

Student Spotlight: Terrence Lo

EVALUATING TELEMEDICINE CLINICS IN RURAL INDIA

By Christopher E. Bush

A young woman sits in front of a computer in a small room in an Indian village, speaking via web cam with a doctor hundreds of miles away in New Delhi. She's able to ask about a health problem she's been having, as well as get family planning advice. With the help of the clinic manager, the doctor can check her blood pressure and temperature, the data all transmitted via satellite.

Terrence Lo, Dr.P.H. '10, believes the future is now when it comes to innovative health care in some villages. He's researching a telemedicine project that may revolutionize public health in poor, underdeveloped areas of Uttar Pradesh, India's largest—and one of its poorest—provinces.

With almost 190 million people, 75 percent of whom live in rural areas and make less than US\$290 per year, Uttar Pradesh faces a large shortage of trained medical personnel. Although India graduates 30,000 doctors per year, there are not enough to serve its 1.1 billion people, and few are willing to work in poor rural areas, where the majority of households still lack electricity and running water. As a result, many villagers have no access to competent care and basic public health services, such as family planning.

Residents in rural Uttar Pradesh desperately need reliable, cost-effective public health care. **Julia Walsh**, adjunct professor at the School of Public Health and one of Lo's advisers, recalls a particular case that impacted her.

"We were walking around and met a grandmother carrying a child between six and



Terrence Lo presents his work at the School of Public Health Fall Research Symposium.

nine months old," she says. "She was coming back from the local small city, which was about an hour away, to get help for the infant who was ill and having some difficulty breathing. It had taken the woman an hour to get there and more than an hour of waiting. Then they gave her four different kinds of drugs.

"Two were in tiny bottles with no labels. Another was an antibiotic, but the recommended dose on the packaging was too low for this child, and the supply would only last a day and a half. It was an excessive variety of medicine. It drove home for me the poor quality and excess care this woman faced.

"Just as bad," Walsh recalls, "it was expensive. She paid hundreds of rupees for this."

FRANCHISING HEALTH CARE

To address the shortage of affordable health care, one India-based non-governmental organization (NGO), World Health Partners, is taking an innovative approach. "World Health Partners looks for rural families to invest in its telemedicine system," explains Lo. "These families act as entrepreneurs, setting up a medical clinic. By investing in the system, they have a vested interest in promoting it as well as maintaining required standards."

The telemedicine project represents a new approach to an old problem. "One of the hot topics in developing countries is how to provide an array of health care services through what's called social franchising," says Walsh.

In social franchising models, NGOs create branded services that they then sell to entrepreneurs who provide them in their communities. "It's an intervention that's designed to take advantage of market forces," says Lo.

In the case of the Uttar Pradesh telemedicine project, World Health Partners has created and branded telemedicine provision centers (TPCs) called SKY Health Centers. It sells franchises for these TPCs to selected families in the rural

villages. The entrepreneurs invest about \$3,000 in buying a franchise and in return are provided with furniture, a computer, satellite equipment, a generator, promotional materials, technical support, and training.

The franchisees are carefully chosen to help meet program goals. Because the telemedicine project especially focuses on women of childbearing age, providing them with basic health care and family planning support, World Health Partners sells the franchises to high-school-educated women who are highly involved in their communities. This helps to overcome some female patients' reluctance to see or discuss reproductive health issues with male care providers.

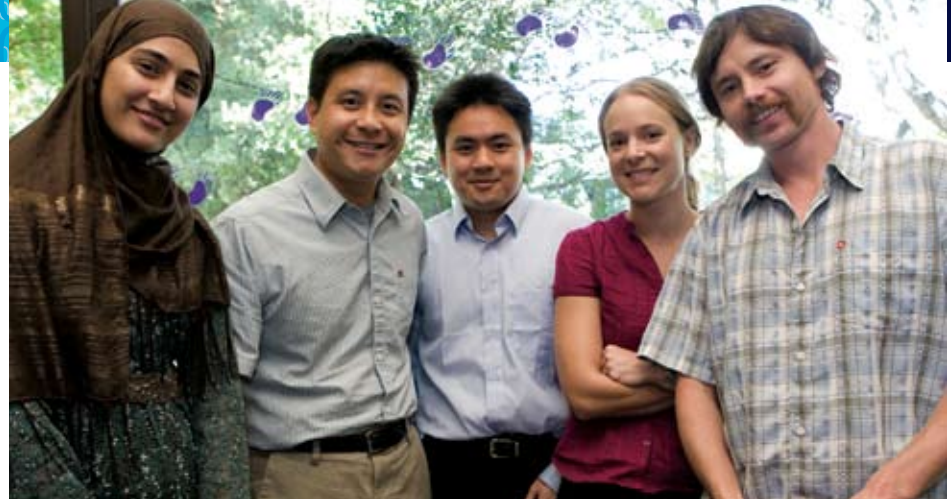
INQUIRING MINDS

Lo became involved with the telemedicine project because he was looking for a dissertation topic that focused on public health intervention. "My focus and my strength has always been epidemiology," he says, "but being here at Berkeley has widened my interests. I'm trying to come up with solutions to problems."

He was introduced to the project by Walsh and Bixby Professor of Population and Family Planning **Malcolm Potts**, both of whom have worked with World Health Partners president, Gopi Gopalakrishnan, an experienced social entrepreneur, on previous research programs.

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Because the telemedicine project is so new—as are social franchising models in general—there isn't much data on their effectiveness. "There are two main questions," says Walsh. "First, there is the issue of how well do these programs reach the poor. And then there's the issue of whether they are really providing



Students Nishat Shaikh, Terrence Lo, Kevin Yuen, Brooke Finkmoore, and Dave Dauphine all participated in summer travel fellowships through the School's Center for Global Public Health.

health services and family planning to those who did not have it before, or are these clinics just another option among many for the same people?"

To begin researching these questions, Lo spent the summer in Uttar Pradesh preparing for evaluations to collect data from two groups of villages, one that does have access to a TPC and a control group that does not. He will next use a combination of focus groups, baseline surveys, and spatial measurements to assess program effectiveness.

"I'm interested to see if only a specific segment of residents will utilize telemedicine and whether or not residents view it as capable of treating them for only specific conditions," Lo explains. "Because rural India has a range of other health care options available, with a wide variation in quality, I want to look at the impact of these health resources on telemedicine utilization."

OVERCOMING CHALLENGES

Lo and Walsh are hoping that an analysis of the telemedicine project will help answer a number of questions about its long-term effectiveness and sustainability. World Health Partners plans to expand the number of TPCs in India, first to 100 and eventually 1,500 sites.

Each of these clinics serves approximately 10 villages with a population of about 20,000. Once the program has grown, 30 to 40 million residents of Uttar Pradesh will have access to a telemedicine facility.

To be effective, the TPCs need to overcome technical challenges, maintain quality, provide immediate health care benefits, and function at an economically sustainable level. "The first question that needs to be answered is, 'Does this work?'" says Lo.

"The technical issues are really the easy part to work out because we already know how to solve them," he adds. "The bigger question is how to make it sustainable. That brings into question how people will use the telemedicine clinics. Currently they're charging 50 rupees per consultation, about US\$1.25. Is that going to be the appropriate price point at which people are willing to go to the telemedicine clinic? There's a lot of promise in the technology, but how is it actually going to be used, who's going to use it, how will it be adapted and for what purpose? A lot of those questions are unanswered."

Lo hopes that the research he and others at the School are conducting will help demonstrate the viability of telemedicine clinics to provide good, effective health care in rural India. "When I was reading the proposal for the project, it blew me away," he says. "You don't come across projects like this that are that innovative and that forward-thinking very often." 🌱