



Eliminating malaria in **AZERBAIJAN**

Azerbaijan reported zero malaria cases in 2013 and 2014 and is now working to achieve malaria-free certification

At a Glance¹

- 0 Local cases of malaria
(Last case reported in 2012)
- 0 Deaths from malaria
- 0 % population living in areas of active transmission
(total population: 9.6 million)
- 0 Annual parasite incidence
(cases/1,000 total population/year)
- 0 % slide positivity rate

Goals:^{4,5}

1. Prevent the re-establishment of transmission in areas where malaria has been eliminated.
2. Strengthen surveillance systems to detect imported malaria.

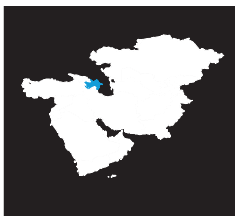
Overview

Azerbaijan is categorized in the elimination phase by the World Health Organization (WHO), and in 2013 the country reported zero local malaria cases.¹ Nearly all reported malaria cases between 2000–2012 were due to *Plasmodium vivax*. Primary vectors included *Anopheles sacharovi* and *An. maculipennis*, with a potential secondary vector having been *An. persiensis*.² Malaria transmission historically occurred between June and October.³

Azerbaijan nearly eliminated malaria in the mid-20th century, but this near-success was followed by resurgence in the late 1960s and early 1970s.⁴ After subsequent decades of successfully controlling malaria transmission and containing sporadic outbreaks, Azerbaijan set a national goal in 2008 to eliminate local malaria transmission by 2013. Under the National Malaria Elimination Strategy 2008–2013, the Republican Center of Hygiene and Epidemiology, the primary division within the Ministry of Health responsible for the planning and implementation of malaria control measures in Azerbaijan, focused on strengthening its malaria surveillance system and diagnosis capacity, and training health staff in malaria-related planning and epidemic preparedness.^{4,5} These efforts led to the achievement of zero local transmission of malaria in 2013 and 2014.

Malaria Transmission Limits

Malaria transmission is too low to generate risk maps.



Progress Toward Elimination

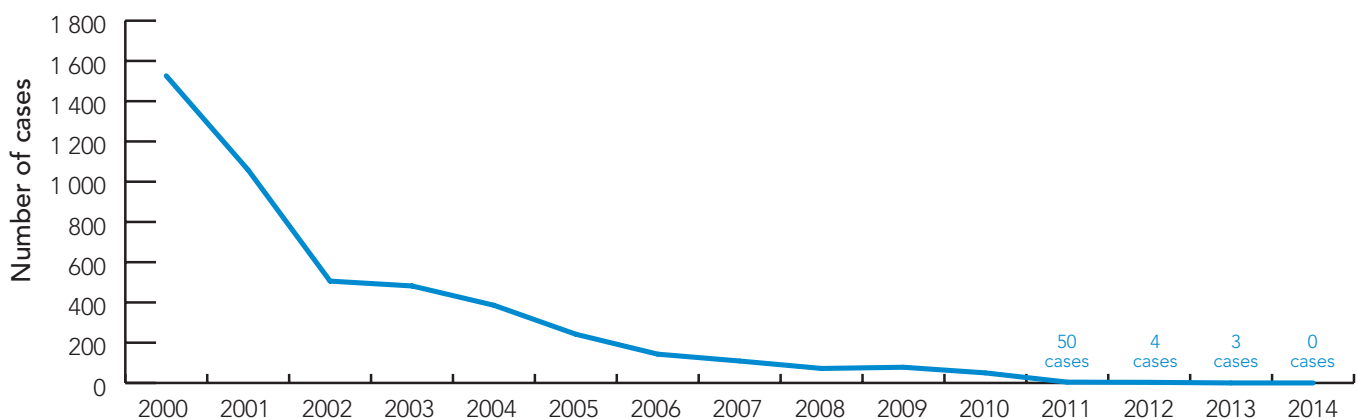
Azerbaijan has a long history of malaria control. The country first established a Malaria Control Committee in 1921, which rapidly expanded in breadth and scope throughout the 1930s, a period in which child mortality due to malaria was over 50 percent in some areas.⁴ The Ministry of Health developed its first action plan to fight malaria in 1932, but capacity was limited and the malaria situation deteriorated. Nearly 600,000 cases were reported in 1934, although incidence declined throughout the 1940s.⁴ Mass malaria elimination campaigns implemented across the Soviet Union in the 1950s almost eliminated malaria, and since that period there have been no documented local cases of *P. falciparum* in Azerbaijan.³ No local malaria cases of any species were reported in 1960, but a relaxing of the surveillance and outbreak response program led to two large-scale malaria epidemics, which occurred from 1969 to 1973 and from 1979 to 1983. These outbreaks have been attributed to resistance of the principal malaria vector, *An. sacharovi*, to DDT, which was used heavily in the agricultural sector as well as for malaria control. By 1984, 744 cases of malaria were reported. In the mid-1980s, after the epidemic was brought under control,

the Ministry of Health shifted its focus to disease management activities and began implementing large-scale seasonal chemoprophylaxis.⁶

Only 22 malaria cases were reported in 1990.⁴ Azerbaijan achieved independence from the Soviet Union in 1991, and like many other Commonwealth of Independent States countries in transition, social services subsequently deteriorated and poverty increased.^{3,5} Malaria returned to nearly all the previously endemic regions in Azerbaijan due to: 1) degradation of socioeconomic conditions; 2) the decline in malaria prevention activities; 3) the influx of nearly one million refugees and internally displaced people due to armed conflict between Armenia and Azerbaijan and the occupation of 20 percent of the territory of Azerbaijan; 4) highly mobile populations living in the malarious southern areas; and 5) deterioration of the irrigation and drainage systems, which resulted in increased mosquito-breeding sites.⁵

By 1996, annual reported malaria cases in Azerbaijan had risen above 13,000 cases.⁴ In 1997, mudslides throughout the Kura-Araksin and Lenkoran lowlands further exacerbated malaria transmission by creating more mosquito-breeding sites, and malaria endemicity was highest in several districts bor-

Reported Malaria Cases*



*Graph shows total reported cases from 2000–2005; as of 2006, only local cases are shown.

Source: World Health Organization, World Malaria Report 2015



dering Georgia, Iran and Russia.⁷ During this time, Azerbaijan focused on case detection, education, and mass chemoprophylaxis. Case detection dramatically improved and the malaria program implemented a selective indoor residual spraying plan that targeted high-risk areas and refugee camps.³ In 1998, the national malaria control program was created with financial and technical support from Roll Back Malaria, WHO, UNICEF, and ENI (an Italian oil company).⁶ As a result of this increased international support, the number of malaria cases dropped by 70 percent in two years, from 5,175 cases in 1998 to 1,526 cases in 2000, and continued to decline over the next few years.^{1,4}

In 2005, with only 242 reported cases, Azerbaijan, along with nine other countries in the region, endorsed the Tashkent Declaration—the move from malaria control to elimination in the WHO European Region—which marked Azerbaijan’s political commitment to eliminate malaria. The goals of this agreement were to further reduce the transmission of *P. vivax* malaria, to prevent outbreaks in the region, and to eliminate malaria in each country of the region by 2015.⁸ In March 2009, a cross-border meeting between Azerbaijan and Georgia was held during which the countries agreed to regularly exchange information on malaria, synchronize action plans, establish a joint working group, appoint focal points in each country, coordinate mobilization of resources, and create greater awareness of the successes of malaria elimination programs.⁹ In addition, support of malaria elimination—through the provision of technical assistance for elimination activities; capacity building through training of program managers and health staff/entomologists on issues related to malaria elimination and prevention, medical entomology and vector control; strengthening cross-border collaboration; and designing and conducting operational research—was included as one of the priorities in a Biennial Collaborative Agreement between the office of WHO’s European Region and Azerbaijan for the years 2012–2013.¹⁰

Azerbaijan was awarded a grant of \$3.4 million from the Global Fund in 2008 to strengthen capacity of the Republican Center for Hygiene and Epidemiology in malaria epidemiology, management, and prevention. It also aimed to improve the capacity of parasitological laboratories and train health personnel in malaria diagnosis, case management, and treatment. In addition to these activities, Azerbaijan began working to improve its malaria surveillance system, vector control interventions, community awareness campaigns, and operational research.⁶ A review of this grant conducted

by the Global Fund Office of the Inspector General in 2013 determined that the malaria program had a sound malaria policy and strong implementation record informed by operational research, and that the government of Azerbaijan was providing over 70% of total malaria funding. The review identified this funding gap as a potential risk for the sustainability of the malaria program, but concluded that the gap was small and that political commitment to achieving malaria elimination was very strong.¹¹

Eligibility for External Funding^{12–14}

The Global Fund to Fight AIDS, Tuberculosis and Malaria	No
U.S. Government’s President’s Malaria Initiative	No
World Bank International Development Association	No

Economic Indicators¹⁵

GNI per capita (US\$)	\$7,590
Country income classification	Upper middle
Total health expenditure per capita (US\$)	\$436
Total expenditure on health as % of GDP	6
Private health expenditure as % of total health expenditure	79

Challenges to Eliminating Malaria

Water management

Suboptimal irrigation techniques have played a role in previous resurgences of malaria in Azerbaijan as the areas with irrigated agricultural land are most affected by malaria.¹⁶ The poorly maintained canals in the area between the Kura and Araz rivers and disruptions in the irrigation system have led to increased breeding sites for the primary malaria vector, *An. sacharovi*.⁶ The extensive irrigation system is in disrepair and needs major rehabilitation, particularly to accommodate the



increase in small, private farms, in order to improve vector management.¹⁷ Azerbaijan is currently working on irrigation system improvements, and some progress has been made to date. In addition, the rising water level of the Caspian Sea creates swampy and muddy areas suitable for the breeding of mosquitoes. Adequately addressing this challenge will require ongoing collaboration between the health, environmental, and agricultural sectors.^{16,17}

Mobile, impoverished populations

The groups most at risk for malaria are highly mobile populations, seasonal agricultural workers, and military personnel. Refugees and internally displaced people from Armenia and Armenia-occupied territories who settled in camps in the Kura-Araz valley in the 1980s and 1990s are also at particular risk. Azerbaijan has targeted lowland areas of the Kura-Araz

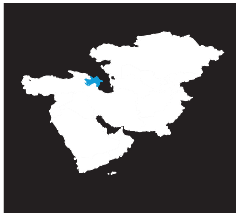
valley, the most malaria-endemic areas, as a priority for malaria surveillance and vector control campaigns due to their increased risk of malaria transmission.⁶

Conclusion

Azerbaijan successfully reached zero malaria transmission in 2013, meeting its national goal laid out in the 2008–2013 strategic plan, and the country is now looking ahead to maintaining zero transmission and getting certification from the WHO for its malaria-free status. Sustaining political commitment and ensuring ongoing government funding of elimination activities in high risk areas and among high risk populations is key for Azerbaijan's continued success, as is maintaining good vector management and robust surveillance.

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About This Briefing

This Country Briefing was developed by the UCSF Global Health Group's Malaria Elimination Initiative, in collaboration with WHO EURO and Azerbaijan's Republican Center of Hygiene and Epidemiology. To send comments or for additional information about this work, please email Anne.Bulchis@ucsf.edu.



The **Global Health Group** at the University of California, San Francisco is an 'action tank' dedicated to translating new approaches into large-scale action that improves the lives of millions of people. Launched in 2007, the UCSF Global Health Group's **Malaria Elimination Initiative (MEI)** works at global, regional, and national levels to accelerate progress toward malaria elimination in countries and regions that are paving the way for global malaria eradication. The MEI believes that global eradication of malaria is possible within a generation.

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malaria atlas project

The **Malaria Atlas Project (MAP)** provided the malaria transmission maps. MAP is committed to disseminating information on malaria risk, in partnership with malaria endemic countries, to guide malaria control and elimination globally. Find MAP online at: www.map.ox.ac.uk.