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The Zika Comeback: One Vaccine, One Hope

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Asia, the epicenter of flaviviruses like Japanese encephalitis (JE), dengue, and Zika, faces both a critical need and a strategic opportunity to lead vaccine development. Phylogenetic evidence shows that the Zika strain behind the Americas outbreak originated in Southeast Asia. With global pipelines favouring high-income markets, regional biotech can drive preventive solutions, scale production, and avert outbreaks as Zika quietly resurfaces across Southeast Asia.



Nearly a decade after the world's attention was gripped by the Zika virus outbreak in Brazil, the disease is quietly making a comeback in Asia. In recent years, clusters of infections have been reported in Singapore, imported cases traced back to Bali have been identified in South Korea, and other sporadic outbreaks have been recorded across Southeast Asia.

In 2023, 758 Zika cases were reported in Thailand, up from 190 in 2022, reflecting a surge of over 300 per cent. Among them were 33 women and 15 newborns presenting with Zika and congenital Zika syndrome respectively. Singapore reported 15 cases of Zika in the same year. In 2025, the Singapore's National Environment Agency reported two cases in June, while Thailand's Ministry of Public Health issued a warning in July about an increase in Zika cases across three Thai provinces including Bangkok

While the numbers remain relatively small compared to dengue or malaria, the reappearance of Zika is concerning. It underscores how climate change, rising temperatures, and frequent flooding are enabling Aedes mosquitoes to thrive, increasing the risk of mosquito-borne infections in the region.

The urgency: Asia's resurgent threat

For many, Zika is associated with the outbreak around the 2016 Olympic Games in Brazil and feels like something that happened long ago and far away. But what most people don't know is that there is phylogenetic evidence that the strain of Zika virus that caused the serious outbreak of the disease in Brazil and the Americas had its origin in Southeast Asia.

Although first isolated in a sentinel monkey in the Zika Forest in Uganda in 1947, serological studies published in the 1950s and 1960s showed that there was already a wide geographic footprint for Zika virus in Southeast Asia, ranging from Pakistan to the Philippines; which is why public health experts warn that Asia cannot afford to be complacent.

Zika is primarily transmitted through the Aedes mosquito, the same vector responsible for dengue and chikungunya. Unlike dengue, which often causes debilitating symptoms, Zika infections can be deceptively silent. Only one in five people who contract the virus show symptoms, and even then, most experience nothing worse than a rash, mild fever, or joint pain. This makes tracking outbreaks challenging and increases the risk of underestimating its presence.

The real danger lies in Zika's impact on pregnant women and the babies they carry. The virus can cross the placenta, infect the foetus and lead to congenital Zika syndrome. Babies exposed in the womb may suffer from microcephaly, where the brain does not develop properly, as well as vision and hearing impairments, developmental delays, and lifelong disabilities. These conditions not only bring profound emotional tolls on families but also impose significant economic and social burdens on communities and healthcare systems.

Climate change and mosquito-borne diseases

Zika's return is closely tied to climate change. Warmer temperatures shorten the incubation period of the virus inside mosquitoes, while heavy rains and urban flooding provide ample breeding grounds. As climate patterns shift, Aedes mosquitoes are expanding into new territories, exposing populations that were previously unaffected.

Asia already carries a heavy burden of mosquito-borne diseases. The region sees millions of dengue cases annually, and Japanese encephalitis (JE) continues to affect rural communities. Zika adds another layer of risk, particularly because its most severe consequences fall on unborn children.

The vaccine gap

Despite the clear dangers, Zika remains one of the most under-addressed mosquito-borne diseases when it comes to vaccine development. Unlike dengue, which now has a licensed vaccine, there is currently no approved vaccine for Zika. Many candidates were in development following the crisis in 2016, but progress stalled as cases declined resulting in difficulty conducting Phase 3 field efficacy trials.

There are also scientific and ethical challenges when conducting trials involving pregnant women, where special safeguards need to be put in place to protect their safety. Without a preventive solution, women of childbearing age in endemic regions remain vulnerable.

Lessons from COVID-19

The COVID-19 pandemic highlighted the cost of waiting until a disease escalates before mobilising vaccine development. Within months, the world saw unprecedented investment and collaboration to bring COVID-19 vaccines to market. For Zika and other climate-sensitive diseases, public health experts argue that preparedness should come before the epidemic, not after.

COVID-19 also showed the importance of equitable access. Without deliberate efforts, vaccines tend to reach high-income countries first, leaving vulnerable populations behind. For Zika, this risk is amplified; the communities most at risk are often in low- and middle-income countries across Asia and Latin America.

Asia's opportunity to build resilience

Asia is at the epicentre of many flaviviruses, including JE, dengue, and now Zika. The region has both the need and the opportunity to lead in vaccine development, but global pharmaceutical pipelines often focus on diseases that disproportionately affect high-income markets. Without regional leadership, Zika vaccines may once again fall off the global priority list.

This creates an opening for Asian biotech companies to take the lead in developing vaccines tailored to regional needs. By investing in preventive solutions now, Asia can avoid repeating the mistakes of delayed action that worsened past outbreaks.

One hope against irreversible harm

Zika is a clear example of why proactive vaccine development matters. The impact is not measured in hospitalisations or death rates alone, but the lifelong burden on children born with Congenital Zika Syndrome. That is a tragedy we can prevent.

Prevention is the only solution. Governments, international organisations, and industry need to work together to strengthen surveillance, invest in vaccine research, and build public trust in immunisation. Regional production capacity will also be critical to ensure timely and equitable access when a vaccine becomes available. By acting now, Asia can prevent another Brazil-scale Zika crisis from unfolding on its shores, while strengthening the region's resilience against climate-driven infectious diseases.

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