

Q & A with **Maryn McKenna**, *author of*
BEATING BACK THE DEVIL:

On the Front Lines with the Disease Detectives of the Epidemic Intelligence Service

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What is the Epidemic Intelligence Service?

The EIS, as it is generally known, is the rapid-reaction disease-detective force of the Centers for Disease Control and Prevention, or CDC — the public health agency of the U.S. government. It is mostly composed of physicians and PhDs, though it also accepts nurses, veterinarians and some other health professionals. People join it at the start of their careers — physicians after they have finished residency, PhDs once their dissertations are done. An EIS appointment lasts two years, and it works by means of a simple but potent agreement: The CDC offers the EIS members two years of intensive training in epidemiology, and a credential that will make their careers once their two years of service are over. In exchange, they promise to go to whatever outbreak arises, wherever they are needed, no matter when the call comes in.

Is the EIS a covert program? Why have we never heard of it?

It is not a “black” program — there has never been any attempt to hide it — but it is true that the EIS is not well-known. In part, that is because EIS officers, as they are called, are junior members of the profession of epidemiology; as in any scientific field, when big discoveries are made, it is usually the lab chiefs, not the grunts, who get the glory. In fact, for many years, the CDC required EIS members to be anonymous when they wrote up medical-journal accounts of their investigations. The EIS member who saw the first cases of AIDS diagnosed in the United States was not allowed to put his name on the paper describing the cases, and he went largely unrecognized outside the CDC for almost 20 years. In addition, the CDC only launches field investigations with the cooperation of a state health department in the United States, or a Ministry of Health if the outbreak is overseas — so observers who see the EIS in action frequently assume they are employees of the state health department or ministry. A member of the group once described it to me this way: “We always wear the CDC T-shirt. But sometimes, we put another shirt on top of it.”

How did the EIS get started?

When the CDC was founded, it needed epidemiologists, but there were very few in the country. The government’s chief epidemiologist, Dr. Alexander Langmuir, had the idea to recruit doctors to the CDC and train them to be epidemiologists once they got there. His idea got a huge boost from the Korean War. At the time, planners feared that soldiers fighting in Korea would be unknowingly exposed to biological weapons, and would carry the infection back to the United States and spark epidemics here. The concept of a quickly deployable, mobile disease-detection force made immediate sense. Of course, no such epidemics occurred — so the EIS, founded in part as a unit of bioterrorism detection, reverted to a peacetime role of puzzling out naturally occurring outbreaks.

The group got a small taste of what bioterrorism detection might feel like in 1984, when a few of its members helped investigate an outbreak of Salmonella linked to salad bars in The Dalles, Oregon. It turned out that a group of religious cultists had cultured the bacteria in their own laboratory and sprinkled it on 10 salad bars in an attempt to sicken local voters and swing an election. But it was the 2001 anthrax attacks, the first fatal bioterrorist attack in American history on American soil, that really returned the EIS to its roots. The attacks had relatively few victims — five died, and another 17 were sickened — but they triggered a huge investigation: More than 30,000 people who were thought to have been exposed were examined and put on antibiotics. Anthrax called out the entire EIS: Of the 146 officers serving in October 2001, 136 of them — every one of them who could travel — was put on the investigation.

After the attacks appeared to have ended, the CDC decided that the EIS members needed to be better prepared to counter a bioterrorist attack — because the agency believes, and contends, that there will be another one someday. So for the first time, it arranged for the EIS officers to undergo bioterror-response training as part of their introduction to the CDC, a training I accompanied them through. Fifty-one years later, Langmuir's original vision for the EIS was achieved.

How does an EIS investigation begin?

Like any mystery, with something that needs to be explained. Sometimes an outbreak is obvious: In one location — or in widely separated locations — anywhere from a few to dozens of people suddenly fall ill. Other times, the initial signal can be much more subtle, an anomalous result from a lab analysis or a little-noticed uptick in routine statistical reports of disease. The most troubling discovery is the sickness that turns out to be something that has never been seen before, something caused by an organism that medical science does not recognize and does not know how to treat. HIV/AIDS was one such illness, when it was first recognized in 1981. So were Legionnaire's disease, hantavirus, Ebola, E. coli O157:H7, West Nile virus, Nipah virus, monkeypox and SARS. The EIS investigated and helped identify all of those; in fact, its members were involved in every major epidemic of the last half of the 20th century.

What made you want to write about the EIS?

The CDC is based in Atlanta. I began covering the Centers for Disease Control and Prevention and writing about national and global public health issues for the Atlanta Journal-Constitution in 1997. You cannot spend much time at the CDC, or around the world of public health, without hearing about the EIS. There are about 2,700 living alumni, about 900 of whom work at the CDC, and they love to tell stories about their investigations.

Then came September 11, and accounts of police officers and firemen who rushed into the World Trade Center buildings to save others at the cost of their own lives. I was born in New York. Most New York Irish-Americans have policemen or firemen or both in their family trees, and I am no exception: My great-uncle was a New York City fireman who died of an injury he received on the job. I started thinking about the concept of anonymous heroes, and then I realized that EIS members deserved that title as well. They perform the disease equivalent of running into burning buildings. And they are, in a sense, even more anonymous than traditional first responders: Unlike police and firemen, they wear no identifiable uniform while they are on investigations.

Shortly afterward came the anthrax attacks. The first case was publicly divulged on October 4, 2001. Because I had been on several field investigations with the CDC, the agency allowed me to go inside the team that was investigating the anthrax-loaded letters sent to Congress. I joined the group in the makeshift offices they had established at the Washington, D.C. Health Department and watched them up close for most of a week. I was struck by their dedication — during the crisis their workdays were never shorter than 14-16 hours — by their grace under extraordinary political and media pressure, and by the passion they showed for deploying the skills they had trained so hard to learn. It made me want to know more about them.

The following summer, the CDC allowed me to shadow the entering class of EIS members — the first group to join after September 11 and the anthrax attacks — through their first year of service. *BEATING BACK THE DEVIL* is primarily a narrative of that year.

Is this the first book about the EIS?

This is the first book that is entirely and only concerned with exploring the Epidemic Intelligence Service. EIS members have appeared in other books that were about the CDC or were narratives of disease detection. The grandfather of the modern disease-detective narrative was the late Berton Roueche, a staff writer for *The New Yorker* who described EIS and CDC investigations in the magazine under the rubric "Annals of Medicine." Some of his stories are collected in the book *The Medical Detectives*. EIS members and CDC staff have also appeared in *The Coming Plague*, *The Hot Zone*, *The Demon in the Freezer*, and *The Killer Strain*, among other works.

The CDC is based in Atlanta. So is the story of the EIS only an Atlanta story?

Not at all. EIS members go wherever epidemics occur. The outbreaks and other health problems described in *BEATING BACK THE DEVIL* take place in California, Georgia, Florida, Maryland, New York, Pennsylvania, Washington, D.C., Bangladesh, Malawi, Rwanda (now the Democratic Republic of Congo), Thailand, and Vietnam.

In addition, approximately one-third of the EIS force spends its two years of service based somewhere other than CDC's Atlanta headquarters. At the moment, in fall 2004, there are EIS members posted full-time to state or city health departments in 37* states and territories, including Washington, D.C., as well as to other federal health agencies.

The outbreaks you describe in *BEATING BACK THE DEVIL* have all ended. Why tell the stories now?

Because the work of the EIS touches on much larger themes and issues. To start with, there is the fascination of figuring out the puzzles they encounter. Narratives of disease detection are mystery stories: We know what happened, but not how or why. The epidemiologist is the sleuth who leads us through to the solution.

In addition, the experience of the new EIS officers is one that all of us can empathize with. It follows an ancient storyline: Someone goes on a journey. A youth — in this case, a young scientist — sets out into the unknown, encounters obstacles, wins through to the goal, and returns forever changed. Change dragons to pathogens, make the prize at the end of the struggle personal growth and professional accomplishment — instead of a princess or a hoard of gold — and you will be describing the experience of the EIS.

Those points make the EIS officers sound like walking archetypes, but the work they do and the difficulties they encounter have crucial relevance for the everyday health of the American people. Compared to their medical school and graduate school classmates who go into private practice or take jobs with pharmaceutical companies, EIS officers are not that well-paid. No one in public health is — and after the anthrax attacks, it is no secret that the infrastructure of public health in the United States has been critically underfunded for a very long time.

Yet despite those low salaries and thin resources, the EIS are the ones we will rely on if, or when, a bioterror attack comes again. They are the vanguard of bioterror defense in America, the thin bright line who are entrusted with holding biological warfare at bay. It is important to recognize the potential fragility of that defense, which depends for its strength on the bravery and commitment of a small set of individuals. It is worth knowing who they are.

*The states and territories where current EIS officers are working in fall 2004 include:

Alaska, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Illinois, Iowa, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin, Wyoming, Puerto Rico, and Washington DC.