

Research ensures 50 million vaccinated against deadly brain infection

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Research at the University of Liverpool has supported the vaccination of more than 50 million people against a zoonotic brain infection that affects thousands of children across Asia every year.

The infection, called Japanese encephalitis (JE), is found in pigs and wading birds and transmitted by mosquitoes in areas of Southeast Asia and the Western Pacific. The [World Health Organisation](#) (WHO) estimates that JE affects approximately 50,000 people a year and kills around 15,000. Those that survive the infection can be left brain damaged.

Scientists at Liverpool, in collaboration with Asian governments, the WHO and the Program for Appropriate Technology in Health (PATH), are improving understanding of the disease and developing immunisation programmes to control it, with the support of funds from the Bill and Melinda Gates Foundation.

Children in poor rural communities are particularly vulnerable to the infection, but as a result of improved diagnostics and clinical management, vaccinations against the disease have now reached more than 50 million children and the programme continues across Asia.

Professor Tom Solomon, Head of the University's Brain Infection Group, said: "Japanese encephalitis invades the [central nervous system](#) and can cause seizures, paralysis and in severe cases, death. Approximately 50 per cent of people who survive the infection are left

with physical and mental illness, which could include personality changes. It affects children between the ages of one to 15, but adults, including tourists to the region, can contract the disease also.

"Although we knew this disease was important, five years ago it was virtually unrecognised due to the difficulty in diagnosing cases. It causes disability more often than it causes death, but with no standard method of quantifying the disability, it was difficult for governments to make decisions on introducing vaccines. We have been developing ways of diagnosing JE and measuring the outcome of the infection, and these methods are now being used in many countries across Asia."

Previously scientists used highly specialised laboratories to grow cultures of the virus, but these facilities were not widely available across Asia. The Liverpool team, and partner institutions, have developed simple blood tests that allow medics to detect antibodies of the disease, a procedure that can be performed in hospitals and regional labs to provide accurate diagnosis.

Scientists have been working to enhance disease detection by developing surveillance guidelines, which helps medics build a database of all patients that enter hospitals with symptoms of the infection. The system allows authorities to monitor the number of people infected so that appropriate measures can be taken to protect against the disease. The team have also developed a standard method of quantifying the disabilities caused by JE. This gives a profile of the disease and shows how to characterise the disabilities children may have after the [infection](#) has left the body.

As a result of these new measures many governments across Asia are beginning to effectively control JE through vaccination.

Source: University of Liverpool ([news](#) : [web](#))

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