Country profile of Azerbaijan

Transmission of *Plasmodium vivax* malaria was interrupted in Azerbaijan in 2013, and the country is now in the "prevention of malaria reintroduction" phase.

The malaria vectors in Azerbaijan comprise *Anopheles maculipennis* (in the Caucasus), *An. sacharovi* (in the Kura-Araksin and Lenkoran lowlands) and *An. persiensis* (in the Lenkoran lowlands bordering the Islamic Republic of Iran) (*1*,*2*).

Short history of malaria and malaria control

Azerbaijan has a long history of malaria. In the past, malaria was widespread, and high mortality from *P. falciparum* malaria was recorded in the highly endemic valleys of Kura-Araz, Samur-Devechi and Lenkoran and the Nakhchivan Autonomous Republic. In some settlements, the mortality rate was 70–100% (*3*).

During the period 1951–1960, scientific and practical organizational measures for malaria control resulted in elimination of malaria in the country. The measures included:

- a wide network of institutions for treatment and prevention, staffed by specialized, highly skilled personnel;
- sufficient stocks of effective medicines (quinine, proguanil, plasmocide) and domestically produced insecticides (DDT and hexachlorocyclohexane); and
- evidence-based malaria control methods for the different geographical areas of the country.

In 1960, no local transmission of *P. falciparum* or *P. malariae* was registered; only *P. vivax* malaria was recorded (*2*).

The malaria situation deteriorated rapidly after 1990 as a result of almost complete cessation of malaria control interventions, hydro-engineering projects and mass displacement of nearly 1 million refugees and internally displaced people during armed conflicts. In 1996, 13 135 cases of malaria were reported, mainly in the Kura-Araksin and Lenkoran lowlands, areas that were highly malaria-endemic in the past. In 1997, the situation was aggravated by mudslides throughout these districts, and mosquito-breeding sites increased dramatically.

The first 3-year malaria control programme was implemented in 1999, with financial support from the Italian oil company Eni, which contributed US$ 760 000 through the WHO Regional Office for Europe.

Malaria situation between 2000 and the present

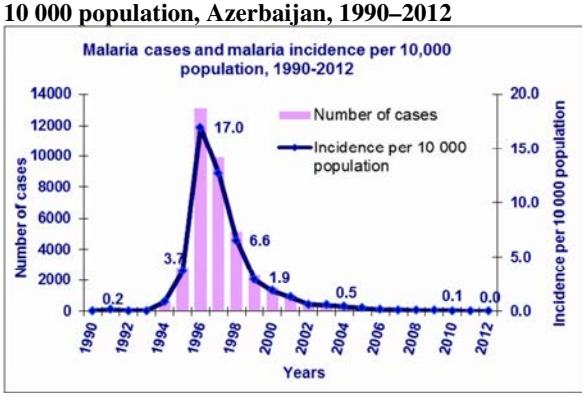
Remarkable progress was achieved in malaria control after 1997 as a result of full-scale implementation of malaria control measures, including public awareness, throughout the country. Reductions in malaria morbidity were registered each year: in 2002 and 2003, 506 and 482 malaria cases were registered, as compared with 13 135 cases in 1996, representing reductions of 25.9 and 27.3 times. The malaria incidence per 100 000 population in 2002 and 2003 was 6.3 and 6.0, respectively. The large-scale epidemic that occurred in 1994–1997 was thus controlled within 5–6 years.

In 2005, Azerbaijan endorsed the Tashkent Declaration, committing itself to elimination of malaria in the country by 2015 (*4*).

In 2008, after the 120-times reduction in the number of autochthonous cases of malaria from the peak of the epidemic in 1996, the Minister of Health endorsed the national malaria elimination strategy for 2008–2013. Implementation of the strategy was supported by the Government, WHO and the Global Fund to Fight AIDS, Tuberculosis and Malaria.

In 2013, malaria transmission in Azerbaijan was considered to be interrupted, with, for the first time since 1960, zero indigenous malaria cases (Fig. 1).

Fig. 1 Malaria cases and malaria incidence per 10 000 population, Azerbaijan, 1990–2012



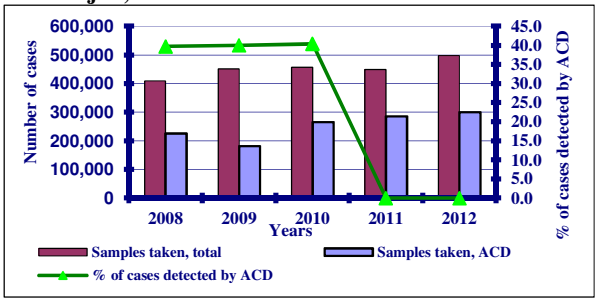
Source: Centre for Hygiene and Epidemiology, Ministry of Health, Azerbaijan

Strategies, policies and interventions

The goal of the malaria elimination strategy was to interrupt transmission by 2013, followed by certification of malaria elimination. In areas where malaria had been eliminated, attention was directed to maintaining the malaria-free status. Particular emphasis was placed on the growing problem of imported malaria. The interventions in the strategy included:

- Early detection, diagnosis and treatment of malaria: To detect malaria cases, blood slides were taken for parasitological examination from febrile patients and clinically suspected malaria cases. Passive case detection, consisting of screening for malaria cases at health facilities, was given priority over active case detection (Fig. 2); however, active case detection was conducted once a week during the transmission season in active foci and in cases of massive importation of malaria by migrants. All cases were treated free of charge.

Fig. 2. Numbers of blood samples tested and malaria cases detected by active case detection (ACD), Azerbaijan, 2008–2012



- Vector-control measures: indoor residual spraying, larval control and insecticide-treated materials.
- Control and prevention of epidemics: Experience during the explosive epidemic of malaria in Azerbaijan in 1994–1996 showed that basic preparedness and rapid response mechanisms were not in place in epidemic-prone areas, obviating early detection of malaria cases and rapid reaction. Emphasis was therefore placed on establishing mechanisms to predict, detect and rapidly respond to epidemic situations to prevent an outbreak of malaria.
- Surveillance: Since 2009, malaria cases have been reported in an electronic integrated disease surveillance system, which integrates human and veterinary case data, demographic information, geographical information, laboratory analyses, sample tracking, epidemiological analyses, clinical information and response measures.
- Staff development and training: Relevant specialists were trained regularly, and guidelines and instruction materials on malaria elimination were made available.
- Operational research for identification of *Anopheles* mosquitoes, their distribution in different eco-epidemiological settings and their role in malaria transmission, vector resistance to insecticides and and integrated vector control in different settings.
- Community mobilization: A number of communication campaigns were conducted, with effective information, education and communication strategies and targeted materials.
- Cross-border collaboration: Effective operational cross-border cooperation with Georgia was established.
- A reliable system for monitoring and evaluation was established, providing systematic analysis of the situation, and national malaria case and laboratory registers were established.

Prevention of reintroduction of malaria

In 2015, the Minister of Health endorsed the national strategy for prevention of malaria reintroduction for 2015–2020. The goal of the strategy is to maintain the malaria-free status of the country by preventing introduced cases, linked epidemiologically to imported cases, and indigenous cases secondary to introduced cases. The objectives are:

- early detection, notification and prompt diagnosis and treatment of all malaria cases;
- determination of the probable causes of reintroduction of malaria transmission;
- immediate action in the event of renewed local malaria transmission; and
- prevention of new local transmission.

Outlook

The experience of Azerbaijan once more demonstrates that high receptivity and vulnerability in the absence of adequate prevention and response mechanisms can lead to a rapid resurgence of malaria. Strong public health system infrastructure, political commitment and support, rapid resource mobilization and sustained funding are required to maintain malaria-free stratus.

References

1. Zvantsov AB, Ejov MN, Artemiev MM. Malaria vectors in CIS countries. Copenhagen: WHO Regional Office for Europe; 2003.
2. Abdullayev KI. From the history on malaria control and elimination in Azerbaijan. Information No. 2. Analysis of experience of malaria control in Azerbaijan after becoming part of the Soviet Union (1920–1931). First stage. Important issues of medical parasitology and tropical medicine, №5, 9-12. 1985.
3. National malaria elimination strategy in Azerbaijan for the years 2008–2013. Baku: Ministry of Health; 2008.

4.1 Tashkent Declaration: from malaria control to elimination in the WHO European Region 2006–2015. Copenhagen: WHO Regional Office for Europe; 2005.