

## Project uses tech to help boost vaccination rates in India

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Emmunify team member, Jessica Watterson (right), in New Delhi with an outreach worker to conduct a usability test. Feedback from this testing was incorporated into the design of Emmunify's Android application. Credit: Sri Rallabhandi

UC Berkeley students are creating a new tool that could soon make it far easier for children in developing nations to get life-saving vaccines.

As part of a project called Emmunify, the students simplify medical

record-keeping by storing patient vaccination records on a portable chip that can then be accessed by a [healthcare provider](#) without the need for Internet access.

"Electronic health records are not new, but in developed nations, there is more IT infrastructure in place that allows some health providers and patients to have access to medical data," says project team member Jennifer Sisto, a graduate student in public health. "We wanted something that would be effective in areas with limited healthcare data and IT resources, so we focused on providing crucial information, not setting up an entire electronic health record system."

Emmunify was the brainchild of three Berkeley MBA students, who entered the project in the campus's 2012 Hacking Health competition for the most innovative ideas in digital health. The project emerged as the grand prize winner, earning \$2,000 in seed money to help build a better prototype and conduct feasibility testing.

With the leadership of faculty adviser Dr. Julia Walsh, adjunct professor of maternal and child health, the team connected with nonprofit health providers in India and began preparing to pilot-test the technology in New Delhi, where under half the children are fully immunized.



Emmunify co-founder Anandamoy Sen, now a UC Berkeley alumnus, holds a prototype of the portable record system. The chip, which contains vaccine records, is attached to a cell phone, ready to be synced to a healthcare worker's mobile device. Credit: Julia Walsh

Rather than attempt to include a patient's entire medical history on this chip, the Emmunify team kept the data focused on vaccination history.

"We know that raising vaccination rates among children raises school attendance, improves cognitive abilities, decreases malnutrition and increases earning power as adults," says Walsh. "This is a simple tool to help get kids out of poverty."

The Emmunify chip is attached to a user's [cell phone](#), and data is transferred to the [health provider](#)'s phone, tablet or other computer through near-field communication, a feature that is increasingly common in today's mobile devices. A free app must be downloaded so the device can read the data on the chip. The researchers note that most families have access to at least one cell phone, and that the system is designed to

be operable on various platforms.

"In many cases, families have to go to six different places at different times to get vaccinations for their children, and they are expected to keep the records on a form or other piece of paper that easily gets lost," says Walsh. "This tool solves that problem by keeping the data on a phone and in an easily readable format."

Emmunify could also be used to help direct resources where they are needed. Communities can track how many vaccines have been delivered and used, and [health](#) administrators will know when supplies are low and more vaccines are needed.

Ultimately, the system could help increase [vaccination rates](#) by sending patients automated voicemail reminders in their local language to remind them when their next shot is due.

"There is a lot of evidence from epidemiological studies that when it comes to basic healthcare, it's not the new flashy gizmos that are important," says Sisto. "We just want something basic that works. The tool can be really simple."

The Emmunify team [hopes to raise \\$25,000](#) to support further software development and to deploy the technology in New Delhi.

Provided by University of California - Berkeley

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