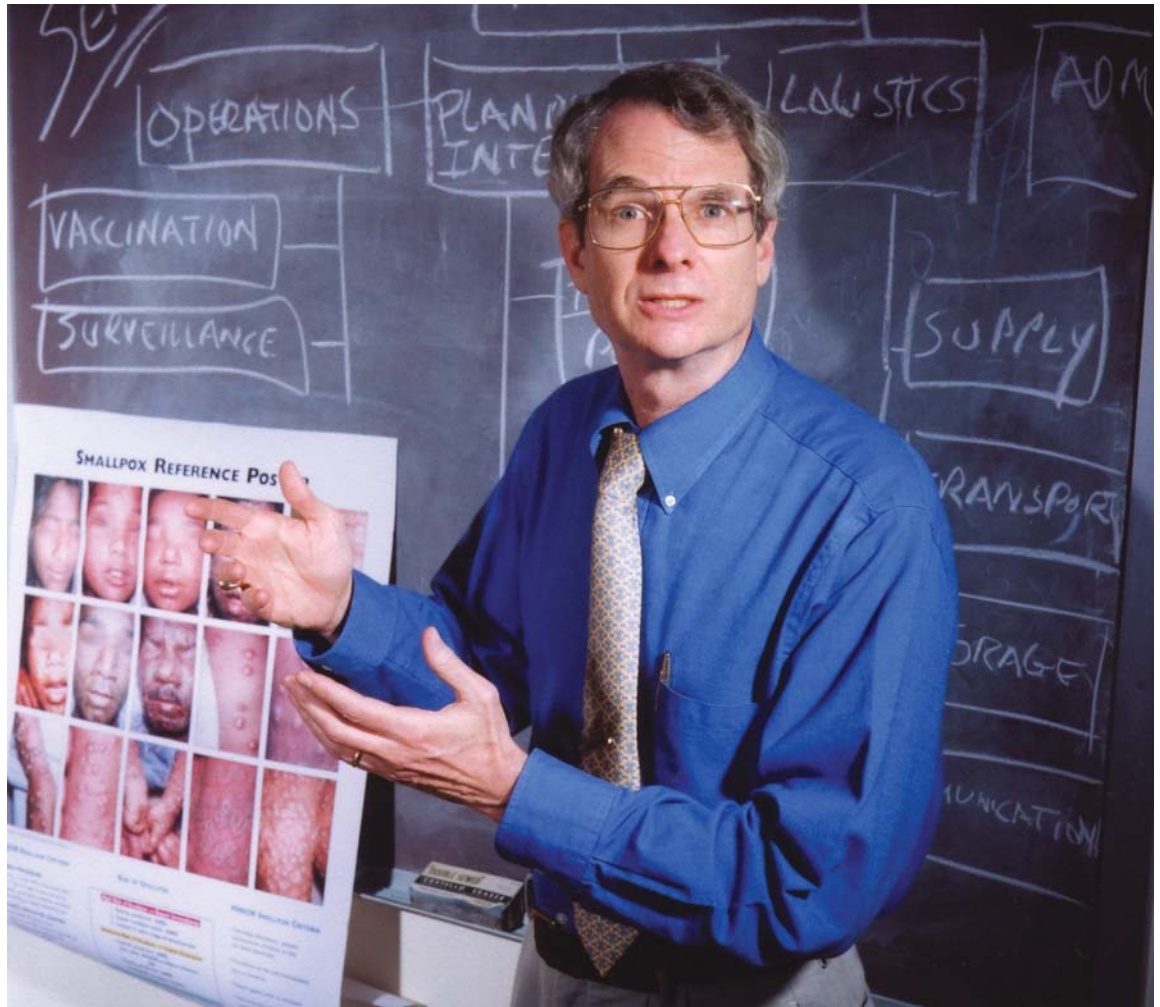


# Fundamentals for a New Era

## Public Health and the Threat of Bioterrorism

**WITH INCREASED VISIBILITY AND FUNDING FOLLOWING 9/11, PUBLIC HEALTH FACES UNPRECEDENTED OPPORTUNITIES AND EXTRAORDINARY CHALLENGES. ON MANY FRONTS, THE SCHOOL IS PLAYING A KEY ROLE.**



**Dr. Robert Kim-Farley, a medical epidemiologist with the Centers for Disease Control and Prevention, splits his time between the school's faculty and the L.A. County Department of Health Services' Bioterrorism Preparedness Program.**

September 11, 2001 and its aftermath, raising the specter of future chemical, radiological or biological attacks, have focused attention on public health like no events in recent memory. "Out of this tragedy has come an enormous opportunity for our field," says Dr. Linda Rosenstock, dean of the UCLA School of Public Health. "It has led to an appreciation for how vital public health is to us all – that it's not just for other people who are too poor to afford medical care. We're seeing increased visibility, increased respect, and increased funding after decades of neglect."

At the school, the response to the bioterrorism threat is occurring on several dimensions. A number of faculty were already focused on public health preparedness for, and response to, emergencies; others have become newly interested, and related course offerings have expanded. The school is also playing a vital role in

the community – linked to the public as a provider of information, to first responders through training, and to the county health department charged with disaster preparedness in the school's backyard.

The link between the school and the L.A. County Department of Health Services in emergency preparedness efforts – already substantial considering that Dr. Jonathan Fielding, a member of the school's faculty, is the county's director of public health – was bolstered last year with the arrival of Dr. Robert Kim-Farley. A medical epidemiologist with the Centers for Disease Control and Prevention who has spent most of his career in the infectious disease field, Kim-Farley is currently splitting his time between the county's Bioterrorism Preparedness Program and the school, where he is a visiting professor.

In addition to teaching – in 2002-03 he offered a course on preparing for a smallpox or other bioterrorist event, and another on the principles of infectious disease control – Kim-Farley has worked with Rosenstock to bring together faculty with bioterrorism-related interests. An informal school-wide group, which meets once per quarter, has helped to facilitate new collaborations as well as discussion about developing a more cohesive curriculum in bioterrorism preparedness, potentially to the point of providing special certification for students who complete a track of core courses. "Anyone graduating from a school of public health who is planning to work in a state or local health department needs to have some orientation toward bioterrorism," Kim-Farley explains. "The idea is to look at the bioterrorism-related courses that are being offered at the school and make them more seamless from the student's point of view."

Educating the next generation of public health professionals is one of several important roles the school can play in the bioterrorism preparedness effort, Kim-Farley says. Others include in-service training of current health department professionals, and assistance in evaluating state and local health departments' readiness and plans of action.

The school's Center for Public Health and Disasters is active on all three fronts, with curriculum now including seven courses offered to UCLA graduate students and to non-full-time students through UCLA Extension; many professionals from public health agencies have enrolled. As an academic Center for Public Health Preparedness – a CDC designation that funds specific schools of public health to collaborate with state and local health departments to prepare for bioterrorism and other public health

emergencies – the center has faculty working with a number of health departments in California and neighboring states, offering training programs to orient rank-and-file public health workers to the threat posed by natural and intentional disasters and how they can best prepare their departments to respond to such emergencies.

"There are obvious differences between preparing for the natural disasters you expect in California – earthquakes, fires, floods – and for biological hazards," says Dr. Steven Rottman, the center's director.

"We know natural disasters are going to occur and we recognize them when they do. With bioterrorism, conditions will not necessarily emerge at once, which introduces the element of detection and reporting through central epidemiologic surveillance to track the incidence and significance of the outbreak, its route and possible contacts of infected cases, and how the health departments will respond not only for the people infected but for those who may have been exposed. This is like the evaluation of any other infectious disease outbreak – except that you're adding the issue of criminality, as well as the fact that these are unusual diseases or odd expressions of previously recognized diseases." In addition to offering training to local health department workers on these threats, Rottman's group will assist the California Department of Health Services by conducting training needs assessments for all local health departments to determine the most pressing educational needs.

Another type of assistance comes from Rick Greenwood, director of UCLA's Office of Environment, Health and Safety and member of the school's Department of Environmental Health Sciences faculty, who has received CDC funding through the county to set up a system for evaluating equipment used by first responders in potential or real terrorist events. Greenwood is assembling an advisory committee of officials from local police, sheriff, FBI and fire departments to help develop what he likens to a "Consumer Reports" for radiation-detection instruments, field equipment for evaluating substances, respirators, and protective clothing, among other products.

"Most local jurisdictions don't have the expertise or the resources to evaluate which instruments are best," Greenwood explains. "The military has used a lot of these things for a long time, but what works in that setting isn't necessarily best for civilian police forces and fire departments." Testing will take place both at UCLA, by Greenwood's team, and in the field by experts from the advisory committee, with

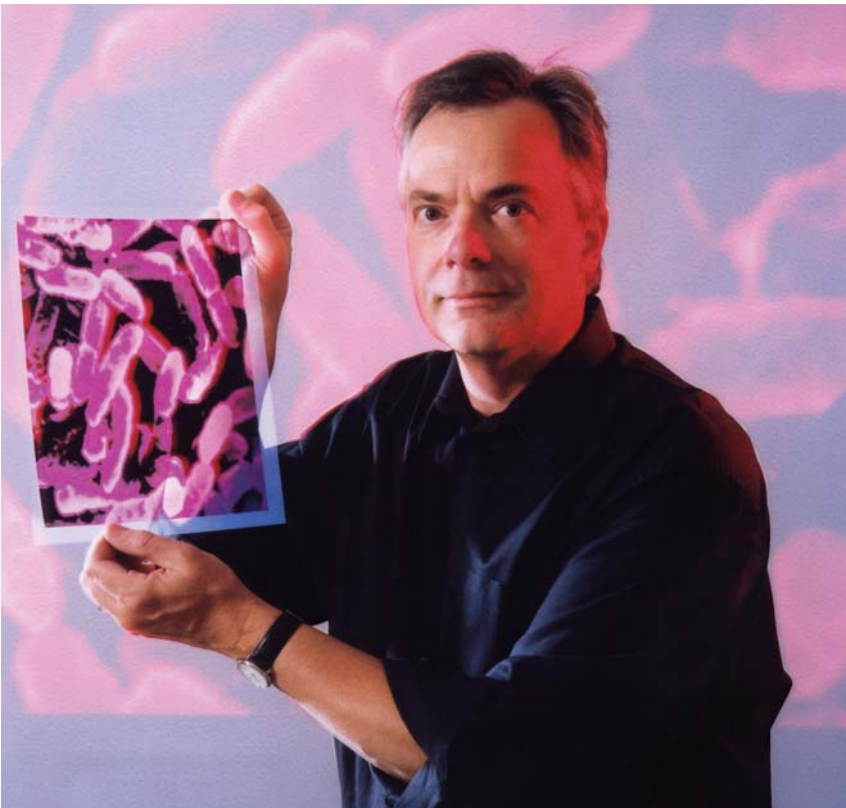


"We are now driving the system back to the fundamentals of disease detection, reporting, control, laboratory surveillance, and restoring the impact of public health systems that had been otherwise diverted."

—Dr. Steven Rottman

reports posted on the Center for Public Health and Disasters Web site ([www.ph.ucla.edu/cphdr](http://www.ph.ucla.edu/cphdr)).

Alumnus Raymond D. Goodman (M.P.H. '72), a retired physician, was so moved after attending a November 2002 lecture on bioterrorism by Kim-Farley that he approached him with an offer to help. "After listening to that lecture, I realized that if we were ever to have a major disaster – natural or intentional – it could overwhelm the capacity of the established health care systems to meet the multiple needs," he says. "So I thought, why not get all of the retired doctors and other health professionals, who are still so capable and have a sense of public dedication, and use them as volunteers?"



**Dr. Scott Layne is interested in developing a high-capacity laboratory for rapid genetic fingerprinting of potential bioterrorist agents, such as anthrax.**

Kim-Farley introduced him to the executive director of the county's Bioterrorism Preparedness Program, and the result is the Medical Reserve Corps of Los Angeles County, a plan Goodman conceived to enlist the services of retired health care professionals as volunteer responders in the event they're needed after a community disaster.

Goodman has been working as an officer without compensation for the Bioterrorism Preparedness Program. Among other things, he has collected names and addresses of more than 6,000 retired physicians and nurses in the county who could serve as potential volunteers. He has assembled a staff of 20 health care professionals who will assist in developing a curriculum and training program for the volunteers, with help from the emergency medical services agency

that trains paramedics in the fire department to respond to regional medical disasters. Goodman expects the initiative to be officially recognized by the U.S. Office of the Surgeon General, at which time the recruitment of volunteers will begin.

At the federal level, Dr. Scott Layne, associate professor of epidemiology, is interested in developing a high-capacity laboratory for rapid genetic fingerprinting of potential bioterrorist agents. "We need a laboratory response as well as traditional education of first responders," says Layne, who teaches three bioterrorism-related courses at the school. He has developed a proposal for a prototype facility that would be engineered at Los Alamos National Laboratory and installed and operated at UCLA, initially focused on influenza viruses and anthrax, with the ultimate intent to develop a small network of high-capacity laboratories nationwide that would serve public health, law enforcement and national security purposes. The laboratories, which would comprehensively characterize all known strains of the potential agents in a database, would rely on the same high-throughput assay systems currently used by pharmaceutical companies for drug-discovery development.

"From the point of view of science and public health, we need much more comprehensive information on some of these organisms for making better vaccines and therapies," Layne says. "And we need to be moving more toward real-time surveillance, so that when SARS or a bad influenza strain pops up, we can determine what type of virus it is and answer questions about it very quickly." Layne notes that his system could be easily duplicated for institutions that could support law enforcement and national security purposes.

"The world is shrinking, and so we need new tools in addition to the traditional tools of public health surveillance, vaccines and drug therapies – tools that will give us the very rapid and comprehensive information we're going to need to deal with acute problems," Layne says.

Confusing and sometimes conflicting messages following the anthrax outbreak in late 2001 led the federal government to enlist the assistance of faculty at UCLA and three other schools of public health. Dr. Deborah Glik and colleagues at the school's Health and Media Research Group are working with Center for Public Health and Disasters faculty on a CDC effort to develop and pre-test messages to be disseminated before, during and after terrorist attacks. In collaboration with schools of public health in three other states, the UCLA researchers are identifying what the public needs to know and conducting focus groups to determine what the public *wants* to know in the event of various scenarios. "The CDC would like to use this information to create available materials so that information isn't delivered in an off-the-

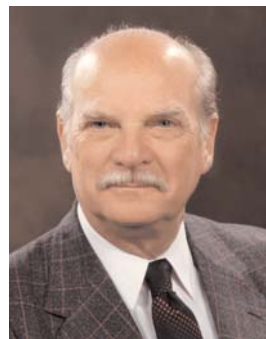
cuff manner,” Glik explains. “Clearly, there is going to be adaptation depending on the nature of the event, but it is helpful to have general messages worked out in advance that can be distributed to health departments so that the information delivered is consistent, clear and concrete.”

In addition to assisting public health officials in developing messages to be used in the event of an attack, the school plays an important role in communicating directly with the community about real and perceived threats. “As independent observers and experts, we have a position of trust that we should use to describe the reality of the risks and put things into perspective, particularly when communication from the government is not clear and, in some cases, is not trusted,” says Rosenstock.

In fact, Rosenstock is concerned that the national focus on bioterrorism preparedness, while shining the spotlight on public health, has the potential to distract attention from important everyday public health issues, such as chronic disease prevention and the quality of air, water and food. Rosenstock and many of her colleagues in public health and medicine have also been wary of the federal government’s smallpox vaccine policy, concerned that public health principles were being abandoned by launching a campaign without open discussion of the threat of exposure vs. the risk posed by the vaccine.

On the other hand, Rosenstock notes, there are tremendous advantages when preparing for bioterrorist events also helps to beef up traditional public health surveillance and response systems. Kim-Farley agrees. “Those of us in public health who are working in the bioterrorism area recognize that many disease surveillance systems in the United States have eroded and that if we are going to invest in bioterrorism surveillance, let’s make sure that the system we put in place also strengthens our capability of dealing with natural disease outbreaks,” he says.

Adds Rottman: “Over the past few decades, the concentration in the field of public health has been away from infectious disease and outbreak investigation, due to strong immunization programs and powerful antibiotics. The emphasis shifted toward other areas of public well being, and as a consequence, public health laboratories were under-funded and had become less sophisticated, and there had been less emphasis on communicable disease reporting. We are now driving the system back to the fundamentals of disease detection, reporting, control, laboratory surveillance, and restoring the impact of public health systems that had been otherwise diverted.”



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Dr. Deborah Glik, (back row, third from the right) is part of a CDC effort to develop and, through focus groups such as this one, pre-test messages to be disseminated before, during and after terrorist attacks.