

# SCHOOL OF PUBLIC HEALTH PREPARES TRAINING AND TOOLS TO COMBAT TERRORISM

## *Faculty and Students Form Rapid Response Team*

Concern over mail-related anthrax, smallpox, West Nile virus, and SARS, and warnings by our government that we are at risk for terrorist attacks have led to an explosion of interest in outbreak investigation and applied experience in infectious disease epidemiology among students at the School of Public Health. Public health departments have been asked to increase surveillance and control measures dramatically for a wide range of diseases while at the same time funding for their overall operations has been drastically cut. These developments have combined to force both public health educators and leaders to think about ways to extend workforce capabilities.

In the past two years, both the Illinois Department of Public Health (IDPH) and the Chicago Department of Public Health (CDPH) have asked the School of Public Health to make students available to assist health department personnel in the event of emergencies or large outbreaks.

In response to these requests, Ronald Hershow, MD, and Douglas Passaro, MD, MPH, associate professors in the Epidemiology and Biostatistics Division, have assembled the Student EpiCorps, a "rapid response team" composed of student volunteers with a wide variety of backgrounds and areas of expertise. Members of the EpiCorps are available twenty-four hours a day to assist IDPH and CDPH on request.

The purpose of the EpiCorps is to provide surge surveillance capacity, obtain training and real-life experience in disease surveillance, and interest students in working in public health in Illinois. Roles for students in the EpiCorps include assisting IDPH staff with surveillance and outbreak investigation, developing questionnaires, performing interviews, and conducting technical research, and operating mass vaccination clinics, providing general logistical and programmatic support.

The diversity of the SPH student body will be an important asset in performing both tasks. For example, the twenty-seven Student EpiCorps volunteers speak a total of eleven languages. This resource may prove critical in investigating outbreaks occurring among certain ethnic populations.



Students Linda Rosul, Larysa Fedoriv, and Audrey Bauer and Douglas Passaro, MD, MPH, associate professor of epidemiology, review plans for TOPOFF exercises in Chicago.

Because outbreaks can occur any day of the week, EpiCorps volunteers know that they could be called on to assist with an outbreak at a moment's notice, even when they are in the middle of classes or exams. Because practical training is considered an essential part of public health education, Dean Susan Scrimshaw has asked faculty to let these student volunteers defer assignments or exams as needed while they work on outbreaks.

IDPH is planning to expand the program to include Student EpiCorps units at Northwestern University's Feinberg School of Medicine, the University of Illinois at Springfield, and Northern Illinois University. Illinois State Epidemiologist Mark Dworkin notes, "The EpiCorps gives students a chance to learn some practical outbreak skills and could provide real support to public health agencies in the event of a public health emergency."

Jeanette Tandez, an MPH student in epidemiology, says, "This is an exciting time to be in public health. My participation in the Student EpiCorps resulted in an invitation to observe TOPOFF 2—the national bioterrorism drill—in May. It was an exciting taste of public health in action."

*By Douglas Passaro, MD, MPH*

**DOUGLAS PASSARO, MD, MPH**, HAD BEEN AN OUTBREAK INVESTIGATOR WITH THE EPIDEMIC INTELLIGENCE SERVICE FOR THE CENTERS FOR DISEASE CONTROL AND PREVENTION BEFORE COMPLETING AN INFECTIOUS DISEASES FELLOWSHIP AT STANFORD UNIVERSITY. DURING HIS FELLOWSHIP, HE DIRECTED CALIFORNIA'S UNEXPLAINED ILLNESS AND DEATH PROJECT AND BECAME KEENLY INTERESTED IN THE ROLE OF NON-TRADITIONAL SURVEILLANCE SYSTEMS IN PROTECTING THE PUBLIC'S HEALTH.

PASSARO BEGAN WORK AT UIC SPH THE WEEK BEFORE THE WORLD TRADE CENTER BOMBINGS. BY THE TIME PANIC HAD BEGUN TO SUBSIDE OVER THE OUTBREAK OF MAIL-ASSOCIATED ANTHRAX IN AUTUMN 2002, IT HAD BECOME CLEAR THAT THE LANDSCAPE OF PUBLIC HEALTH WAS ALTERED FOREVER. "WHEN I REALIZED THAT OUR STATE HEALTH DEPARTMENT WAS LIKELY TO BE OVERWHELMED, MY FIRST RESPONSE WAS TO CALL THE ILLINOIS STATE EPIDEMIOLOGIST TO ASK HIM HOW I COULD HELP."

IDPH NEEDED A BIOTERRORISM COORDINATOR, AND PASSARO OCCUPIED THAT POSITION BRIEFLY, ALONG WITH HIS DAY JOB AS ASSOCIATE PROFESSOR OF EPIDEMIOLOGY AND CLINICAL ASSISTANT PROFESSOR OF MEDICINE AT UIC. HE SUBSEQUENTLY SET UP A CONTRACT THAT ALLOWED UIC FACULTY AND STAFF TO PROVIDE IDPH WITH A RANGE OF SERVICES AND TECHNICAL EXPERTISE RELATED TO PREPAREDNESS AND RESPONSE FOR BIOTERRORISM AND EMERGING INFECTIOUS DISEASES.

IN THE PAST YEAR, PASSARO AND HIS TEAM OF RESEARCHERS HAVE INVESTIGATED AN OUTBREAK OF UNIDENTIFIED FUNGAL INFECTIONS AT A HEALTH CARE FACILITY AS WELL AS AN OUTBREAK OF EPIDEMIC CONJUNCTIVITIS CAUSED BY AN UNKNOWN PATHOGEN AT A LOCAL UNIVERSITY. THEY ARE ALSO ACTIVELY CONDUCTING RESEARCH ON WEST NILE VIRUS. THEY HAVE DEVELOPED EDUCATIONAL MODULES FOR IDPH COVERING A RANGE OF BIOTERRORIST AGENTS AND PARTICIPATED IN TOPOFF 2.

## *TOPOFF 2 Exercise Takes on Terrorism in Chicago*

From May 12 through May 16, Chicago took part in TOPOFF 2, the largest terrorism exercise ever conducted in the United States and the world.

The exercise simulated multiple attacks against domestic targets using weapons of mass destruction. More specifically, Chicago, Cook County, and surrounding areas were "exposed" to the airborne release of plague bacilli in multiple locations. Concurrently, Seattle and the Puget Sound region experienced a simulated explosion of a radiological dispersal device (RDD) or "dirty bomb."

The exercise was a congressionally mandated disaster drill designed to test the response of top officials (hence the name TOPOFF) to terrorist acts. The Chicago portion of the exercise involved more than 100 federal, state, local, private-sector, and Canadian agencies and organizations.

Douglas Passaro, MD, MPH, Ronald Hershow, MD and six University of Illinois at Chicago (UIC) School of Public Health students—Charlesnika Evans, Linda Rosul, Audrey Bauer, Jeanette Tandez, Matthew Westercamp, and Anne McIntyre—were invited to participate in the exercise in various capacities. Passaro and the students assisted the state epidemiologist, Mark Dworkin, in developing different aspects of the response to the evolving Chicago "outbreak." Hershow participated as an evaluator of the exercise, assigned to observe and take notes that will be dissected to find out what went well and what needs improvement.

In the previous TOPOFF exercise, conducted in Denver in 2000, participants were interviewed weeks after the exercise, and conclusions were drawn from this delayed debriefing. It is anticipated that by using evaluators like Hershow, who chronicled the response in "real-time," a more accurate evaluation of the response will be possible. Projections suggest that at least four months will be required to go through notes taken by the corps of evaluators who participated in TOPOFF 2. Hershow alone took seventy pages of notes in a day and a half of observation.

TOPOFF began on the morning of May 13 when Dworkin received his first "exercise" e-mail at 7:40 AM: "IDPH reports 100 patients in Chicago area with SARS-like symptoms. Gov/Homeland Security/Washington working on press release." From then on, information arrived rapidly via e-mail and fax, and Dworkin and his staff began work.



Ronald Hershow, MD, associate professor of epidemiology, and students Anne McIntyre and Charlesnika Evans review preliminary data from TOPOFF.

Early lab findings indicated that this was probably not SARS, but initial clues were vague. Bipolar staining bacilli were noted on diagnostic specimens from two early cases, but laboratory expert Roman Golash warned that, although suggestive, bipolar staining was not definitively diagnostic of plague.

By 9:05 AM, Dworkin had organized a conference call between his office and health departments in Chicago, suburban Cook County, and Lake, DuPage, and Kane Counties. These jurisdictions reported a total of eighty-nine cases, with at least nine deaths. Symptoms of cases were discussed, and Passaro was asked to prepare a memo summarizing available information on symptoms and to develop a list of diagnoses—in order of likelihood—that might be consistent with the array of symptoms being reported.

With the help of the UIC students, this task was rapidly accomplished. It was noted that several of the affected individuals had been at a hockey game at the United Center. Furthermore, several cases had recently traveled through Union Station and O'Hare Airport. Equipped with this information, Passaro was asked to obtain a list of recent events at the United Center...and so it went. Hour after hour, more disquieting information was "injected" into the exercise. Decisions were made, memos were written and dispatched, and the case counts rose into the thousands.

It was an unforgettable experience for the UIC contingent. Hershow says that, although there were moments of confusion and

uncertainty, "overall I was very impressed" with the response orchestrated by Dworkin, the Chicago Department of Public Health, and the collar county health departments. Hershow adds, "The exercise will provide invaluable information for Chicago and Seattle. Beyond that, the lessons learned from deconstructing the TOPOFF 2 exercise will inform all jurisdictions within the United States and around the world about how to prepare for possible future terrorist incidents. The exercise also has great relevance for natural outbreak and disaster control efforts."

*By Ronald Hershow, MD*

*I really enjoyed the concepts I learned in Introduction to Epidemiology, but I wondered how they could be used in the real world.*

*—Larysa Fedoriw, MPH student in epidemiology*