



Eliminating malaria should not be the end of vigilance

Three years after Sri Lanka was declared free of the deadly disease, complacency is a big risk, warns **Kamini Mendis**.

A few weeks ago, on my way to a rural hospital in the deep south of Sri Lanka, I stopped at a wayside cafe for a cup of tea. Amid the lush, green, rural splendour, I asked the two young women running the tea shop whether either of them had ever had malaria. They looked at me so quizzically that I realized they were unfamiliar with the term.

Thirty-five years ago, when I did malaria research in this area, villagers told me that the disease was one of their biggest problems — the other was wild elephants. The elephants are still an issue, but malaria is gone. The current generation does not know how it ravaged the island for centuries. In the 1990s, malaria consumed one-third of the entire public-health budget, made farmers ill just when they needed to be planting their crops and kept students from attending school. (Researchers found that the more infections that children had, the less likely they were to know their letters.)

After years of improvements to mosquito control, disease surveillance and case management to bring down the incidence of malaria, Sri Lanka was certified as malaria-free by the World Health Organization (WHO) three years ago this week. Now, I worry that even the medical profession has lost its memory of malaria. Remembering malaria's devastation is one of Sri Lanka's biggest challenges in fending it off.

And Sri Lanka is not alone. In May this year, Argentina and Algeria were declared malaria-free — the first two successes in a WHO campaign launched in 2016 that aimed to eliminate malaria in 21 countries by 2020. As countries become malaria-free, they must retain focus on prevention and gain skills to stop its return. Malaria surged back in Venezuela after the country's surveillance and health-care systems collapsed, with an estimated one million new cases in 2018.

The mosquitoes that transmit malaria still thrive in Sri Lanka, as is expected in the tropics. And today's world is highly connected: in 2018, Sri Lanka's national Anti Malaria Campaign reported 47 imported cases of the disease. Sri Lankan nationals and foreign visitors acquire malaria overseas and fall sick after arrival. In other words, the country is very vulnerable to reintroduction and establishment of malaria. To prevent this, imported malaria cases must be quickly spotted and treated before the infection is transmitted to mosquitoes and spreads further.

But malaria is now so rare that clinicians cannot be expected to include it in routine diagnoses of fever, particularly when there are so many more probable causes, such as dengue. The key clue is travel abroad within the past year, a data point that the Anti Malaria Campaign constantly reminds medical professionals to collect. I had stopped for tea along my way to do just this — visiting hospitals to keep thoughts of malaria alive.

These meetings, and other efforts, such as screening high-risk migrant groups, have yielded results. In 2013, more than half of people

with imported malaria went undiagnosed for six or more days after their first contact with the health system. Today, that number is below 20%. But the threat remains. Last year, the first introduced case of malaria transmitted to a local resident since 2012 was reported.

The Anti Malaria Campaign currently implements programmes through provincial health systems. But pressure to integrate malaria surveillance and response into the general health system is substantial. The argument is that integrated services are more sustainable than stand-alone ones, and that funds dedicated to a disease so rarely seen would be better used elsewhere.

Sri Lanka's history warns against taking that step too soon. Leprosy was eliminated here in 1995, and the responsibilities of the leprosy campaign were rapidly bundled into the national health system. By 2000, the disease had returned, with about 2,000 cases per year. In 2018, new cases were reported in each of Sri Lanka's 25 districts. When a dedicated surveillance and prevention programme is incorporated into the general health system, the focus and sense of responsibility are lost.

India, Sri Lanka's immediate neighbour, still battles malaria. In 2016, the mosquito *Anopheles stephensi*, which efficiently spreads malaria in urban areas, was inadvertently brought to Sri Lanka. Efforts to control this species are proving harder than monitoring the malaria-causing parasite that they carry. Last year, the WHO renewed its antimalaria efforts in India. If India reduces or eliminates malaria, the lower risk of reintroduction would justify reduced vigilance in Sri Lanka; until then, migrant labourers and other travellers could easily reintroduce the disease into the country.

The cost of maintaining malaria surveillance is less than 10% of the amount spent on chemical insecticides and medical care when the disease was endemic. And the overall impact of preventing infections — in terms of higher educational attainment, agricultural production, tourism and commerce — is overwhelmingly more valuable.

Sri Lanka's experience with malaria has implications for the world at large. China might soon be certified as malaria-free. In the Greater Mekong Subregion, the seat of multidrug-resistant malaria, incidence has decreased by about 54%, and deaths by 84%. This is the result of increased investments, better surveillance and diagnoses, and mosquito control. As more countries eliminate malaria, those that are 'last in line' will inevitably be in the tropical zone. They will need to put time, money, people and effort into remaining free of malaria, as will Sri Lanka. Keeping this ancient scourge at bay is as important as stamping it out. ■

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