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# Initial reports suggest new dengue vaccine safer than prior vaccines

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A team of researchers at Takeda Vaccines has announced the results of the first phase of trial testing a new vaccine to prevent dengue infections. In their paper published in *The New England Journal of Medicine*, they

outline their trial and how well the drug is working in test cases.

The dengue virus infects hundreds of millions of people every year—mostly in the tropics. In most cases it results in flu-like symptoms, but in some people, it can lead to hemorrhagic fever and other complications, which can lead to death. Dengue infections have been found to be rising due to more travel, urbanization and global warming. Because of that, efforts have increased to find a vaccine against the virus. Prior efforts to create a vaccine have failed, however, due to a peculiarity of the dengue virus—it comes in four strains, and sometimes, being infected by one type makes a person more susceptible to a worse infection by another strain at a later date. Three years ago, for example, a vaccine called Dengvaxia (developed by company called Sanofi) was approved for use, but it was soon found to make the body think it had been infected by one of the strains of the infection, which made secondary infections worse for a lot of children in the Philippines—its use was then banned in most places.

The new vaccine under development by Takeda Vaccines, is called TAK-003—this time both the company behind the vaccine and health officials are taking a slower approach to testing to make sure it will not make people more susceptible to harsher secondary infections. In the first stage of testing the drug (or a placebo) was given to 20,000 children between the ages of 4 and 16 at 26 sites in Asia and Latin America. A year ago, each of the volunteer children were given two doses of the drug administered three months apart. Each was also tracked to see if they got dengue and if so, how severe it was for them. The researchers report that the vaccine was 97.7 percent effective against dengue type 2, 73.7 percent for type 1 and 62.3 percent for type 3—there were too few children infected by type 4 for it to be statistically meaningful. They also found that the vaccine reduced the severity of infections that did occur—hospitalizations for those vaccinated were down 95.4 percent.

The researchers call their findings encouraging but remain cautious—the volunteer children will continue to be watched and tested for four and a half more years. If at that point, the numbers remain promising, the drug will become eligible for widespread use.

**More information:** Shibadas Biswal et al. Efficacy of a Tetravalent Dengue Vaccine in Healthy Children and Adolescents, *New England Journal of Medicine* (2019). DOI: 10.1056/NEJMoa1903869