and maintenance of the malaria elimination database would be the responsibility of a national committee that is independent of the malaria programme. This is especially useful for countries with a desire for eventual official WHO certification of malaria elimination, because it removes any real or perceived conflict of interest.

Monitoring and evaluation should focus on four key issues:

1. monitoring the operational aspects of the programme and measuring impact or process indicators to ensure that the activities are yielding desired results and moving the programme towards achieving its operational targets and objectives;
2. monitoring changes in epidemiological indicators resulting from the activities implemented;
3. appropriately interpreting results and informing revisions in policies or strategies, when needed, to help ensure progress; and
4. documentation of progress towards malaria elimination.

At the stage where the number of malaria cases becomes low, as observed in all affected countries of the European Region, the use of the conventional malariometric indicators like annual parasite incidence (API) often becomes meaningless, and the main question is then to ascertain whether malaria transmission is still taking place in a given area. At the elimination stage, all the cases that are reported should be subject to epidemiological investigation. The result of investigation is an epidemiological diagnosis of each case in terms of its place, time and source. The presence of particular categories of cases is the basis for classification of malaria foci. A malaria focus is defined as “a defined and circumscribed locality situated in a currently or formerly malarious area and containing the continuous or intermittent epidemiological factors necessary for malaria transmission”. This concept is crucial for those malaria programmes that aim at an interruption of malaria transmission, since the focus as a minimum entity is the object of malaria action. The identification and monitoring of the functional status of malaria foci is a cornerstone for success in the interruption of malaria transmission or prevention of its reintroduction. The status of every focus should be periodically reviewed and re-categorized when necessary.

## Conclusions

The meeting has taken place three years after the endorsement of the Tashkent Declaration, “The Move from Malaria Control to Elimination”, by all malaria-affected countries of the WHO European Region. In the context of malaria elimination, particular emphasis is given to situations, where there is a risk of spread of malaria between countries and regions. The rationale for organizing this meeting was to stress the need to strengthen cross-border collaboration for solving common malaria-related problems.

The substantial reduction in the incidence of malaria and, as a result, in the number of malaria cases (from 37 173 cases in 1999 to 1226 in 2007) over the past nine years (1999-2007) is the

evident achievement of the regional malaria programme. Since 2008, all malaria-affected countries of the European Region have moved to the elimination phase and their national strategies on malaria have been revised to reflect the new elimination realities. Turkmenistan and Armenia have had zero locally acquired malaria cases for three consecutive years (2006-2008), and they may officially request WHO to certify their malaria-free status.

Participants at the meeting reaffirmed their commitments to the Tashkent and Kabul Declarations, and stressed the importance of the 2008 Tallinn Charter, "Health Systems for Health and Wealth", for actions against malaria with the goal of eliminating malaria in the European Region by 2015. The need to ensure that malaria-affected countries are fully supported in their efforts to planning, implementing, monitoring and evaluating malaria elimination programmes, and capacity building by WHO and partners was emphasized. Particular emphasis should be given to situations, where a risk of spread of malaria across shared borders exists. In order to achieve the declared goals and objectives of the regional strategy, participants urged partners to increase the level of financial assistance for malaria elimination. A shortfall in funding would limit the scope of malaria elimination activities in the Region. A severe shortage of anti-malaria drugs for treatment and chemoprophylaxis of imported malaria, in particular *P. falciparum*, at national level is a major obstacle for successful implementation of malaria elimination programmes.

## Выводы

Данное совещание проводилось три года спустя после ратификации Ташкентской Декларации «Вперед от борьбы к элиминации малярии» всеми странами Европейского Региона, пораженными малярией. В контексте элиминации малярии, особое внимание уделяется ситуациям, где существует риск распространения малярии между соседними странами и регионами. Обоснованием для проведения данного совещания послужила необходимость усиления трансграничного сотрудничества для решения общих проблем, связанных с элиминацией малярии.

Значительное снижение уровня передачи малярии и, как результат, количества её случаев (с 37 173 случаев в 1999 году до 1 226 в 2007 году) на протяжении последних девяти лет (1999-2007), является очевидным достижением региональной противомалярийной программы. С 2008 года, все страны пораженные малярией в Регионе окончательно вошли в фазу элиминации, и их национальные стратегии по малярии были пересмотрены в соответствии с изменившимися ситуациями и новыми поставленными задачами по элиминации малярии. Туркменистан и Армения, в которых не было зарегистрировано ни одного случая местной передачи малярии на протяжении последних трех лет (2006-2008) могут официально запросить ВОЗ для проведения сертификации элиминации малярии.

Участниками совещания были подтверждены обязательства в отношении Ташкентской и Кабульской Деклараций, и важность положений недавно принятой Таллиннской Хартии, 2008 «Системы Здравоохранения для Здоровья и Благополучия» для деятельности, направленной на элиминацию малярии в Европейском регионе ВОЗ к 2015 году. Была также подчеркнута необходимость гарантировать всем странам, пораженным малярией полную поддержку со стороны ВОЗ и партнеров в планировании, проведении, мониторинга и оценки национальных программ по элиминации малярии, а также в подготовке национальных кадров. Особое внимание должно быть уделено ситуациям, где

существует риск распространения малярии между прилегающими пограничными территориями соседних стран. Для достижения поставленных целей и задач осуществляемой региональной стратегии, участники призвали партнеров и доноров увеличить размер финансовой помощи для проведения программ по элиминации малярии. Недостаток финансов ограничит объем мероприятий, направленных на элиминацию малярии в Регионе. Значительным препятствием для успешного проведения программ по элиминации малярии является отсутствие надежного снабжения лекарственными препаратами для лечения и профилактики завозной малярии, в частности её тропической формы на уровне страны. Главным образом это случается из-за того, что на стадии элиминации малярии требуются небольшие количества препаратов и бюрократические процедуры создают непреодолимые препятсвия для получения лекарственных препаратов в срок.

## Recommendations

The following recommendations are based upon those formulated by the working groups and subsequently adapted and approved by participants in the final plenary session:

**For Member States**

1. Previous commitments to malaria elimination and cross-border collaboration expressed in the Tashkent and Kabul Declarations should be considered as one of the priority tasks of public health and socio-economic development of the countries.

2. In collaboration with WHO, to assess malaria elimination programmes in Armenia and Turkmenistan.

3. In collaboration with WHO, to continue implementing, monitoring and evaluating malaria elimination programmes in Azerbaijan, Georgia and Turkey.

4. In collaboration with WHO, to ensure that training programmes are adapted to and appropriate for the implementing strategy on malaria elimination.

5. In collaboration with WHO, to continue the strengthening of epidemiological services and information systems; including an operational research component, capable of adequate planning, implementing and evaluating interventions related malaria elimination.

6. At the malaria elimination phase, adequate malaria surveillance should be designed to discover any evidence of continuation of malaria transmission and its underlying causes. Epidemiological investigation and classification of all cases of malaria should be carried out without any delays.

7. In collaboration with WHO, to revise drug policy related to treatment and chemoprophylaxis of imported malaria, particularly *P. falciparum* and to ensure the availability of drugs for this purpose.

8. To promote cross-border collaboration and cooperation on malaria elimination among neighbouring countries of the WHO European and Eastern Mediterranean Regions.

9. To enhance collaboration on malaria elimination with existing and potential partners and donors, including the GFATM.

**For WHO (European Region)**

1. To continue supporting countries in their efforts towards implementing, monitoring and evaluating the national malaria elimination programmes.

2. To continue supporting countries in conducting malaria-oriented operational research activities, particularly on issues related to elimination.

3. To assist in the organization of a regional training course on vector biology and control, to be held in 2009.

4. To assist in the organization of a regional training course on malaria elimination, to be held in 2009-2010.

5. To assist in the organization of an inter-country meeting between Azerbaijan and Georgia in March-April 2009. Main outcome: a joint plan of action for interruption of malaria transmission in the border areas of both countries.

6. To consider establishing a regional mechanism for supplying anti-malaria drugs of assured quality for countries where malaria transmission have been interrupted or relatively low (for treatment of imported malaria and as emergency stock of necessary drugs).

7. To assist in the mobilization of additional resources for malaria elimination.

**For WHO (European and Mediterranean Regions)**

1. To establish a regional or inter-regional task force, comprising representatives of the countries concerned, WHO staff and experts, in order to review the progress made with malaria elimination and advise on the next steps.

2. To assist in the organization of inter-regional meetings and study tours, in order to learn about and share experiences on malaria elimination between countries and regions.

3. To continue assisting in developing and submitting joint malaria project proposals for neighbouring countries belonging to the above-mentioned Regions.

4. To assist in the organization of an inter-country meeting between Afghanistan and Turkmenistan in March-April 2009. Main outcome: a joint action plan in order to coordinate and synchronize malaria control and elimination activities in border areas of these countries.

**For WHO (headquarters)**

1. To develop tools for assessment of malaria elimination programmes, including (a) technical guidelines on monitoring and assessment of these programmes with a

description of recommended indicators; (b) technical guidelines on the reorientation from elimination to prevention of reintroduction of transmission; and (c) a model epidemic preparedness plan with a description of mechanisms to predict, detect at early onset and rapidly respond to any abnormal situation related to malaria.

**For partners (including the GFATM)**

1. To assist in promoting malaria elimination efforts within the European Region, paying particular attention to strengthening health systems and human resource capacities, improving epidemiological services and research capabilities, and promoting social mobilization.

2. To support the development of inter-country project proposals on malaria elimination.

## Рекомендации

Нижеприведенные рекомендации исходят из обсуждений в рабочих группах и последующего одобрения участниками во время заключительной пленарной сессии:

**Для стран-участников**

1. Обязательства, взятые странами в области элиминации малярии и трансграничного сотрудничества, изложенные в Ташкентской и Кабульской Декларациях в 2006 году считать одной из главных приоритетных задач здравоохранения и социально-экономического развития данных стран;

2. В сотрудничестве с ВОЗ, оценить состояние программ по элиминации малярии в Туркменистане и Армении;

3. В сотрудничестве с ВОЗ, продолжить работу по реализации национальных программ по элиминации малярии и их мониторингу в Турции, Азербайджане и Грузии;

4. В сотрудничестве с ВОЗ, обеспечить, чтобы программы подготовки кадров были адаптированы и соответствовали потребностям реализуемой стратегии, направленной на элиминацию малярии;

5. В сотрудничестве с ВОЗ, продолжить укрепление эпидемиологических служб и информационных систем, включая научно-исследовательский компонент, для обеспечения адекватного планирования, проведения и оценки мероприятий, связанных с элиминацией малярии;

6. В стадии элиминации малярии адекватного эпидемиологический надзор должен быть направлен на поиск любых признаков продолжающейся остаточной передачи малярии и определение её причин. Все случаи и очаги малярии должны быть подвергнуты детальному эпидемиологическому расследованию и классификации в максимально краткие сроки;

7. В сотрудничестве с ВОЗ, пересмотреть политику в области лекарственных препаратов для лечения и профилактики случаев завозной малярии, в особенности её тропической формы и обеспечить наличие необходимых лекарственных препаратов для этих целей;

8. Улучшить взаимодействие между странами Европейского и Восточно-Средиземноморского регионов по координации проведения мероприятий по элиминации малярии;

9. Расширять сотрудничество в вопросах элиминации малярии с существующими и потенциальными партнерскими и донорскими организациями, включая Глобальный Фонд.

**Для ВОЗ (Европейское Региональное Бюро)**

1. Продолжить оказание помощи странам в их усилиях по планированию и проведению национальных программ по элиминации малярии;

2. Продолжить оказание помощи в планировании и проведении научно-практических исследований по малярии, в частности в области её элиминации;

3. Оказать помощь в организации регионального курса по подготовке кадров в области биологии и борьбы с переносчиками малярии в 2009 году;

4. Оказать помощь в организации регионального курса по подготовке кадров в области элиминации малярии в 2009-2010 годах;

5. Оказать помощь в организации межстранового совещания между Азербайджаном и Грузией в марте-апреле 2009 года. Результатом данного совещания должен стать совместный план действий по сотрудничеству с целью перерыва передачи малярии в пограничных районах этих стран;

6. Рассмотреть возможность создания механизм обеспечения стран противомалярийными препаратами гарантированно качества для стран с прерванной или ограниченной передачей малярии ( как для лечения завозных случаев, так и в качестве запаса на случай чрезвычайных ситуаций);

7. Оказать помощь в мобилизации дополнительных ресурсов для элиминации малярии.

**Для ВОЗ (Европейское региональное бюро и Восточно-Средиземноморское бюро)**

1. Создать региональную или межрегиональную группу, включающую представителей всех заинтересованных стран и экспертов ВОЗ для оценки прогресса в области элиминации малярии и совета на последующие шаги в данном направлении;

2. Оказать помощь в организации межрегиональных совещаний и обмена специалистами с целью обучения и обмена опытом в области элиминации малярии между вышеупомянутыми регионами и странами;

3. Продолжить оказание помощи в подготовке и предоставление для рассмотрения совместных проектов по малярии, включающих пограничные страны вышеупомянутых регионов;

4. Оказать помощь в организации межстранового совещания между Туркменистаном и Афганистаном в марте-апреле 2009 года. С целью координации и синхронизации противомалярийных мероприятий на приграничных территориях обеих стран план совместных действий с разработанными механизмами для его осуществления должен стать результатом данного совещания.

**Для штаб-квартиры ВОЗ**

Разработать инструменты оценки программ по элиминации включая (1) техническое руководство по мониторингу и оценке программ с описанием рекомендуемых индикаторов, (2) техническое руководство по переориентации программы элиминации на предупреждение возникновения передачи малярии, и (3) модельный план готовности к чрезвычайным ситуациям в случае эпидемической вспышки малярии с описанием механизмов прогнозирования, раннего распознавания и быстрого ответа на данную чрезвычайную ситуацию.

**Для партнеров (включая Глобальный Фонд)**

1. Способствовать успешному проведению программ по элиминации малярии в Регионе, уделяя особое внимание укреплению систем здравоохранения, подготовке кадров, улучшению эпидемиологических служб и укрепления научно-практического потенциала, а также мобилизации населения;

2. Поддержать разработку межстрановых проектов по элиминации малярии.

# Annex 1

# Programme

| **Tuesday, 23 September** | |
|---|---|
| 08.30–09.00 | Registration |
| 09.00–09.15 | Welcome by *Ministry of Health*, Turkey |
| 09.15–09.30 | Welcoming address by WHO<br>*(WHO/GMP/HQ), (WHO/Europe)* |
| 09.30–09.45 | Introduction of participants<br>Meeting objectives and arrangements<br>Election of Chairperson and Rapporteur |
| 09.45–10.15 | *Coffee break* |
| 10.15–10.35 | Malaria elimination: the current situation, challenges and possible scenarios<br>*(WHO/GMP/HQ)* |
| 10.35–10.55 | Progress towards eliminating malaria in the WHO European Region<br>*(WHO/MAL/European Region)* |
| 10.55–11.15 | Progress towards eliminating malaria in the WHO Eastern-Mediterranean Region<br>*(WHO/MAL/Eastern-Mediterranean Region)* |
| 11.15–11.45 | Plenary discussion |
| 11.45–12.45 | Progress and challenges towards eliminating malaria at country level<br>*(Armenia, Azerbaijan, Georgia)* |
| 12.45–14.15 | *Lunch break* |
| 14.15–14.55 | Progress and challenges towards eliminating malaria at country level<br>*(Turkey, Turkmenistan)* |
| 14.55–15.15 | Plenary discussion |
| 15.15–15.55 | Progress and challenges towards eliminating malaria at country level<br>*(Iraq, Syria)* |
| 15.55–16.10 | *Coffee break* |
| 16.10-16.30 | Tallin Charter: Malaria elimination in the WHO European Region<br>*(V. Davidyants)* |
| 16.30–16.45 | Plenary discussion |
| 16.45–17.00 | Wrap-up session – closure of first day *(Rapporteur)* |

| **Wednesday, 24 September** | |
|---|---|
| 09.00–09.45 | Strategies and approaches specific to malaria elimination, incl. capacity building (*Dr A. Beljaev)* |
| 09.45–10.30 | Monitoring and evaluation of progress towards malaria elimination *(Dr R. Kurdova-Mintcheva)* |
| 10.30–10.45 | Plenary discussion |
| 10.45–11.15 | *Coffee break* |
| 11.15–11.45 | Prevention of the re-establishment of malaria and WHO certification of malaria elimination *(WHO/GMP/HQ)* |
| 11.45–12.00 | Plenary discussion |
| 12.00–13.00 | *Lunch break* |
| 13.00–13.15 | Introduction of group work |
| 13.15–17.15 | Group work *(Drafting recommendations)*:<br>Working group 1: Next steps for malaria elimination and cross-border collaboration *(representatives of Turkey, Iraq and Syria, experts, WHO )*<br>Working group 2: Next steps for malaria elimination and cross-border collaboration *(representatives of Azerbaijan and Georgia, experts, WHO)*<br>Working group 3: On the way to eliminating malaria and certifying the malaria-free status *(representatives of Armenia and Turkmenistan, experts, WHO)* |
| 17.15–17.30 | Wrap-up session – closure of second day *(Rapporteur)* |
| **Thursday, 25 September** | |
| 09.00–11.00 | Group work continued |
| 11.00–11.30 | *Coffee break* |
| 11.30–12.00 | Working group presentations – conclusions/recommendations |
| 12.00–12.45 | Plenary discussion and adoption of recommendations |
| 12.45–13.00 | Closing statements and remarks |

# Annex 2

# List of Participants

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**The WHO Regional Office for Europe**

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

**Member States**

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Armenia
Austria
Azerbaijan
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Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Georgia
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Greece
Hungary
Iceland
Ireland
Israel
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Kyrgyzstan
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