

MEDICAL

Alerts



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BY DEBBIE FELDMAN

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TRACKING DOWN the Ebola Virus, stalking HIV, investigating the increase in tuberculosis cases. When epidemics threaten human health, the Epidemic Intelligence Service (EIS) is on the front lines. The epidemiologists of the Centers for Disease Control and Prevention (CDC), investigate diseases that affect populations.

Founded in 1951, the EIS has trained more than 2,000 officers who conduct epidemiologic investigations in the United States and throughout the world. According to Joanna Buffington, MD, MPH, and the acting chief of the EIS, "When any public-health mysteries or urgent outbreaks of disease are detected, EIS officers are the people who go out and investigate."

In the 1950s, it was Asian flu. In the 1960s, it was the Hong Kong flu and mortality associated with intrauterine devices. In the 1970s, it was Legionnaires' disease and toxic-shock syndrome. In the 1980s, it was AIDS, aspirin-associated Reye's syndrome, and Accutane-associated birth defects.

Joanna Buffington, MD, MPH is the acting chief of the EIS. She says that in a public health crisis, the people who go out into the field to find out what's going on are EIS officers.



Now, in the 90's, the EIS investigates the epidemiology of reproductive health, disease and injury caused by occupational health hazards, the etiology of intentional and unintentional injuries, and the health effects of disasters, among other things. Although the public—and many physicians—think “infectious disease” when they hear about the CDC, the EIS actually deals with non-infectious diseases as well, including chronic illness.

Field exposure

The CDC's Epidemiology Program Office (EPO), which publishes the *Morbidity and Mortality Weekly Report* (MMWR), operates the EIS two-year post-graduate training program emphasizing on-the-job training in epidemiology. In addition to a classroom component, trainees, known as EIS officers, work on two-year assignments, learning skills that are instrumental in addressing public-health issues. About 25 percent of officers work in state or local health departments, while about 75 percent work at CDC headquarters. “In this program, you're learning public health and epidemiology by actually responding to real public-health problems and getting out into the field and investigating these prob-

lems,” Buffington explains.

It's not unusual for medical students and residents to be unaware of the opportunities in this important field. “During residency, I had never really considered a career in public health,” says Buffington. “Medical education is primarily clinical medicine, taking care of one person at a time, and not population-oriented. As a physician, I thought public health meant partner notification for sexually-transmitted diseases, VD clinics, and the like. It's certainly a lot more than that. Medical schools don't approach public health in a very useful manner. There's so much they're trying to pack into the curriculum that public health and epidemiology take a back burner.”

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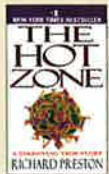
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BOOKS



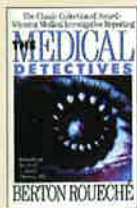
The Coming Plague, by Laurie Garrett. Nonfiction about emerging infections in the world.

Hardback: \$25, (Farrar, Straus, & Giroux, 1994). Paperback: \$14.95 (Penguin, 1995).



The Hot Zone, by Richard Preston. A nonfiction work about pathogenic organisms,

including the Ebola virus. Hardback available only in large print edition: \$26.95. Paperback: \$6.99 (Bantam Doubleday Dell, 1995).



The Medical Detectives, by Burton Roueche. A collection of true stories, many of them about EIS officers.

Paperback: \$14.95. (NAL/Dutton, 1991).

ARTICLE

"Training and Service in Public Health Practice, 1951-1990: CDC's Epidemic Intelligence Service," Public Health Reports 1990, vol. 105, pp. 599-604.

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Each year, 60 to 80 professionals, the majority of which are physicians, are selected to enter the EIS training program in Atlanta. The program begins in July with a three-week course in the foundations of epidemiology, statistics, public health, and an orientation to the CDC. Once assigned to a work site, EIS officers train under a preceptor. That fall, officers take a one-week course on more advanced techniques of public-health surveillance. During the second year, there is another one-week course on the economics of public-health programs.

The duties of an EIS officer during training include conducting field investigations, analyzing databases, and responding to public concerns. "There's no lab component. It's primarily field work. The day-to-day work varies quite a bit—learning epidemiology, how to analyze data sets and statistics; looking for things that jump out and are significant," Buffington explains.

Elena Page, MD, MPH is an EIS officer at the National Institute of Occupational Safety and Health (NIOSH) in Cincinnati. Page heard about the program while in residency at Johns Hopkins School of Hygiene and Public Health. "Most people who go to the EIS program go to study infectious disease, and they don't realize the opportunities that are available in occupational safety and health."

Page started the two-year program in July and says she likes the team approach. "You get to learn a lot about other disciplines and what they do. These are the names in occupational medicine literature I've seen for years, and now I work with these people." Page's team includes industrial hygienists, engineers, physicians, psychologists, and Ph.D. epidemiologists.

Buffington, who went through the program from 1990 to 1992, was an in-

ternal medicine resident when she heard about the EIS. "At the time, I was very discouraged with the prospects for doing any prevention work. Most patients come to see a doctor when they are already sick. They don't come when they're healthy in order to prevent illness."

Since a clinical setting didn't offer Buffington the opportunity to focus on prevention, she investigated other options. "I talked with a chief of medicine at one of the hospitals in my residency program, and it turns out he had done the EIS program in the 1960s, and he had been a part of the smallpox eradication project. He said, 'I think EIS is for you,' and I said, 'What's that?'"

Ten years ago, Tim Jones, MD, an EIS officer with the Tennessee Department of Health in Nashville, was studying diarrhea in a small mountain village in southern Mexico. "I was a medical student on a research project over the summer, and one of the people who was helping lead the study had recently left the EIS, and told me about the program. It sounded like a great experience. So, for the next 10 years, it stayed in the back of my mind as something I'd really like to do."

Jones, who also started EIS training in July, came to the EIS program straight out of his three-year family-practice program. His residency was at a community-health center that qualified as a National Health Service Corps site for an underserved population in Salt Lake City. He says the experience steered him toward working with entire populations. "It was public health, but I was seeing individual patients. That convinced me of the importance of doing something like this where you have a chance to make an impact on a lot of lives."

Jones enjoys his work. "Anything that happens in the state, I get to go work on. The variety appeals to me.

It's never boring."

Nor is public health a specialty for physicians bent on making as much money as possible. Buffington says pay depends on the training and experience of the physician coming into the program, but "typically, physicians earn from \$50,000 and up. So, it's more than a typical fellowship, but not as much as private practice."

According to Page, the rewards for the physicians at the EIS are less tangible, but no less real. "We make more of an impact than anyone who sees individual patients, because we treat populations of people, and make differences for entire populations, as opposed to individuals."

All in a day's work

Currently, more than 2,000 EIS officers are practicing their epidemiology skills around the world. Like Page, some officers study the epidemiology of environmental health, including indoor air quality and exposure to toxic chemicals. But internationally, there are many EIS graduates working for the World Health Organization, the United Nations Children's Fund, and the World Bank, a Washington, D.C.-based institution that loans money to developing countries. "So, there are opportunities for people to do projects overseas," says Buffington.

Page is working on five projects. "I'm working on an investigation of acoustic neuroma, which is something that's never been documented in the literature as being work-related. It's an uncommon tumor of the eighth cranial nerve, which is the nerve that you hear with. It's a benign tumor, but it takes up space in your brain, and you could die from it eventually. Usually, you lose hearing in one ear and that's how the tumor is found. We have a group of workers at fish hatcheries,

where they think there have been maybe 10 or 12 people with it. We're gathering information to see if there's a relationship between the occupation and the tumors."

Page sees the work as being like a detective. "I'm also investigating an outbreak of mercury poisoning in a

glass recycling plant. Our team gathered information, and we tried to figure out whether it looks like there's anything there or not. If it does look like there's even a possibility of something being there, we will fly out, interview and examine the workers, and

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Tim Jones, MD has handled calls for everything from a broken thermometer to a tuberculosis outbreak as an EIS officer with the state of Tennessee.

EPIDEMIC INTELLIGENCE SERVICE

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Resource Roundup

Internet:

CDC home page (includes access to the *Morbidity and Mortality Weekly Report* (MMWR): <http://www.CDC.gov>)

EIS Web site:

<http://www.CDC.gov/epo/depht/eis/index.htm>

EIS E-MAIL: eisepo@cdc.gov

Application:

For a program application or more information about the EIS, write: *EIS Program, Epidemiology Program Office, MS D-18, Centers for Disease Control and Prevention, 1600 Clifton Road, N.E., Atlanta, GA 30333*

Phone: (404) 639-3588 or

(toll free) 888-496-8347

The application process is open to any physician with one year of clinical experience and a strong interest in applied epidemiology.

The application deadline is

October 1st of each year. ■

try to piece it all together.”

Buffington agrees with the sleuthing similarity because any public health mystery or outbreak of disease must be investigated in much the same way as a crime. Recently, EIS “detectives” were sent to investigate an outbreak of hepatitis among school children in Michigan. Two EIS officers linked the disease with strawberries from the school lunches. “That’s typical of most things that come out of CDC in urgent public health issues,” Buffington says. “The team that actually goes out into the field to research and find the cause, and find out what’s going on, are EIS officers.”

What’s a typical day like for Jones? “In the first couple of months, I’ve taken a number of phone calls to the State Department of Health. For example, someone called who had dropped a thermometer and had mercury running all over the floor, and they wanted to know if it was harmful to their children, and how to get it up. Then, I had a call about data from our state relating to iodine deficiency for the last 50 years. All kinds of questions.”

Like Page, Jones is also involved in ongoing projects. “One of the first things I did was go to Memphis to investigate a recent increase in the number of cases of tuberculosis that have been reported from the jail there. A team of

us from the state office went there, toured the jail, collected information, talked to folks in the health department, spent a week gathering information, and then for several weeks since then, I’ve been analyzing that data and collecting more information, getting samples sent to the lab, and so forth.”

Are the hours like residency? “You’re on call 24 hours a day, but it’s for public-health emergencies, compared to being a resident on call, where there are constantly individual patient emergencies. When you’re out investigating an outbreak of disease, you certainly put in long hours,” says Buffington. “But in the day-to-day work it’s the type of work where you can define your hours and work.”

So what kind of person makes a good medical sleuth? An inquisitive nature is a must, so is an interest in public health and disease prevention. Most EIS physicians admit to wanting to make a difference to people’s health on a large scale.

Jones is one such person. He plans to continue his efforts after his training. “There are a lot of options when you’re done with the EIS program, but I’ll probably choose to stay in public health.” ■

Debbie Feldman has recently moved to New York City, where she plans to continue writing and pursue acting. She last wrote about alternative medicine for the March/April issue.