AN INNOVATION 'ECOSYSTEM' FOR BETTER HEALTH CARE

Jana Care, co-founded by EECS alumnus Michal Depa, focuses on high-quality, low-cost solutions for improving diagnostics in emerging markets.

By Stephanie Schorow | Connector Contributor

Many consider the smartphone a tool. Some regard it an annoyance. For Michal Depa, SM '11, the founder and CTO of a start-up called Jana Care, the smartphone is a platform for delivering life-saving diagnostic tools to underdeveloped countries at a minimal cost.

Inspired by his medical-technology work in MIT's Department of Electrical Engineering and Computer Science (EECS), Depa has developed the Aina Device (the name is based on the Sanskrit for "mirror"). The device attaches to a smartphone or a tablet and can measure a person's glucose level, lipid profile, and other blood parameters from a drop of blood on a test strip. The Aina Device was conceived as a way to monitor diabetes — a crucial issue for countries such as India, which has 61 million diabetics, many of whom lack access to quality medical care.

It can also be used for other blood tests for which analyzers can cost up to thousands of dollars in the United States. The Aina Device, however, only costs about $20 to make. The device is now marketed as part of Jana Care's "ecosystem" of medical technologies and software aimed at providing emerging markets with high-quality innovations.

"The top end of the health care system in India is on a par with the United States, as measured by health outcomes," says Depa, who divides his time between Boston and Bangalore. "But that top tier is small; most of the country's health care is not like that. Devices made in the U.S. can make it to the top of the Indian health care system, but getting them across the whole health care system is difficult, mainly due to cost."

Depa's goal for Jana Care is to produce technologies that span the breadth of health care systems, serving more than that top tier. And, he adds: "If you can develop something in an emerging market, then you can sell that

Michal Depa

product in the U.S. This is the thesis some people call 'reverse innovation.'"

Depa has been intrigued with reverse innovation since college. Born in Poland and raised in Montreal, Depa studied electrical engineering and researched telecommunications at McGill University, and came to MIT as an undergraduate exchange student on a Killam Fellowship in 2007. He became interested in medical technology while earning a master's degree in electrical engineering and computer science from MIT. "I found it was a good way to use technology to improve people's lives," he says. He worked on developing algorithms for analyzing cardiac images captured with MRI machines. As a volunteer with the Computer Science and Artificial Intelligence Laboratory (CSAIL) Sana Mobile group, he helped create an oral-cancer screening app for health workers to use in India.

Depa was intrigued with serving patients who lacked access to expensive equipment such as, for instance, the MRI machines. He was also impatient with the long lag time between coming up with an idea and bringing it to market. "The approach in academia is that you try to solve a problem in a way that no one has done before and publish it," he says. Researchers thus shy away from simpler solutions that are similar to what others have done. But simplicity was what intrigued Depa.

In late 2011, he and Sidhant Jena, a Harvard Business School student, launched Jana Care ("jana" is the Sanskrit word for "people") to deliver tools for affordable diabetes management care. The first product was the Aina Device, which has an innovative proprietary design but was built with mostly off-the-shelf components to perform several blood tests at a lower cost than existing analyzers. A smartphone or tablet provides the screen, while Wi-Fi connectivity means the results can be uploaded and stored. The Aina Device offers health-care professionals point-of-care tests for HbA1c, glucose, creatinine, hemoglobin, and the lipid profile (which measures cholesterol and triglyceride levels).

Depa has developed a device that attaches to a smartphone or a tablet and can measure a person's glucose level, lipid profile, and other blood parameters from a drop of blood on a test strip.

Rather than completing his PhD, Depa decided to focus on building Jana Care. "I wanted whatever I was doing to get out there sooner," he says.

Now a 75-employee, for-profit company, Jana Care is funded by private investments and grants. It has advisors from several highly-regarded institutions, including Massachusetts General Hospital, and partnerships with insulin-maker Biocon and pump manufacturer Medtronic. With the help of these partnerships, Jana Care has shipped about 3,000 Aina Devices and directly reached 150 primary-care clinics. The company has also created the "Habits" app as an educational and coaching tool to help patients control diabetes and manage other related health conditions. Plans are underway to test and market devices that will help patients with other chronic conditions.

Depa may have left MIT before earning his PhD, but he emphasizes that he doesn't consider himself as a risk-taker. He believes that no one with a degree from MIT should hesitate to launch or join a startup. "If anything, this will benefit your career," he says. "MIT does live up to its reputation" — meaning the degree matters in the larger world — so when it comes to entrepreneurship, "you should go for it."