How Kenya can manage its increasing dengue fever cases

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Credit: AI-generated image (disclaimer)

A public health alert for 150 dengue fever cases has been issued in Mombasa, Kenya. The Conversation Africa's Health and Medicine Editor Joy Wanja Muraya spoke to Dr Andrew Githeko on the effective management of this disease whose spread is encouraged by water storage trends.

What causes dengue fever and what type of human behaviour favours its breeding?

Dengue fever, which is a mosquito-borne viral infection, is transmitted by two species of mosquito:

- It's transmitted by female mosquitoes mainly of the species Aedes aegypti which breeds in water containers in urban areas; and
- Aedes albopictus, also called the Asian tiger mosquito, which prefers to lay its eggs in stagnant water in rural areas.

In 2016 there were about 390 million cases reported in the Pacific region, South East Asia and South America.

The first dengue outbreak in Kenya was reported in 1982 in the coastal region. In April to June 2013 and March to June 2014 outbreaks coincided with the long rain seasons that created a conducive breeding ground for the dengue mosquitoes.

There are two clinical forms of the disease referred to as dengue fever and dengue hemorrhagic fever:

- dengue fever has symptoms similar to malaria which includes headaches, fevers, joint pains, fatigue, muscle pains, skin rash, pain behind the eyes and vomiting; and
- dengue hemorrhagic fever is a more serious form of the disease that causes bleeding which initially appears as tiny spots of blood on the skin and grows into larger patches. This causes shock which could be fatal.

Dengue fever is mostly an urban disease driven by human behaviours of

storing water in open containers inside or around homes. These are excellent breeding grounds and the close proximity to human beings increases the risk of getting the disease.

In periods of warm and wet weather for example during El Nino, the mosquito population increases rapidly and the virus in the mosquito also develops very quickly. An infection with more than one type of dengue virus can cause dengue hemorrhagic fever.

What treatment and management is available in Kenya?

There is no specific treatment for dengue so it's managed by treating the symptoms.

However, there's ongoing promising research for a viable dengue vaccine . Before then, we must work diligently to control the mosquitoes. This can be done through:

- Environmental sanitation: the removal of discarded water containers and the covering of water storage containers should be encouraged to prevent breeding habitats;
- Fumigation of houses: spraying the walls in houses with insecticides is a successful strategy in controlling the mosquitoes. This type of mosquito is most active just before dark and bites its victims before they sleep under mosquito nets. Long sleeved clothing and mosquito repellent are also encouraged as self protection.
- Prompt medical attention and referral: the earliest complaints of unusual headaches, fevers, joint pains and vomiting should be treated.

If health facilities are unable to effectively test and treat, they can be referred to the Kenya Medical Research Institute.

If the number of cases reported doubles, this calls for urgent mosquito control and fever management.

Dengue symptoms are similar to those of malaria. However the presence of pain behind the eyes and a skin rash suggests a viral infection. A malaria test should be carried out to rule it out.

Dengue symptoms can be managed by pain killers, increasing fluid intake and having plenty of bed rest. Aspirin should be avoided because it increases the risk of bleeding. Further referrals should be done urgently.

Why has dengue fever spread globally?

The global spread of dengue is worrying and this is driven by world trade, climate change, urbanisation , mosquito habits and insecticide resistance.

The eggs of the mosquito species can survive long periods under dry conditions thus encouraging their transportation over great distances in ships , even across continents. Air transport enables infected persons to carry disease to areas infested with dengue mosquitoes thus increasing local transmission of the disease.

Research has shown that the Asian tiger mosquitoes, Ae. albopictus, has spread to Africa, Europe and South America. Climate change has increased the spread of dengue fever indiscriminately.

Africa is becoming rapidly urbanised thus encouraging poor environmental sanitation which increases the breeding of dengue

mosquitoes. Overpopulation encourages the rapid spread of the disease and the lack of access to health facilities increases the risk of severe outbreaks.

What is the way forward in controlling dengue fever?

Water stored in households should be covered and pools of water destroyed.

Safe insecticides should be used to control the mosquito population. If the mosquito population is high, fogging – using a fine pesticide spray to kill the mosquitoes – can be used to kill any flying mosquitoes. However the use of fogging to control Ae. aegypti in Brazil did not show clear evidence of efficacy on the disease.

Finally, it takes personal responsibility to observe environmental sanitation to avoid breeding of these mosquitoes, dressing appropriately and applying repellent before resorting to the insecticides.

In case they develop resistance to the insecticide, we will have fewer effective options to control these nuisance mosquitoes.

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