

## The quest to be free of malaria

The United Arab Emirates (UAE) was recently declared officially free of malaria after years of efforts to control the disease. Other countries across WHO's Eastern Mediterranean Region are making progress, but there are still pockets of resistance.

It took 10 years from the moment the last case of malaria was reported to the moment the United Arab Emirates (UAE) received certification earlier this year by the World Health Organization (WHO) that it was finally free of the debilitating disease.

Eliminating malaria means stamping out endemic cases, or those due to local mosquito-borne transmission, and maintaining this situation for at least three consecutive years. UAE became the first country to be certified in this way in January, since Singapore in 1981 and Australia in 1982.

UAE, with a population of 4.5 million, is one of several countries that have eliminated malaria in the Eastern Mediterranean region – seen as vital for public health, business and tourism – though not all have official malaria-free status. The tiny state's efforts have set a trend.

"Certification for malaria-free status is a competitive process and I expect all malaria-free countries [in the region] will do the same," said Dr Hoda Atta, regional malaria advisor at WHO's Regional Office for the Eastern Mediterranean (EMRO) based in Cairo.

This year Oman requested WHO certification too. Morocco and the Syrian Arab Republic, which recorded their last locally transmitted cases of malaria in 2004, are expected to follow suit. Oman started its elimination programme in 1991, using a control strategy combining early detection and treatment with indoor residual spraying of insecticides and with vector control with larviciding.

Malaria however remains a major public health problem in six countries in the region of 22 countries – Afghanistan, Djibouti, Pakistan, Somalia, Sudan and Yemen – which account for over 90% of malaria cases. Iraq and

Saudi Arabia are well on the way to eliminating the disease.

About half of the region's population of 538 million people remain at risk of infection, with an estimated 15 million clinical cases of malaria and 59 000 deaths every year, according to *The world malaria report 2005*.

Yemen and areas over its border in Saudi Arabia continue to fight malaria. Since 2002, Yemen has reduced its cases by a quarter. "The incidence is estimated to be 700 000 to 800 000 annual cases compared to an estimated three million cases five years ago, before the successful national malaria control programme which was reestablished in 2000–2001 with the help of WHO," said malariologist Dr Mohamed Ali Khalifa, a WHO medical officer in Yemen. Yemen recently received US\$ 16 million – much of that from Saudi Arabia – to help with its control efforts.

Sudan has the highest malaria burden in the region with an estimated 7.5

million cases, according to *Roll Back Malaria in the Eastern Mediterranean Region: achievements, challenges and the way forward* published in 2004.

In 2002, the Sudanese government in partnership with WHO and the Roll Back Malaria campaign launched the malaria-free initiative in two states, Khartoum and Gezira. In the other malaria-affected areas, prevention includes insecticide-treated nets and targeted indoor residual spraying. "In central Sudan, these two interventions are compromised by vector resistance to pyrethroids, the insecticide of choice, while alternatives are costly," said Dr Abraham Mnzava, regional adviser on vector control at EMRO.

Pakistan almost succeeded in eradicating malaria in the 1960s according to the 2004 Roll Back Malaria report, but the disease has re-emerged as a serious health problem in some areas of the country. "Pakistan poses the biggest challenge," said Atta. "Its problems stem from its sociopolitical status, being decentralized with four provinces who hardly communicate with each other." In 2003, just over 125 000 cases were reported in Pakistan, according to *The world malaria report 2005*.

Its neighbour Afghanistan has achieved some success with malaria control but faces an uphill battle trying to control the main parasite *Plasmodium vivax*, as the country's health system does not have the facilities to diagnose malaria accurately.

Efforts to control malaria in Somalia have been thwarted by security

“Certification for malaria-free status is a competitive process and I expect all malaria-free countries [in the region] will do the same.”

Dr Hoda Atta, regional malaria advisor at WHO's Regional Office for the Eastern Mediterranean.



Child being tested for malaria in the United Arab Emirates. A health worker is taking a blood sample to be examined microscopically for malaria parasites.

issues. WHO is coordinating with nongovernmental organizations with staff in Somalia and working through them. In Djibouti, where malaria could be controlled if not eliminated with the available tools, the main challenge is the lack of human resources, Mnzava said.

Achieving malaria-free status and reducing the malaria burden is an impressive achievement for countries in the region considering the challenges faced.

Transmission in these countries may be seasonal or unstable, and depend on environmental factors, such as floods, so control strategies need to be adapted. The emergence of treatment-resistant parasites poses a major challenge. Mass migration of people infected with malaria also threatens a malaria-free status, as countries in the region are climatically suitable for malaria transmission and have abundant breeding places for the anopheline mosquitoes that carry malaria.

Countries that still have pockets of malaria include Egypt, the Islamic Republic of Iran and Iraq. The Islamic Republic of Iran has progressed on elimination, but transmission remains intense on its south-eastern border with Pakistan. Despite the political turmoil, Iraq has been successful in malaria control with only 47 cases in 2005, and 26 in 2006.

The development of drug resistance poses a major challenge to malaria control efforts. WHO recommends



Malaria patients in West Darfur.

WHO Sudan

artemisinin combination therapies (ACT) – the most effective antimalarial treatment – and Afghanistan, the Islamic Republic of Iran, Somalia and Sudan have adopted them.

The challenge for UAE and similar countries will be to maintain their malaria-free status and prevent reintroduction by travellers who are infected with malaria. In 2005 alone, 1544 cases of imported malaria were reported there.

Dr Charles Delacollette, former medical officer in charge of malaria elimination at WHO in Geneva and currently coordinator of the Mekong

Malaria Program, said: “The tricky bit with certification of malaria elimination in any country is that imported malaria cases will continue to be detected by the health services. How then to prove that local transmission has been interrupted, and all detected cases are indeed imported?”

There is no easy answer but UAE as well as other malaria-free countries in the region, have plans to monitor the influx of imported cases with a “very strict machinery of early case detection within a very strict surveillance system”, said Khalifa. ■

May Meleigy, *Dubai*