The possibility that a mosquito bite during pregnancy could cause severe brain damage in newborn babies has alarmed the public and astonished scientists. The Zika outbreak in the Americas shows how a disease that slumbered for six decades in Africa and Asia, never causing an outbreak, can become a global health emergency. The Ebola and Zika outbreaks have revealed gaping holes in our lines of defence: weak health infrastructures and capacities in west Africa and the demise of programmes for mosquito control in the Americas. Both outbreaks show how old diseases can behave in surprising ways when they invade new territory.

This year’s confirmation of yellow fever in the capital cities of Angola and the Democratic Republic of the Congo (DRC) adds to the alarm. A WHO Emergency Committee I called on May 19, 2016, concluded that the situation is not a Public Health Emergency of International Concern but is a serious public health concern requiring action on several fronts. The experts called for stepped up surveillance and mosquito control, mass vaccination campaigns, case management measures, strict adherence to vaccination certificate requirements for all travellers to and from Angola and DRC, and intensified surveillance and preparedness in neighbouring countries. In light of the dwindling international supply of yellow fever vaccines, WHO will rapidly evaluate vaccine dose-sparing strategies if the situation worsens and vaccine supplies need to be stretched.

One mosquito, several diseases

Yellow fever is an old disease that has acquired renewed vigour in recent years. The disease gained its notoriety during the 19th century when it decimated cities throughout the Americas and defeated French efforts to construct the Panama Canal. When mosquitoes were identified as the responsible agents, the vector control campaigns of the 1940s and 1950s virtually eliminated yellow fever everywhere except Africa. Unfortunately, when the disease subsided in the Americas, funding for
mosquito control dried up and the programmes were dismantled. That policy failure set the stage for a 30-fold increase in the incidence of dengue, the emergence of chikungunya as a major threat in 2013, and the Zika outbreak that began last year.

Sub-Saharan Africa bears the brunt of the roughly 60,000 deaths caused by yellow fever each year. For more than a decade, WHO has been warning that changes in demography and land use patterns in Africa have created ideal conditions for explosive outbreaks of urban yellow fever. Africa's urbanisation has been rapid, showing the fastest growth rates anywhere in the world. Migrants from rural areas, and workers from mining and construction sites, can now carry the virus into urban areas with powder-keg conditions: dense populations of non-immune people, heavy infestations with mosquitoes adapted to urban life, and the flimsy infrastructures that make mosquito control nearly impossible. The severe El Niño weather pattern has made these conditions even more ominous. Fluid population movement, in and out of cities, across porous borders, and around the world by air, further complicates the response. Travellers from Angola ignited the outbreak in DRC and brought 2 cases to Kenya and to China, despite International Health Regulations (IHR) requirements for yellow fever vaccination certificates in travellers.

**Vaccination essential**

The world has had a safe, low-cost yellow fever vaccine that confers long-duration immunity since 1937. WHO has robust preparedness and response mechanisms in place, including an international coordinating group that oversees the emergency release of vaccines, but the key question is whether they will be sufficient to control the outbreaks quickly and prevent further international spread. At the start of this century, yellow fever began to resurge in west Africa as immunity from previous immunisation campaigns, which ended in the 1960s, waned; two generations of children were never immunised. In 2006, WHO launched the Yellow Fever Initiative with a two-pronged objective supported by Gavi, the Vaccine Alliance: to build gradual immunity by introducing the vaccine into routine childhood immunisation programmes and to undertake mass pre-emptive vaccination campaigns. Altogether, more than 95 million people were protected in west Africa. But the remaining 705 million Africans living in at-risk countries were left vulnerable because of lack of political will and a shortage of funds. For all practical purposes, yellow fever had been forgotten.

A vaccine shortage has been another obstacle. The establishment of the Yellow Fever Initiative increased demand and stabilised the market; within a decade, production capacity grew from less than 30 million yearly doses to more than 83 million doses today. The initiative also established a stockpile of about 6 million doses for emergency use in reactive campaigns. That stockpile was generally sufficient for responding to small spillovers from the sylvatic cycle, but not for urban outbreaks. Kinshasa alone has a population of more than 11 million people.

Fortunately, bold action now can reduce the risk of further spread and virtually eliminate future outbreaks. Yellow fever can once again be
vanquished through inclusion of the vaccine in routine childhood immunisation and mass vaccination catch-up campaigns in all endemic countries. That will be a sustainable defence against yet another resurging infectious disease threat.

I am Director-General of WHO. I declare no competing interests.

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More on yellow fever »

This page links all WHO technical and general information on yellow fever.

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Related links

**General information**
- Fact sheet: yellow fever
- Q&A: yellow fever in Angola
- Q&A: yellow fever

**Technical information**
- WHO's work on yellow fever
- Yellow fever publications
- Yellow fever surveillance
- Situation reports

**Vaccination**
- Yellow fever vaccine: a global partnership
- Yellow fever vaccination booster not needed
  - Yellow fever vaccination requirements and recommendations
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