

Doctoral Candidate and Popular Teaching Assistant Uses Epidemiology Training to Fight HIV/AIDS in India

TARUN BHATNAGAR SPENT HIS CHILDHOOD playing on hospital campuses where his parents worked. Born and raised in New Delhi, India, Bhatnagar grew up in a family of physicians – his father is a radiologist, his mother a gynecologist. Going through school he appeared to be on the same path, preparing to be a clinician. But two things happened to alter his plans. During his clinical internship Bhatnagar found that managing patients made him anxious. “I was having sleepless nights and tense days,” he says. “I was not confident in my ability to handle the stress of clinical work.”

That was when Bhatnagar, currently a doctoral candidate in the School of Public Health’s UCLA/Fogarty AIDS International Training and Research Program, learned about the field of epidemiology. “I had never heard of it until my third year of medical school,” he says. Bhatnagar decided to pursue an M.D. in Preventive and Social Medicine. During his three-year study at Banaras Hindu University in Varanasi, India, he was introduced to the subject of epidemiology and took to understanding its nuances. He was taken by the prospect of applying these principles to improving the health of large numbers of people. Looking for more specialized training in epidemiology, he was introduced by his mentors in India to Dr. Roger Detels, director of the UCLA/Fogarty AIDS program. Bhatnagar decided to apply to the program, which builds the HIV/AIDS research capacity of India and other collaborating countries in an effort to control the epidemic. Bhatnagar went on to accept a position as a scientist and core faculty member of the first ICMR School of Public Health at the National Institute of Epidemiology, part of the Indian Council of Medical Research in Chennai.

After doing his coursework at UCLA he is now back in Chennai completing his dissertation on the prevalence of HIV and associated risk factors among wives of truck drivers in Namakkal District of Tamil Nadu, India. The district has the highest HIV prevalence among women in the state, and the mobility of male truck drivers is suspected to be a major factor. “Given the unequal gender relationships in Indian society, it is possible that despite knowledge of risky extramarital behaviors of their male partners, many women are unable to negotiate safe sexual practices,” Bhatnagar says. Although HIV prevalence is on the decline in Tamil Nadu, it remains high among women in Namakkal District. “I hope to determine what drives the epidemic in this area so that socio-culturally appropriate interventions can be put in place,” explains Bhatnagar.

Beyond the specialty training he was able to receive at the UCLA School of Public Health, Bhatnagar says the most valuable aspects of the experience were the lasting bonds he made with fellow Fogarty trainees from South Asian countries, as well as Detels’ “professional mentoring with a very personal touch.” Bhatnagar himself became a mentor to many at the school; he was voted Teaching Assistant of the Year in 2006-07 by the Public Health Students Association. “I really enjoyed my time with the students, and it felt good knowing I could bring smiles to confused faces,” he says. “Receiving that award in a vote by the students was very special to me, especially being a non-native.”

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Former Basic Scientist Clearing Air on Port Pollution

AFTER GRADUATING from UC San Diego with a B.S. in microbiology, **KATHLEEN KOZAWA** spent nearly two years working in a laboratory conducting basic research on cancer. At a certain point she decided this wasn't for her. "I wanted to do more applied research," she says. "I wanted to see that what I was doing was making a difference, while still using my science background." Kozawa enrolled in the M.P.H. program in the school's Department of Environmental Health Sciences and immediately knew she had found her calling.

She was particularly interested in the issue of air pollution, volunteering to participate in a field study characterizing the range of children's exposure to diesel exhaust during school bus commutes. Kozawa's professor and the principal investigator of that study, Dr. Arthur Winer, encouraged her to stay beyond her master's education and pursue her doctorate in the school's Environmental Science and Engineering Program. Kozawa graduates this spring, having completed her dissertation research through the California Air Resources Board (ARB). Her study, conducted with Winer and Dr. Scott Fruin, a USC assistant professor, investigated pollution concentrations in the communities adjacent to the ports of Los Angeles and Long Beach. "This is a particular concern because of the enormous growth that's occurred in goods movement through these ports over the last several decades," Kozawa says. "Thousands of dirty diesel trucks are traveling through these neighborhoods on busy streets close to homes, and people's exposure to pollutants is very high." The topic hits home for Kozawa, who grew up in Long Beach.

Her study involved measuring air pollution in these near-port communities by using an electric vehicle as a mobile platform, outfitted with state-of-the-art air pollution monitoring equipment and driven around the neighborhoods at various times to collect the data. Unlike traditional fixed-site monitors, the mobile platform enables researchers to gather data with high temporal and spatial resolution. "This gives us a much better measurement of what people are actually being exposed to, particularly in the near-road areas," Kozawa explains. "We can find out what they're breathing in their own backyard." Her group found the concerns that served as the impetus for the study were valid: Within 150 meters of busy roadways in the port-adjacent communities, pollution levels were at least double what they were at more than 150 meters away.

Kozawa, who continues to work for the ARB as an air pollution specialist, is currently drafting a five-year plan for the mobile platform that will include continued monitoring in the ports area. "The ARB and the ports have adopted aggressive measures to dramatically reduce emissions from diesel trucks in the next five years, and this will be a great way to assess whether these programs are working," she says.

As part of the research in the port-adjacent communities, Kozawa's group held meetings with residents and community leaders. "It was eye-opening to hear their concerns and see their passion about the need to improve air quality in their neighborhoods," she says. The interactions were also a reminder to Kozawa of one of the reasons she chose public health: "It's exciting to be able to see the research I'm doing is having a direct impact on policy and people's lives."



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