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## Life Saver: Kathryn Kosuda, And Vaxess, May Extend The Global Reach Of Vital Vaccines

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# ALUMNI

KATHRYN KOSUDA, AND VAXESS,  
MAY EXTEND THE GLOBAL  
REACH OF VITAL VACCINES

## LIFE SAVER

BY ANDREW CLARK



It's easy for Americans to take vaccines for granted. In developing countries, though, even when vaccines are available, heat and humidity threaten their efficacy for preventing debilitating diseases and death. If serum isn't refrigerated throughout the supply chain—which might include a ride in an ice chest strapped to a camel—a lifesaving inoculation can be rendered impotent.

It's a huge challenge, but Kathryn Kosuda '02 may have the solution.

A protégée of Professor of Chemistry Tom Shattuck, a Northwestern University Ph.D., and a Harvard postdoc, Kosuda is one of the founders of Cambridge, Mass.-based Vaxess Technologies and its vice president of research and development. She and three partners discovered a way to use a protein in silk to make vaccines both temperature stable and soluble. Vaxess has demonstrated that the protein, fibroin, can keep particles in vaccines from sticking together, thus preventing the damage caused by heat. The breakthrough can solve some of the challenges of bringing immunizations to people all over the world.

Begun as a project for a course aptly titled Commercializing Science, the company—founded by Kosuda and three of her Harvard colleagues—in just three years has begun to address the biggest problem with distributing vaccines in the developing world.

In addition to being in short supply in many places, perishable vaccines for diseases including polio, diphtheria, and measles must be handled with great care. They are shipped on refrigerated planes and trucks, and “packing these products in ice and loading them on the back of a donkey or a camel” is often required, Kosuda said last year, speaking on the PBS program *NOVA*.

If that cold chain is broken, the vaccines degrade and must be discarded. Children go without and risk contracting a potentially fatal disease. Many researchers have studied the problem, but Kosuda and her partners think they have the answer. “For vaccine distribution globally, there is a lack of good infrastructure,” Kosuda said. “This [solution] can lower global immunization costs. This can increase access to these products.”

Among those who think the breakthrough could have a huge impact on global health were the judges who awarded Vaxess \$1 million as one of four winners of Verizon's Powerful Answers Award. The award encourages entrepreneurs to provide innovative solutions in education, health care, sustainability, and transportation, and Vaxess won in the transportation category. “It was exciting for us,” Kosuda said. “There were innovators from all over the world.”

The path that led to Vaxess and the forefront of innovative global health solutions began squarely on Mayflower Hill, Kosuda said. Colby, she said, gave her a strong academic foundation and, with rugby teaching her about teamwork, her undergraduate experience laid the groundwork for everything she's pursued since. “Colby gave me the openness to pursue new areas which may be out of my comfort zone.”

Through Vaxess, Kosuda's pursuits could soon create comfort zones for countless others.

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—Kathryn Kosuda '02