

LeptoVax

A standard of protection against leptospirosis in the Philippines

THE PROBLEM

Leptospirosis is a disease caused by specific types of the bacteria *Leptospira*, with the infection spreading between animals and people. An extensive array of domestic and wild animals including rats, dogs, cattle, horses, and swine can become affected, either by showing signs of the disease, or by being carriers of one or more types of the bacteria. In humans, the disease-causing bacterial types cause symptoms ranging from fever to jaundice, renal failure, and bleeding of the lungs, which may be life-threatening. Humans and other animals acquire infection primarily through the skin and mucous membranes when they become exposed to an environment contaminated with disease-causing types of *Leptospira*, such as in flood waters.

The number of leptospirosis cases in the Philippines has been steadily increasing. There have been 1,085 reported cases between January to June 2018, which is already 35% higher than the same period last year. Outbreaks has also been declared in at least 28 barangays by the Department of Health last July 5, 2018. Unfortunately, other than warnings not to wade in flood waters, use of protective clothing, and antibiotic prophylaxis, there is no standard of preventive action to the disease.

OUR SOLUTION

The current leptospirosis vaccines being developed by the College of Public Health at the University of the Philippines Manila, in partnership with Kyushu University and Kake Educational Institution in Japan, would fill the gap in Philippine-specific animal and human vaccination against leptospirosis. The animal vaccine would target susceptible animals, hence securing animal production as well as establishing a layer of protection against spreading of the disease in humans. Aside from a public health approach posed by the nearly universal risk of rat-carrier mediated infection, the human vaccines could also target

people working in agriculture and animal production, whose exposure to potential animal carriers pose a greater risk when compared to the general population.

COMPETITIVE ADVANTAGE

LeptoVax targets strains of the disease-causing bacteria that are relevant to the Philippine setting, with potential application to neighboring Southeast Asian countries. This approach allows LeptoVax to offer effective protection through specific action.

THE MARKET

Due to the tropical climate of the Philippines, the country experiences at least 20 typhoons annually and numerous cases of leptospirosis are reported as aftermaths of typhoons, especially after heavy flooding. In 2013, the cost per patient of leptospirosis is more than PHP 20,000, which is beyond the reach of many Metro Manila residents, whose minimum wage per month is only around PHP 9,000. Since there are no reports on the development of other such leptospirosis vaccines in the Philippine market, the introduction of this product would hence be a welcome scheme in improving public health.

On the other hand, commercially available leptospirosis vaccines in the Philippines for animal use (e.g., dogs) are all imported and these target strains that may not be prevalent in the Philippines. The national estimated dog population in the Philippines is around 10 million, according to the Department of Agriculture. In the Bicol region alone as of March 2015, there are around 300,000 dogs. The current selling price for dog vaccines is around P200 to P400 per dose.

WHAT WE NEED

- Partners for Animal Testing
- Partners for Clinical Trials

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