Uzbekistan, which was malaria-free from 1961 through 1990, reported zero cases of malaria in 2011 and is on track to reach its goal of malaria elimination by 2013.

Overview

Uzbekistan achieved a 100 percent decrease in reported malaria cases between 2000 and 2011, from 46 cases to zero cases, and is categorized in the elimination phase by the World Health Organization (WHO).¹ The major Anopheles species are An. superpictus and An. messeae, with secondary vectors being An. pulcherrimus, An. hyrcanus, and An. claviger.² Transmission is due only to Plasmodium vivax.¹ Malaria transmission is from May to October, but can occur between April and November under favorable conditions in southern Uzbekistan. The areas most prone to malaria transmission are in the flood plains of the country’s main rivers and rice-growing areas.³

Uzbekistan eliminated malaria in 1961 and was malaria-free for nearly 30 years.⁴ However, due to several factors, including the migration of people from neighboring Tajikistan and Afghanistan and the deterioration of public health infrastructure after the collapse of the Soviet Union in the early 1990s, malaria was reintroduced into Uzbekistan.⁴ Most reported cases in the last decade have occurred in the Surkhandarya region, which borders Tajikistan and Afghanistan. Eight provinces within Uzbekistan border Tajikistan, and close family ties between the populations of the border towns and their regions further increase the risk for imported cases from

At a Glance¹

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reported cases of malaria</td>
<td>0</td>
</tr>
<tr>
<td>Deaths from malaria</td>
<td>N/A</td>
</tr>
<tr>
<td>% of population at risk</td>
<td>N/A</td>
</tr>
<tr>
<td>(total population: 29.3 million)</td>
<td></td>
</tr>
<tr>
<td>Annual parasite incidence</td>
<td>0</td>
</tr>
<tr>
<td>(cases/1,000 total population/year)</td>
<td></td>
</tr>
<tr>
<td>% Slide positivity rate</td>
<td>0</td>
</tr>
</tbody>
</table>

N/A: Data not available

Malaria Transmission Limits

*Plasmodium vivax*

P. vivax malaria risk is classified into no risk, unstable risk of <0.1 case per 1,000 population (API) and stable risk of ≥0.1 case per 1,000 population (API). Risk was defined using health management information system data and the transmission limits were further refined using temperature and aridity data. Data from the international travel and health guidelines (ITHG) were used to identify zero risk in certain cities, islands and other administrative areas.
Tajikistan. The government strongly supports eliminating malaria by 2013 and largely finances the national malaria program with additional financial support from the Global Fund. With zero reported cases in 2011, Uzbekistan has attained its malaria freedom once again.¹ ¹

**Progress Toward Elimination**

Malaria was among the most common diseases in Uzbekistan in the mid-1930s.⁴ Massive epidemics plagued the country, with over 200,000 cases in 1940, and 350,000 by 1946.⁶ In 1946, a special program for elimination was created, and through large-scale malaria control measures the disease was successfully eliminated in 1960.⁴ After 1960, strong surveillance and response efforts were required as Uzbekistan continued to be susceptible to transmission, especially along the borders with Tajikistan and Afghanistan, where imported cases were occasionally reported.⁷

Certain factors place Uzbekistan at great risk of reintroduction, including its natural and climatic conditions; the unstable malaria situation in bordering countries; the migration of large groups of people; and the shortage of trained health staff, basic laboratory equipment, and insecticides.⁴ Uzbekistan was successful at preventing reintroduction between 1961 and 1990, but malaria was sporadically reintroduced due to several compounding factors. From 1981 to 1989 during the Soviet-Afghan war (1979–1989), over 7,000 malaria cases were imported by soldiers returning from Afghanistan.⁸ After the collapse of the Soviet Union in 1991, the return of more soldiers from Afghanistan and population movements into Uzbekistan led to increases in the numbers of imported cases.⁵ As a result, a number of indigenous *P. vivax* infections were diagnosed in the southeastern parts of the country, mainly in the Surkhandarya region.⁴ ⁹ Between 1992 and 1998 there were no reported cases of malaria due to local transmission.⁷ However, the following year, seven local cases of *P. vivax* were reported, and this figure quickly increased to 46 cases in 2000.¹ By 2005, 64 indigenous cases of *P. vivax* malaria were reported, all occurring in the Surkhandarya region.⁹
Starting in 2002, the ministry of health, in collaboration with the WHO Regional Office for Europe, worked to strengthen the national malaria surveillance program, train malaria program personnel, and conduct health education and increase community involvement in preventing malaria.\textsuperscript{10} The program focused on malaria management and prevention, as well as epidemic preparedness and response.\textsuperscript{11} A subregional Roll Back Malaria Partnership project led by the WHO Regional Office for Europe with funding by the United States Agency for International Development (USAID), provided assistance to Uzbekistan to coordinate and synchronize malaria prevention activities along its border areas to control imported malaria.\textsuperscript{10}

In 2005 a Global Fund Round 5 grant was awarded to the ministry of health to reduce transmission of \textit{P. vivax} malaria and to ensure the absence of \textit{P. falciparum} malaria, which was eliminated from Uzbekistan in 1961 in the first elimination campaign. Additionally, this funding was used to upgrade the existing surveillance system to ensure early detection of malaria, to apply preventative measures within days in areas where new cases have been recently detected, and to monitor the status of malaria foci in real time.\textsuperscript{12} From 2005 to 2008 there was a 90 percent reduction in malaria cases from 64 cases to only seven.\textsuperscript{1} In 2009 Uzbekistan received a Global Fund Round 8 grant to expand its outbreak response to malaria, with a focus on at-risk populations. The grant aims to interrupt transmission by 2013, ensure preparedness for a rapid response following new cases, and prevent reintroduction.\textsuperscript{5}

The WHO Regional Office for Europe and the ministry of health in Uzbekistan have signed a biennial collaborative agreement to support Uzbekistan’s national elimination campaign by providing technical assistance, building capacity within the malaria program, strengthening cross-border collaboration with Afghanistan and Tajikistan, and supporting operational research on malaria.\textsuperscript{10} In 2005 Uzbekistan, along with nine other malaria-endemic countries in the region, endorsed the Tashkent Declaration—the move from malaria control to elimination in the WHO European Region—which marked Uzbekistan’s political commitment to eliminate malaria.\textsuperscript{13} The malaria program has succeeded in achieving zero incidence of reported cases in 2011.\textsuperscript{1}

**Eligibility for External Funding**\textsuperscript{14–16}

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Status</th>
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<tbody>
<tr>
<td>The Global Fund to Fight AIDS, Tuberculosis and Malaria</td>
<td>Yes</td>
</tr>
<tr>
<td>U.S. Government’s President’s Malaria Initiative</td>
<td>No</td>
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<tr>
<td>World Bank International Development Association</td>
<td>Yes</td>
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**Economic Indicators**\textsuperscript{17}

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
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<tbody>
<tr>
<td>GNI per capita (US$)</td>
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</tr>
<tr>
<td>Country income classification</td>
<td>Lower middle</td>
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<tr>
<td>Total health expenditure per capita (US$)</td>
<td>$88</td>
</tr>
<tr>
<td>Total expenditure on health as % of GDP</td>
<td>5</td>
</tr>
<tr>
<td>Private health expenditure as % total health expenditure</td>
<td>49</td>
</tr>
</tbody>
</table>

**Challenges to Eliminating Malaria**

**Border situation**
The malaria burden is greater in the neighboring countries of Tajikistan and Afghanistan, and frequent movement of people within the region put Uzbekistan at high risk for imported malaria. The risk for imported malaria is greatest in the southeastern provinces along the border with areas where large groups of people live.\textsuperscript{2} Family ties between the populations of the border areas further increases the risk for malaria to be imported.\textsuperscript{3} The Global Fund Round 8 grant is targeting the at-risk populations in these border areas with increased laboratory capacity, additional training for health care personnel, and a strengthened rapid response mechanism to address new cases.\textsuperscript{5}

**Favorable ecological conditions**
Favorable natural and climatic conditions contribute greatly to the increased opportunity for malaria transmission in Uzbekistan. Large bodies of water used for various agricultural purposes, such as cotton and rice production, provide numerous habitats for malaria-transmitting mosquitoes.\textsuperscript{1,4}
For this reason, vector surveillance will need to continue to be a priority, not only to achieve national elimination, but also to prevent its reintroduction.

**Conclusion**

The malaria program in Uzbekistan has succeeded in reducing the incidence of malaria, with no indigenous cases reported in 2009 or in 2011 and only three reported cases in 2010. There remains limited risk of transmission in the southern and eastern regions of the country bordering Afghanistan and Tajikistan. With continued political will and sustained financial commitment, Uzbekistan will be able to maintain its malaria freedom.

**Sources**


**Transmission Limits Map Sources**


Centers for Disease Control and Prevention (2009) CDC Health Information for International Travel 2010, U.S Department of Health and Human Services, Public Health Service, Atlanta, USA; World Health Organization International Travel and Health (as at 1 January 2010), Geneva, Switzerland (Data years 2009–2010).
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.

The Malaria Elimination Initiative at the Global Health Group of the University of California, San Francisco (www.globalhealthsciences.ucsf.edu/global-health-group) convenes the Malaria Elimination Group (www.malariaeliminationgroup.org), and supports countries actively pursuing elimination at the endemic margins of the disease. Funding for the Malaria Elimination Initiative is provided by the Bill & Melinda Gates Foundation and Exxon Mobil Corporation.