

## PATH's Japanese Encephalitis Project

Japanese encephalitis (JE), a close relative of the West Nile virus, is the leading viral cause of encephalitis and disability in Asia. The disease primarily infects children under the age of 15, leaving up to 70 percent of those who develop illness either dead or with a long-term neurological disability. Since the first case of JE was documented in the late 19th century, JE has spread beyond its early domain—traveling as far south as Australia and as far west as Pakistan. To date, JE has not appeared in Africa, Europe, or the Americas.

JE vaccine was first used in 1941, but it still is not widely available in most affected countries. Over the past 60 years JE has infected about 10 million children, killing 3 million and causing long-term disability in 4 million more. In the past, JE control was hindered by poor surveillance, limited and unstable vaccine supply, lack of guidance and programmatic support for JE immunization, and low political awareness of the disease. PATH's Japanese Encephalitis Project is working with partners to change that.

Regions reported to have transmission of JE virus



Source: Adapted from *Vaccines*, 4th ed. Philadelphia, PA: WB Saunders, Inc.; 2004:919-958.

JE has spread steadily since it was first diagnosed in 1871. By 1995, it had arrived in Australia. The disease kills 10,000 to 15,000 people per year and causes long-term disability in 35,000 more. Immunization is the best way to prevent JE.

Experience shows that with the right information and political will countries can effectively, efficiently, and safely control JE. Every child deserves to be safe from JE infection. JE immunization can provide that protection.

***A safe, efficacious, and affordable JE vaccine is the best way to protect those at greatest risk.***

### Controlling JE through an improved vaccine

The international nonprofit organization PATH is working with partners to pave the way for control of clinical JE and to halt the devastating death and disability JE causes. By adding JE vaccine to the roster of other vaccines given to infants, clinical JE can be eliminated in Asia and the Pacific. We are supporting efforts to make JE vaccine available for use throughout Asia. Increased awareness of JE disease and vaccine solutions is resulting in greater regional and national commitments to JE vaccine introduction. PATH is working with United Nations agencies and the international donor community in these efforts.

### Improving JE surveillance

Stronger disease surveillance systems help countries better understand the burden of JE disease and set the stage for vaccine introduction and for monitoring vaccine effectiveness. PATH is improving JE surveillance by working with countries and partners to strengthen syndromic surveillance. And we have helped in the development of new World Health Organization (WHO) standards for JE surveillance. The project is expanding the availability of JE diagnostics to support the surveillance work. We have also established an Internet-based platform known as the Japanese Encephalitis Prevention Network that allows countries within Asia to share data and information ([www.jepn.org](http://www.jepn.org)).

## Accelerating access to JE immunization

Immunization is the only reliable tool to control JE. Limited supplies and difficult production methods as well as cost issues have hindered access to the inactivated JE vaccine, which historically has been the vaccine most commonly used in Asia. Promising new vaccines for JE are becoming available. An improved JE vaccine would be safe, efficacious, affordable, administered in a single dose, and easily added to immunization programs. PATH is accelerating the wider availability of one candidate—a live, attenuated vaccine from China—and analyzing the prospects for other promising candidates. This vaccine from China is already licensed in several Asian countries, and plans are underway to submit its file to the WHO for consideration of pre-qualification. In addition, we are estimating future demand for JE vaccines. Improved forecasting helps industry to assess its interest in vaccine production and makes for better public health planning.

## Assisting with vaccine introduction

The availability of appropriate resources, tools, and technical guidance can be useful to countries as they plan and implement JE immunization programs or expand and improve existing programs. PATH has worked with WHO to ensure that at-risk countries have the tools and information they need, such as updated surveillance guidelines. Model introduction programs, cost-effectiveness modeling, high-risk population targeting through mapping, and development of training materials are just a few of the other areas where PATH is working.

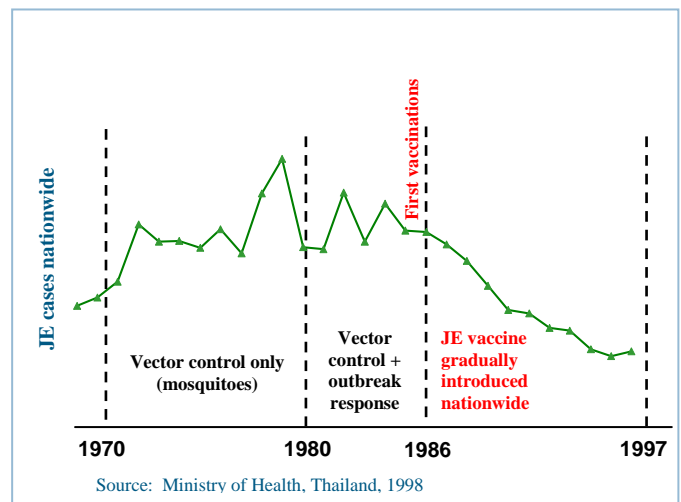
## Promoting investment in JE immunization

Awareness of the awful toll taken by JE is increasing, and political support to control the spread of JE is mounting. Efforts to increase investment in JE control are also gaining support among development partners, donors, country decision-makers, immunization teams, and parents. In 2006, the Indian Ministry of Health and Family Welfare plans to introduce JE vaccine, and Nepal has plans to integrate JE vaccine into its immunization program. Sri Lanka is introducing the Chinese live, attenuated vaccine, having already used inactivated JE vaccine for a number of years. China, Thailand, and Japan are among the countries in Asia that are successfully preventing JE through immunization.

## PATH's JE Project team and partners

The JE team is based at PATH headquarters in Seattle, Washington, United States, with additional team members in Cambodia, China, India, Indonesia, Thailand, and Vietnam. Staff are also based near Geneva to ensure close collaboration with WHO. The project team collaborates with ministries of health, especially in Cambodia, China, India, Indonesia, Nepal, Sri Lanka, and Vietnam, along with the JE Core Working Group; the International Vaccine Institute; WHO, the World Bank; UNICEF; the University of Liverpool, United Kingdom; and the US Centers for Disease Control and Prevention; among others.

### Evolution of JE control in Thailand



Early JE control interventions in Thailand through vector control failed. But with the introduction of JE vaccine in 1986, the number of JE cases dropped considerably, thereby protecting more children.