

Brazil to start widespread dengue vaccinations

Millions will be eligible as Brazil becomes the first country to include Qdenga in its public health system. Lise Alves reports from São Paulo.



Brazil plans to vaccinate millions of people against dengue after becoming the first country to incorporate Qdenga, manufactured by Japan's Takeda Pharma, into its public health system.

Infection by dengue virus, transmitted by *Aedes aegypti* mosquitos, has surged in recent years in Brazil, with many blaming higher temperatures and prolonged rainy seasons. Data from WHO show that Brazil registered close to 3 million cases in 2023, of more than 5 million cases globally.

Concerned about these increasing numbers, Brazil's Health Ministry has approved vaccination following the authorisation of Qdenga for people aged 4–60 years by Brazil's Health Regulatory Agency in March, 2023. "Our hope is that this arbovirus becomes a vaccine-preventable disease", says Ethel Maciel, Secretary of Health and Environmental Surveillance for Brazil's Ministry of Health.

"Brazil has been fighting the dengue virus for at least four decades. It's been four decades of a war, in which the virus has been winning", says Alexandre Naime Barbosa, Vice President of the Brazilian Society of Infectiology. "Not only are we losing this war, but the number of deaths is increasing, which shows the ineffectiveness of the conventional strategies we are using, which is combating the vector", he said.

Barbosa says that the clinical trials of Qdenga vaccine have produced very encouraging results. The vaccine reduced asymptomatic dengue and mild dengue by around 70% and mitigated the risk of severe dengue, which requires hospitalisation, and even death, by 80–90%.

And as for the risk of side-effects, as seen with the other vaccine on the market, Dengvaxia, Barbosa says

it is low. When widely used in the Philippines, Dengvaxia was found to increase the risk of severe dengue in people who had never previously been infected, meaning that testing for past infection is now required before immunisation. Barbosa told *The Lancet* that such testing is not needed for Qdenga. "For this vaccine, it is not necessary to test individuals to find out if they have had dengue before, because the technology is different", he states.

The Qdenga vaccine covers the four serotypes of the disease, but clinical trials of the vaccine were conducted in locations where serotypes 3 and 4 are not common. "It is important to remember that we do not know very much about protection and security in relation to dengue serotype 4", says Felipe Naveca, Virologist and Public Health Researcher at Fiocruz (Oswaldo Cruz Foundation).

Maciel stated that the health department will track those taking the vaccine for possible side-effects and efficiency. "We will monitor those taking the vaccine in a phase 4 clinical study, as should be done in incorporations for pharmacovigilance analysis", she said.

According to Maciel, Takeda will only be able to deliver five million doses of Qdenga this year, starting in February. Considering that it is a two-dose vaccine, health agents will be able to immunise approximately 2.5 million people in 2024. Brazil, however, has a population of more than 160 million people eligible to receive the vaccine. According to Maciel, the priority groups for vaccination will be defined by the National Immunization Program in the coming weeks. "We are considering taking 1 or 2 years at most. For example 6–7 years old or 11–12 years old. If we only take the WHO recommendation, vaccinating

everyone between 6–16 years old, this population in Brazil represents 58 million individuals. At the moment that is undoable", explains Maciel. "We should have the first individuals totally immunized by May [after the expected peak of contamination], so we wouldn't have a highly effective vaccine action this year, but having the vaccine is already a relief", says Maciel.

The city of Dourados, in Mato Grosso do Sul state, has already become the first in the world to start mass vaccination with Qdenga, in a programme that began on Jan 3 and hopes to immunize 150 000 residents by August.

Dengue control in Brazil has so far largely relied on vector control, using insecticides and larvicides. "Dengue numbers clearly show that our main tool, vector control, is not effective in reducing the number of cases in urban regions with high density, as is the case in Brazil and its poor communities", said Julio Croda, President of the Brazilian Society of Tropical Medicine and Researcher at Fiocruz.

Health experts agree that no one strategy is 100% effective and that a combination of all strategies is Brazil's best chance to reduce dengue contamination and transmission. "What we are trying today is precisely the combination of several strategies. We're talking about control, not eradication. We are trying to maintain a lower density [of mosquitos carrying dengue virus]", says Naveca.

"The dengue battle is multifactorial. There will not be a single tool that will truly reduce the problem of the disease. We need to continue carrying out vector control, eventually with more effective tools associated with vaccination", concludes Croda.

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