



epimonitor

THE EPIDEMIOLOGY MONITOR

A monthly update covering people, events, research and key developments

SPECIAL FEATURE

Author Recounts How He Tracked Down and Wrote Stories About Epidemiologists as Medical Detectives

"Inside the Outbreaks" is a new book describing the epidemiologic investigations of budding epidemiologists in the Epidemic Intelligence Service (EIS) at the Centers for Disease Control and Prevention. According to David Oshinsky, author of *Polio: An American Story*, the new book is "...a rare book of medical history---an intriguing and entirely original account of the Epidemic Intelligence Service, the medical detectives who track down and identify the lethal health threats that plague the United States and the larger world, from AIDS, polio and swine flu on the one hand, to bogus drugs, contaminated food, and bioterrorism, on the other. Richly detailed and elegantly written, Mark Pendergrast's account fills an enormous gap in understanding the vital role of epidemiology in safeguarding our future."

Pendergrast attended the annual EIS conference in April in Atlanta and spoke to epidemiologists there about the making of his new book. Because of the anticipated interest readers will have in these epidemiologic investigations, we are publishing Pendergrast's remarks in their entirety in this issue of the newsletter. His remarks provide examples of the many

stories recounted in the book. The Epi Monitor will publish a full review of the book in the upcoming May issue.

Inside the Outbreaks: The Making of a Book

by Mark Pendergrast

I am pleased and quite nervous to be addressing this particular audience. I know how critical EIS officers and alums can be at these EIS conferences. And I'm speaking for 40 minutes rather than the standard ten, so just think what ammunition you can accumulate for the question-and-answer period, which I understand will last for the balance of the hour allotted to my presentation today. At least Alexander Langmuir is not looming in the front row, ready to blast any inaccuracy.

The origin of the idea for the book, *Inside the Outbreaks*, goes back to an email I got in 2004 from my old high school and college friend, Andy Vernon. He wrote that he thought I would be a good candidate to write the history of the EIS. I emailed back to say that I was honored, but what was the EIS? I had never heard of it. I knew Andy worked on tuberculosis at the CDC, but I didn't know that he had been a state-based EIS officer from 1978 to 1980 in Oklahoma.

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"That's exactly the kind of book we want for the EIS, well-researched, accurate, warts-and-all, and told with flair and human interest stories."

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When Andy explained that EIS stood for the Epidemic Intelligence Service, I was intrigued. Was there really an outfit with a name like that? As I learned more, I realized that I had the opportunity to write the first history of an organization that has had a profound impact on the way public health is practiced not only here in the United States, but across the globe.

Why This Writer

I am not sure why the subcommittee of the EIS Alumni Association - Philip Brachman, David Sencer, Steve Thacker, Alan Hinman, and the late Mike Gregg -- agreed that I should write the history. It certainly was not because of my expertise in the field of epidemiology. I had written about the conflicted studies of caffeine in two previous books, *Uncommon Grounds*, a history of coffee, and *For God, Country & Coca-Cola*, a history of the soft drink, but I had never written about infectious or chronic diseases or many other factors affecting public health. Mike Gregg, bless him, loved my Coca-Cola history and said, "That's exactly the kind of book we want for the EIS, well-researched, accurate, warts-and-all, and told with flair and human interest stories."

But I suspect they chose me because I assured them that, unlike another would-be author who never finished the project, I would indeed write the book. I am not an academic. I make my living as a writer. I think they also respected my terms. I told them that I would gladly share my draft chapters to check for accuracy, but that I would not write an "authorized" history that they were free to censor. I would listen to reasonable concerns, but it would ultimately be the book I chose to write, given whatever I discovered in my research. They agreed, probably

because there are remarkably few "warts" in the history of the EIS. It is an organization I have come to admire tremendously.

Appeal of Epi

In fact, were I to go back and choose an alternate career path, I might well try to become an EIS officer. When I interviewed Larry Altman, EIS class of 1963 and long-time New York Times medical reporter, we discussed the many similarities between field epidemiologists and investigative journalists. Both wear out their shoeleather by going where the action is, interviewing salient participants, making personal observations, collecting evidence, reading pertinent background information, and drawing conclusions. (And I should add that both wear out their ears with phone interviews and their fingers on computer keyboards.) Of course, reporters usually aren't scientists and don't use Epi-Info. But both must write clearly worded narratives of what they have encountered. While reporters might add more human interest or anecdotes, EIS officers are subject to greater editorial supervision and revisions. One of the things I came to admire most about the EIS program is that it really teaches you to write. That is one of Langmuir's lasting legacies.

Making the Book

This book took me nearly twice as long as any previous book, even though it covers a shorter time period than my other histories. I could not have survived on the advance from the publisher for that long, so I am extremely grateful to the CDC Foundation and the Josiah Macy, Jr. Foundation for the grants that made the book possible. The project took so long because it involved so many characters

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- *Making of a Book, con't from page 2*

and investigations, making it a challenge to write. I considered organizing it by disease or theme, with a chapter each on polio, cholera, chronic diseases, environmental health, or violence, for instance. But such an approach would have meant jumping around in time, and readers would have lost the historical context. Instead, I wrote the book chronologically, from Langmuir's creation of the EIS in 1951 to the present. That meant that most chapters contain a smorgasbord of investigations that are only loosely connected to one another.

One Chapter

Thus, for example, Chapter 5, "New Discoveries and Mysteries in the Early Sixties," begins with the 1961 hepatitis A outbreaks traced to oysters in Pascagoula, Mississippi, and to clams in Raritan Bay, New Jersey, and then to intentional urination in potato salad at the officers' mess at Cecil Field Naval Air Station in Jacksonville, Florida. Then it shifts to hepatitis B traced to blood transfusions as well as to a New Jersey osteopath-psychiatrist who put IV drips into depressed patients to deliver tranquilizers, vitamins, and "energizers," cross-contaminating with hepatitis B by reusing the same tubing.

Then the chapter jumps to salmonellosis due to raw eggs in cake mixes, which led back to chickenfeed made from contaminated fishmeal. Then I wrote about *Salmonella* hospital infections traced to nutritional drinks made with raw eggs. Onward from there to a remote Bolivian village to retrieve a particularly virulent plague bacillus for the Fort Detrick biological warfare scientists, followed by an apparent outbreak of lethal encephalitis among Guatemalan Mayans that stemmed from mercury fungicide on wheat seeds that the starving Indians had eaten. From

there to leukemia clusters in Niles, Illinois, cholera in the Philippines, Reye syndrome in North Carolina, and finally, a section focusing on Alexander Langmuir in his prime. And that's all just one chapter! Each subsection provides its own dramatic story, suitable for reading at bedtime or, if you have reading habits like mine, while seated on the bathroom throne. As a sample, I'll read the section on cholera I just mentioned:

Deadly Cholera

In 1961, a deadly El Tor strain of cholera began to afflict people in Indonesia. Untreated cholera can kill through dehydration in less than 24 hours. The bacteria spread quickly throughout Southeast Asia, into the Philippines and Thailand, to Taiwan, then west into Iran, Turkey, and into Africa. It was the beginning of the seventh cholera pandemic of modern times.

In 1962, a CDC team, including EIS officers Paul Joseph, Wiley Henry Mosley and a CDC lab scientist, went to Negros Occidental, the western side of an island in the Central Philippines, where they established headquarters in an empty school building converted to an emergency hospital in Bacolod City. The cholera victims were hooked to IV lines with salt water and electrolytes to replace the diarrheal stream that poured out of the patients through holes in the cots into buckets below.

The first distinct outbreak of cholera had occurred from November 1961 through January 1962. Mosley and Joseph knew that cholera bacteria were usually spread in polluted water. The public water supply in Bacolod City did not contain the cholera vibrio, however.

Through retrospective interviews with victims and surviving family members, they found that the epidemic pattern indicated a

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"Each subsection provides its own dramatic story..."

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common source outbreak that began
suddenly in November 1961, built to a peak
in December, and then gradually declined.*

*"I don't believe
in preaching to
readers, at least
not until the end
of a book..."*

The victims were concentrated primarily on the coast, but cases also appeared simultaneously and apparently at random in the island's interior. The EIS officers learned that a popular Filipino seafood, tiny shrimp called hipon, was often eaten raw. The hipon season began in late September and extended through January, matching the epidemic's timing.

"Everyone we could locate from the first epidemic wave had direct contact with raw shrimp," Mosley recalled.

The EIS officers located the probable index case, a 34-year-old photographer who lived on the seacoast in a house on stilts, where his toilet emptied directly into the ocean. On November 4, at 11 p.m., he suffered the onset of severe diarrhea. By 1 a.m., unable to walk, he was taken to the hospital. No one knew how he contracted cholera, but as the final report noted, "because of the pattern of hipon fishing, the hipon distributed in the Bacolod area would be caught literally in his backyard." Once again, raw shellfish from polluted water had led to a devastating epidemic.

No Preaching

This passage introduces cholera, which then reappears throughout the book, including 1968 when EIS officers in Bangladesh tested oral rehydration therapy, one of the most important medical advances of the 20th century. Note that I just tell the stories and allow readers to form their own conclusions. I don't believe in preaching to readers, at least not until the end of a book, when I figure I have earned the right to have my say. For that reason, *Inside the Outbreaks* is likely to provide fodder for public health analysts for years to come. And I do hope that, despite the

rather garish, cartoonish cover, the book will be used as a supplementary textbook. It's certainly a bargain compared to the price students pay for most public health textbooks, and I daresay it's easier to read than many others.

By the way, if that section I read seems rather brief, bear in mind that my original manuscript was twice as long as the published book. I had to cut some sections entirely, but mostly I had to prune, and that meant that some of the more colorful details had to be deleted. I got permission from Houghton Mifflin Harcourt to put the uncut version on Emory University's website a year after publication, so it will be available in 2011. I already donated all of my research material to the Manuscript, Archives and Rare Book Library at Emory.

EIS Beginnings

Despite the book's disparate contents, there are narrative threads that weave throughout the book. Alexander Langmuir himself provides one such thread. The founder of the Epidemic Intelligence Service was a visionary leader who put his personal stamp on this institution. "We'll get EIS officers on an epidemic as fast as we can," he said. "Throw them overboard. See if they can swim, and if they can't, throw them a life ring, pull them out and throw them in again." Although the lifelines and support systems for EIS officers are far more extensive and sophisticated today than in Langmuir's time, that approach remains essentially the same. Without knowing it, Puneet Dewan, class of 2001, echoed Langmuir when he told me, "The EIS is a unique experience that permits you to work on things you would never possibly be able to do otherwise, develop expertise

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rapidly or fall on your face."

The rituals and institutions that Langmuir established have proven to be remarkably hardy. This April conference is a case in point, a wonderful springtime introduction to Atlanta for new EIS recruits who can marvel at the amazing presentations – talk about a smorgasbord! – while being wooed and assessed (and simultaneously wooing and assessing) in this EIS version of a fraternity/sorority rush. They then return to Atlanta in the sweltering July heat for intense training, during which EIS officers make friends that often last a lifetime.

Langmuir

I don't have time for a full assessment of Langmuir here. "Working closely with Alex was a treat and a challenge," the late Russ Alexander told me. "He didn't really care about how much work something took, he just wanted it done. And he relished an argument." Langmuir was a complex man and certainly no public health saint. But let me quote these three sentences from the book:

On November 22, 1993, Alexander Langmuir died of kidney cancer at the age of 83. His forceful presence and perfectionism had set high standards for scientific rigor, clear writing, and diligence in the field. He had introduced the concept of surveillance in public health and led the EIS into new areas such as family planning, chronic diseases, environmental health, birth defects, toxic hazards, occupational health, drug addiction, famines, disasters, and international health.

Polio

Diseases provide other narrative threads. Polio, for instance, provides a major focus from the beginning, when EIS officers studied possible fly transmission, then put the EIS on the map during the 1955 Cutter Incident, when virulent live virus survived in some polio vaccines, thus paralyzing some recipients. I wrote about the 1962 decision to switch from the Salk killed injected vaccine to the Sabin oral live attenuated polio vaccine, the subsequent surveillance that revealed how children and their parents sometimes contracted polio as a result of the oral vaccine, the eventual decision to switch back to the killed vaccine in the United States, and the current pursuit of polio eradication that is tantalizingly close to success but still frustratingly difficult.

Similarly, readers can follow threads throughout the book about malaria, Reye syndrome, *Salmonella*, diarrhea, smallpox, natural disasters, problematical alternative medicines, *E. coli*, injuries, AIDS, Ebola, and other health problems.

Politics

Another thread traces the evolution of more complex epidemiological methods, from simple description epi and cohort studies to case control studies, random sampling, and multivariate analysis.

Another is the impact of politics and global events on EIS investigations, from the Cold War fear of biological warfare that helped create the Epidemic Intelligence Service, to the Reagan administration's shameful neglect of AIDS, to the Bush and now Obama years. And on another level, there are the politics of the CDC and the Public Health Service. For years the CDC flew

"The rituals and institutions that Langmuir established have proven to be remarkably hardy."

"He didn't really care about how much work something took, he just wanted it done."

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under most governmental radar, hiding out here in Atlanta, but that ended with Legionnaire's disease and the national vaccination campaign against the swine flu epidemic that failed to materialize in 1976, which I covered in a chapter called "The Year of Living Dangerously." That year also introduced Ebola and Legionnaires' disease.

"Inspired by an auto advertising slogan, 'Dodge Fever, Catch It!' Tom Glick named the mysterious ailment Pontiac Fever."

Mysteries

Unsolved mysteries provide another thread. EIS officers don't always break every case, at least not right away. I am reading now from Chapter 8:

On Friday afternoon, July 5, 1968, the director of the Oakland County Health Department, based in Pontiac, Michigan, called for help. Most of his employees were sick with headaches, chest pains, aching muscles, chills, and fevers. He was ill himself.

That night, Tom Glick, an EIS officer in the Viral Diseases Branch, and EIS colleague Ira Kassanoff departed for Pontiac along with a CDC lab scientist. Over the weekend, the three investigators worked alone in the sweltering health building, which housed the administrative staff, medical and dental clinics, and a diagnostic laboratory in the basement. They didn't turn on the air conditioning for fear that doing so might spread the disease.

The epidemic had begun on Tuesday, July 2, affecting over half those who worked there. More got ill the following day. By the time the EIS officers arrived, 90 of the 104 employees were sick. Inspired by an auto advertising slogan, "Dodge Fever, Catch It!" Tom Glick named the mysterious ailment Pontiac Fever. Four employees who had gone on vacation at the end of June were fine, so it appeared that whatever afflicted people had begun on Monday, July 1. Although the epidemic clearly stemmed

from a common source, it couldn't be the water fountain, which 24 employees denied using. Many clinic patients and visitors also contracted Pontiac fever. The severity of the disease was the same, regardless of exposure time.

The epidemiologists concluded that the disease must be carried in the air. By Monday morning, most employees were feeling better and returned to work. With the temperature over 90 degrees Fahrenheit, they turned on the air conditioning. The EIS officers continued to track down leads. What recent changes had taken place? Workmen had installed lightning rods on the roof. In June, the nearby sanitarium's parking lot had been torn up and extended towards the health building, raising clouds of dust. Some pipes had been repainted in the basement. There had been torrential rains near the end of June, followed by a heat wave.

By Tuesday night, Glick and his colleagues had severe headaches. They felt terrible and could only lie miserably in bed. They had Pontiac Fever. Using their own cases, it was easy to calculate a two-day incubation period. The air conditioning system must be spreading whatever it was. Over the next few weeks, CDC sent two waves of reinforcements, including veterinarians, toxicologists, zoologists, sanitary engineers, mycologists, and bacteriologists. Many of them got sick, too.

The building was shut down on July 15. Blood and stool samples were checked, but lab experts could find nothing. Recent EIS grad Mike Gregg, the head of the CDC Viral Disease Branch, arrived in late July. He turned his attention to the air conditioning, which consisted of two separate systems.

In one, air circulated over cooling coils sprayed with recycled water from the tank at the base of the unit. The second took in

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"CDC sent two waves of reinforcements..."

fresh air that was cooled as it passed near the cooling coils and thence into the building. Gregg stood inside the huge intake duct on the roof for fifteen minutes, just looking. He found a dead bird. "I thought that the good Lord would give me an answer. Two days later I got it." What he got was Pontiac Fever.

Later in the book, the mystery is solved. Pontiac Fever was caused by a variant of the *Legionella* bacillus, though it was apparently more infectious and less lethal than the variety that afflicted the Legionnaires in Philadelphia.

Research

Let me talk briefly about how I conducted research for the book. I got a great jump-start by viewing *Ripples in the Waters of Epidemiology*, David Sencer's oral history interviews with selected EIS veterans. I interviewed about 500 EIS alums, many in person as I traveled around the United States, then to Geneva. In Niger, I followed EIS officers Natasha Hochberg and Jamie Eliades, who were assessing the nation-wide distribution of insecticide-treated bednets, and in Kenya I followed Ciara O'Reilly, who was assessing the impact of the Safe Water System in rural elementary schools.

Many EIS alums also wrote my "five-pager" request, a sort of EIS autobiography. I photocopied Steve Thacker's and Philip Brachman's file cabinets. I read *EIS Bulletins* and other CDC newsletters and annual reports. I looked through some of Langmuir's papers and old scrapbooks at the CDC Global Health Odyssey. I pawed through CDC files at the Southeast Region repository of the National Archives and at the Federal Records Center, both here in Georgia, and various other archives elsewhere. I

hired assistant researchers to help out, especially with Langmuir's papers at Johns Hopkins. I read endless Epi-Aids and papers from medical journals. And I asked EIS alums for their old letters and diaries.

A Diary

Sometimes I hit pay dirt, as with the diaries that Matt Loewentstein had kept from his time in the Biafran enclave of Nigeria. Here is the section I wrote as a result:

On Sunday, January 4, 1970, EIS officer Matt Loewentstein arrived in Port Harcourt. "Welcome to Nigeria, where babies are happy and healthy," read a sign near the airport. By the time the war officially ended on January 15, Loewentstein had set up in Owerri, inside the former Biafra, along with the Austrian Red Cross, Lutherans, and other agencies, trying to conduct surveillance and emergency feeding in the midst of utter chaos. Regardless of their condition, Ibo refugees streamed back to their home villages. "It was extraordinary, this desire to get home at all costs," Loewentstein remembered.

Attempts to feed refugees on the Port Harcourt-Owerri Road were disastrous. "Total debacle," Loewentstein wrote in his diary on January 15. "Dumped food...was never distributed. 200 bags already brought to Owerri are missing." He also discovered that many fearful, starving Ibos were fleeing into the bush. "Situation is very grave," he wrote on January 18. "Only the healthy are on the roads. Sick in bush and small villages... One village had closed sick bay with 150 patients day before because of no food."

Loewentstein wrote on January 23: "People in Owerri are in danger of panicking. Supposedly help is on the way.... We will

"I interviewed about 500 EIS alums..."

"Sometimes I hit pay dirt, as with the diaries that Matt Loewentstein had kept from his time in the Biafran enclave of Nigeria."

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have to stop feeding in Owerri to prevent
the thousands from storming the town each
day."*

***"You felt you
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life."***

By January 31, some order had been established. "I'm getting more optimistic," he wrote in his diary. "We're now up to 85 sick bays and orphanages." Yet on the same day, he got a letter from the Egbu Sick Bay: "The little food which you brought us on the 27th Jan. 1970 is finished. The children are starving terribly."

Even when sufficient food arrived, getting it quickly to the sick bays and feeding stations was difficult. It took time to redistribute from warehouses, so Loewenstein did away with them entirely. Ten-ton Leland trucks from Port Harcourt were met by smaller local trucks for distribution to sick bays. Because of the extraordinary circumstances, Loewenstein got permission to stay beyond the 60-day limit. By the time he left on March 28, 1970, the relief effort was functioning relatively smoothly, but the six-foot-plus EIS officer weighed 140 pounds, having lost 40 while in Nigeria. "I worked 120 hours a week," Loewenstein said. "You felt you would never again do anything this important in your life."

***"He was clubbed
over the head and
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paramedical
assistant threw
himself over his
prone body."***

These sections provide good illustrations of how I tried to convey the suspense and drama of each episode as it evolved, a sort of "you-are-there" approach. Even when most readers know how it all came out – i. e., smallpox was eradicated, or AIDS was transmitted by the HIV virus in blood – I want them to relive how it looked to the EIS officers at that moment. Here is an example in which I cheated a little, using an EIS alum as a character instead of a then-current officer:

Smallpox

Steve Jones, former EIS officer, was sent in June 1974 to the Bihar district of

Muzafarpur near Nepal. "The first few nights I lay there in this tiny bungalow with bugs all over me and geckos on the ceiling, thinking, What the hell am I doing here?" But at the end of his first three months, he signed up again and ended up staying in India, then Bangladesh, for two years, helping to train other eradicators. "In five months, we went from 100 infected villages in Muzafarpur to very few. That was the addictive thing about smallpox eradication. There were no small steps."

One moonlit night, Jones investigated a case of possible smallpox in a small child. "It was obviously chickenpox," he recalled. "But the rule was that you vaccinated the household anyway," since one pox could be mistaken for the other. A young man in the house refused, but Jones held his arm and poked it with the bifurcated needle the requisite 15 times. When Jones went outside, an angry crowd had gathered. "They thought we were robbers." He was clubbed over the head and was saved from being beaten to death when his paramedical assistant threw himself over his prone body.

Jones realized that his overzealousness could backfire. "But I didn't use force a lot. And we were trying to accomplish this great thing. Smallpox was a killer."

Another thread in the book involves psychosomatic diseases such as mass hysteria that caused rashes in rural Alabama school children. This may also include some cases of chronic fatigue syndrome and Gulf War syndrome covered in the book.

Reye Syndrome

Yet another thread is the growing diversity of EIS officers. In the 1950s, most were white male physicians. Today over half are women, around a fifth are members of minority/ethnic groups, and a substantial number of

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officers arrive from other countries. Many are non-physicians. Another thread in the book is how the EIS network helps to solve cases, with alums passing on information to current officers. Take this example involving Reye syndrome:

In December, a flu epidemic hit Phoenix. The day after Christmas, EIS officer Karen Starko, working at the Arizona Department of Health Services, got a call from EIS alum John Sullivan-Bolyai, who was doing his pediatric residency in Phoenix. He had learned of seven cases of Reye's syndrome in children in three Phoenix hospitals and thought she might want to investigate this cluster.

Starko visited several of the children -- five girls, two boys -- in the hospital. They were in comas, on life support, holes drilled in their skulls to relieve the pressure. Within days, two were dead. She spoke to their parents. These had all been healthy, normal children who had had apparently routine bouts of influenza. After a day or two, the kids were out of bed, feeling better. Suddenly they began to vomit relentlessly, then became sleepy, delirious or combative, and finally fell into a coma.

Starko initiated a case-control study in January 1979, choosing as controls 16 of the victims' elementary school classmates who had come down with flu and recovered uneventfully. Her questionnaire focused on the week prior to illness, asking about symptoms, medications, type of home heating, pets, and immunizations. In February, she began to analyze the results, but figuring out what was in the various medications proved to be a challenge. There were decongestants, gum, lozenges, and Pepto-Bismol, as well as aspirin (acetylsalicylic acid) and Tylenol (acetaminophen). After research and several visits to drug stores to study labels, Starko compiled her results.

Aspirin. All seven children who developed Reye's syndrome had taken aspirin (salicylates) in one form or another, compared to half of the controls, and the cases took it in heavier doses.

*Starko did some research. She found that EIS officer David Reynolds had investigated 11 fatal cases of Reye's syndrome in Oklahoma from October 1968 through June 1970. EIS alum Calvin Linnemann had reported in 1974 on 24 Ohio children with Reye's syndrome. All of the victims in both studies had taken aspirin. Starko brought her data to Larry Schonberger in *Viral Diseases*, but he said, "Gee, I think previous EIS officers looked at aspirin before in some studies and it was dismissed." Stunned, she asked him to find the paper that ruled out aspirin.*

A few weeks later, Schonberger called. He had reviewed studies by EIS officers Tom Glick (1967-1969) and Larry Corey (1973-1975). Over half of the victims in Glick's study had taken aspirin, and he had not looked in brand-name medications. Corey had studied hundreds of cases during a nationwide influenza B epidemic, and 78 percent had taken aspirin. Schonberger had also looked at the medical records of a baby with Reye's syndrome from his EIS days. She had been given aspirin.

Another thread in the book is how businesses sometimes put profits ahead of public health, as in the case of Reye syndrome.

Jumping to the end of that section:

In June 1980 the Surgeon General issued an advisory and the FDA proposed a warning label on aspirin. The aspirin industry demanded more studies and successfully delayed a warning label on salicylate-containing medication until 1986. From 1981 through 1985, over a thousand U. S.

"The aspirin industry demanded more studies and successfully delayed a warning label on salicylate-containing medication until 1986."

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children contracted Reye's syndrome, with
291 deaths.*

*Up to a third of the survivors probably
suffered permanent brain damage.
Publicity about the hazards of aspirin,
including that generated by the EIS officers,
gradually reduced its use for children, so
that Reye's cases in the United States fell
from a peak of 555 in 1980 to 36 in 1987,
and finally to just two cases in 1997, by
which time most children's medication no
longer contained aspirin.*

More Themes

Other themes that thread throughout the book are: increasing microbial drug resistance to antibiotics, emerging infections, and the broadening EIS/CDC involvement in chronic diseases and behavioral factors such as smoking, drinking, suicide, and violence – and now looking at the public health impact of climate change.

The Disadvantaged

Another theme that emerges throughout the book is that a disproportionate number of health problems afflict the underprivileged, the poor, the oppressed. The EIS is not a political organization, but it certainly attracts compassionate, idealistic individuals who look at the broader picture. "EIS is the emergency room of public medicine," said EIS alum Jim Buehler. "For many problems, the things you study with the tools of field epidemiology are the more superficial manifestations of things that go deeper – racism, poverty, underemployment, inadequate access to medical care. We come in to sort out what tipped the balance so that bad things happened. But we seldom deal with the underlying causes." Yet Epidemic Intelligence Service officers can shine a spotlight and suggest solutions.

Yet another thread is the lesson that individuals, with their own particular interests and personalities, can make such a difference. What if D. A. Henderson had not suggested taking on smallpox as well as measles in Africa, and what if he had not had such a powerful personality in directing smallpox eradication at the World Health Organization? What if Bill Foege had not run out of sufficient smallpox vaccine in Nigeria and so discovered the efficacy of surveillance-containment? What if Karen Starke had not been interested in Reye syndrome, or Godfrey Oakley in neural tube defects, or Wally Schlech in listeriosis or Anne Schuchat in group B strep or Tom Frieden in multiple-drug resistant TB in New York City? The list could go on and on.

EIS Officer Reactions

In summary, I would like to quote from the book's epilogue, "The EIS Legacy," about the nature and importance of the EIS:

Many felt instantly at home in this CDC program. "When I came to EIS," Sue Binder recalled, "I found myself with people I would have chosen as friends. They were intelligent, active, had good politics, cared about people, wanted to make a difference." Similarly, Pia MacDonald called her EIS colleagues "the most interesting, neat people I ever met in my life." Patrick Moore added: "Most EIS recruits are not run-of-the-mill people. They aren't doing it to make lots of money. We really felt we were putting ourselves at risk, selflessly facing down bad diseases to help other people."

In the early years, most physicians joined the EIS to avoid the draft, but many remained in public health once they realized

-Making of a Book, continues on page 11

"We come in to sort out what tipped the balance so that bad things happened. But we seldom deal with the underlying causes."

-Making of a Book, con't from page 10 that they could have such a powerful impact on thousands of lives. That same realization occurred to latter-day officers such as Scott Harper, who observed: "Working as an EIS officer in public health was exciting, important, and satisfying. Whether investigating an outbreak or writing policy for vaccines, I had the opportunity to affect many more people's lives than a clinician seeing 30 people a day."

"I'm blessed to be part of the EIS cycle," Amanda Sue Niskar said. "For every outbreak the media hears about, there are so many more that never happened because we did our job." Kay Kreiss recalled thinking, "This is the best job I'm ever going to have, with infinite backup and no administrative responsibility."

Scott Holmberg added: "Being dropped into an outbreak, given the authority to investigate it and do the detective work, then apply that knowledge to curbing the current outbreak and preventing future ones – there's no better work in the world. Wherever you go, everybody wants the same two things – peace and prosperity. It doesn't matter whether their lips are stretched and they are dyed blue, or whether they sit in front of a computer. They are worried about family, friends, tribe, nation."

Author Perspectives

I then went on to provide a quick summary of illustrious EIS alums and how they have influenced public health. You can read that for yourselves, but it is an incomplete list anyway. I also wrote about EIS clones, the Field Epidemiology Training Programs around the world. And I concluded the book with these two paragraphs:

In 1951, Alexander Langmuir seized a Cold War opportunity to fund a small training

program for young epidemiologists who would keep an eye out for biological warfare while responding promptly to unintentional epidemics. Today these EIS officers are the world's premier front-line disease detectives.

For an obscure government program, the Epidemic Intelligence Service has produced remarkable results. Perhaps it has done so in part by remaining relatively small, nimble, and flexible. One of the lessons of the EIS history is the impact that one person can have. Put creative, intelligent, well-trained, motivated individuals into the right environment, and the outcome can save lives and lead to vital careers. EIS officers and alums have had an impact far beyond their original numbers. Today, with global public health bedeviled by substantial threats, the life-saving work performed around the world by these shoeleather epidemiologists is more essential than ever. The EIS program and its offspring have, in short, influenced and defined how field epidemiology and public health are practiced on our planet. ■

"Being dropped into an outbreak, given the authority to investigate it and do the detective work, then apply that knowledge to curbing the current outbreak and preventing future ones – there's no better work in the world."

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Excerpts from Selected Reviews

“**Mark Pendergrast** is at his best when telling a big story, and this story is huge-- nothing less than the development of epidemiology in the second half of the 20th century, in all its imagination and frustration, success and failure, selflessness and selfishness, controversy and yes, heroism.” -- **Tim Brookes, author of *The End of Polio***

“**Pendergrast** has captured the rapid pulse, sweaty palms, and intellectual, geographic, political and personal challenges of EIS outbreak investigations.” -- **Joe McCormick, author of *Level 4: Virus Hunters of the CDC***

“**Inside the Outbreaks** recounts a wide sweep of stories gleaned from outbreaks ranging from Manhattan to Mali, from cholera to birth defects, from hut-to-hut visits in the developing world to sophisticated mathematical models in the developed, and from a cluster of a few cases to pandemics involving millions of people.” -- **Scott Holmberg, author of *Scientific Errors and Controversies in the U.S. HIV/AIDS Epidemic***

“In a direct, eloquent and understated manner, Mark Pendergrast has documented a largely unknown history that provides a window into the investigative work of generations of EIS Officers. *Inside the Outbreaks* is remarkable. -- **Keiji Fukuda, Pandemic Influenza Special Advisor, World Health Organization**

“From identification and control of hospital infections, contaminated hamburgers, toxic shock syndrome, untested alternative medicines, HIV, lead and mercury, to battles against the scourges of millennia (smallpox, polio, measles, suicide), **Pendergrast’s** book is a tour de force.” -- **Karen Starko, (EIS ‘78)**

“Brilliant sleuthing has reduced risks to our health. But Pendergrast shows how every EIS success is followed by new problems. Inside the Outbreaks is an intriguing, revealing, sobering look at the natural and person-made risks that stalk our daily activities.” -- **Bill Foege, Senior Fellow, Global Health Program, Bill and Melinda Gates Foundation**

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The Epi Job Bank provides capsule listings of all known job opportunities currently available in epidemiology. Any employer may list one or more available jobs free of charge until filled. Listings are revised and updated monthly. To add new listings or to notify us when vacancies have been filled, please call the Epi Monitor: 770/594-1613 or fax: 770/594-0997. Bullets (•) before state indicate new listings. Asterisks (*) indicate fax numbers. Oao=open as of (the date listed). Cd=closing date of (the date listed).

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Canada	Fredericton	New Brunswick Cancer	Senior Epidemiologist	PHD in Epi	Amanda Carroll	508/444-2360	www.gnb.ca/0163/employ-e.asp	oao 04/13/10
Canada	Fredericton	New Brunswick Cancer	Biostatistician	Masters in Biostat	Amanda Carroll	508/444-2360	www.gnb.ca/0163/employ-e.asp	oao 04/13/10
France	Lyon	IARC	Postdoctoral Fellowship	PhD	Rayjean Hung	*+33472738342	hung@iarc.fr	oao 04/13/10
Greece	Athens	Univ. of Athens	Biostatistician	PHD/MSc w/pub	Elena Riza	*+30/2107462058	eriza@med.uoa.gr	oao 04/13/10
India	Jaipur	Vatsalya	Data Analyst	MPH	Atul Panday	9829928653	Atul_panday2001@yahoo.com	oao 04/13/10
Peru	Lima	Int'l Potato Center	Leader of Agriculture	PHD in Epi	Rosario Marcovich	+51 1 349 6017	CIP-Recruitment@cgiar.org	oao 04/13/10
*Puerto Rico	Ponce	Ponce	Director (PH)	Doctoral	R. Ivan Iriarte	787/840-2575	iiriarte@psm.edu	oao 04/13/10
Saudia Arabia	Riyadh	Field Epi Trng Prog	Med Epi	PHD	Dr. Nasser Al-Hamdan	+996/1/4939675	nhamdan@fetp.edu.sa	oao 04/13/10
Spain	Barcelona	CREAL	Research Position-Biostat	solid biostat	Josep-Maria Anto		jmanto@imim.es	oao 04/13/10
Switzerland		Fearn Associates	Molecular Epidemiologist	PhD-biostat or ep	Information		info@fearn-associates.com	oao 04/13/10
*Switzerland	Allschwil	Actelion	Epidemiologist	PHD/MD, MPH	Donat Laemmle	+41615656503	donat.laemmle@actelion.com	oao 04/13/10
Thailand	Bangkok	PATH	Chief of Party	Mas/Doc in epi	Dorothy Culjat	202/285-3500	pathjobs@mail.path.org	oao 04/13/10
UK	London	LSHTM	MSc PHDC	MPH	Vinod Bura	+44 7726472650	vinod.bura@gmail.com	oao 04/13/10

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Junior Epidemiologist

Experienced SAS programmer capable of working with large data sets. Familiarity with Medicare and other claims data is preferred, including experience with preparing Medicare and other claim files for analysis. The candidate will be expected to write valid methodological sections related to this work for grant proposals to external funding agencies. The individual will be an integral member of the National Center of Health Disparities Research at Meharry Medical College and the Department of Family and Community Medicine in an active research program dedicated to reduction and elimination of racial and ethnic health disparities. Must have at least a Master's degree with a preference in Statistics, Epidemiology, Public Health (with a concentration in epidemiology and/or biostatistics), and Social Sciences but related fields leading to the required experience will also be considered. A minimum of 3 years experience in managing and analyzing data sets with SAS is required. For information, please send CV to:

Roger Zoorob MD MPH Professor and Chair

Email rzoorob@mmc.edu

Or via US Mail at:

Meharry Medical College

Family and Community Medicine

Attn: Roger Zoorob

1005 Dr DB Todd Jr Blvd

Nashville, TN 37208

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6th Annual NICHD-IHDCYH Summer Institute in Reproductive and Perinatal Epidemiology

The Epidemiology Branch of the *Eunice Kennedy Shriver* National Institute of Child Health & Human Development (NICHD) and CIHR's Institute of Human Development, Child and Youth Health (IHDCYH) are pleased to announce their 6th annual Summer Institute in Reproductive and Perinatal Epidemiology. The Institute will be held from July 11-17, 2010, at Harbortowne Conference Centre, St. Michaels, Maryland. We invite applications from doctoral students and clinical fellows enrolled in a graduate research degree program who are planning to pursue a research career in reproductive or perinatal epidemiology. The Summer Institute is open to participants from the US, Canada, and low- and middle-income countries. The week-long Summer Institute will provide substantive and methodologic training in human fecundity and fertility, pregnancy complications, maternal health, and fetal and infant outcomes, as well as promising new approaches for studying these issues. A combined didactic and case-based curriculum will be offered by faculty affiliated with NICHD and IHDCYH.

Up to 20 qualified students will be selected. Participants will be awarded a stipend of up to \$1,500 USD to cover travel expenses; in addition, lodging and meals will be covered by NICHD and IHDCYH. Eligible students and fellows are invited to submit a brief (2-page) cover letter stating their professional status and goals with regard to reproductive and perinatal epidemiology, curriculum vitae (maximum of 2 pages), and two letters of support. All documents must be received by **April 1st, 2010**. Applications will be reviewed by an Institute faculty committee with regard to: 1) personal statement of professional research interests and career plans; 2) evidence of graduate-level training in epidemiology and biostatistics; and 3) letters of support. Unsuccessful applicants to the 2009 Summer Institute can resubmit their 2009 letters of support (if still applicable). Priority will be given to students/fellows with demonstrated excellence in this field, including practical research experience and peer-reviewed publications. Selections will be made by **May 15, 2010**.

For more information on the 6th Annual NICHD-IHDCYH Summer Institute in Reproductive and Perinatal Epidemiology, please visit the IHDCYH website at: <http://www.cihr-irsc.gc.ca/e/35611.html>

Applications should be submitted electronically to: Anick Lambert or Lindsay Wallace (CIHR-IHDCYH)
E-mail address: IHDCYH-IDSEA@cihr-irsc.gc.ca; Telephone: 514-412-4414

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April 7-8, 2010	Atlanta, GA
July 22-23, 2010	Research Triangle Park, NC
October 21-22, 2010	Washington, DC

Descriptive Procedures Course

April 21-23, 2010	Washington, DC
July 19-21, 2010	Research Triangle Park, NC
September 22-24, 2010	Washington, DC

Modeling Procedures Course

May 26-28, 2010	Washington, DC
October 13-15, 2010	Washington, DC

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SUDAAN Statistical Software Center

Phone: 919-541-6602

Email: sudaan@rti.org

CAREER MARKETPLACE

28TH ANNUAL GRADUATE SUMMER INSTITUTE OF EPIDEMIOLOGY AND BIostatISTICS

Johns Hopkins Bloomberg School of Public Health

JUNE 14 – JULY 2, 2010

2010 Course Offerings*

THREE-WEEK COURSES

Principles of Epidemiology
Observational Epidemiology
Statistical Reasoning in Public Health I
Statistical Reasoning in Public Health II

ONE-WEEK COURSES

Applications of the Case-Control Method
Methods and Applications of Cohort Studies
Clinical Trials: Issues and Controversies
Bayesian Adaptive Trials
Conducting Epidemiological Research
New Perspectives on Management of Epidemiologic Studies
Topics in Clinical Trials Management
Comparative Effectiveness Research:
Patient Reported Outcomes
Pharmacoepidemiology
Introduction to the SAS Statistical Package
Longitudinal Data Analysis
Data Analysis Workshop I
Data Analysis Workshop II
Advanced Data Analysis Workshop III
Survival Analysis

Biostatistics Analysis of Epidemiologic Data I:
Logistic Regression
Biostatistics Analysis of Epidemiologic Data II:
Poisson and Conditional Logistic Regression
Analysis
Biostatistics Analysis of Epidemiologic Data III:
Semiparametric Methods
Family Based Genetic Epidemiology
Molecular Biology for Genetic Epidemiology
Genetic Epidemiology in Populations
Gene Expression Data Analysis
Infectious Disease Epidemiology
Public Health Dimensions of Global Tuberculosis
Control
Epidemiology of HIV/AIDS
Advanced Issues of HIV/AIDS
Social Epidemiology
Multilevel Models
Epidemiologic Applications of GIS
Nutritional Epidemiology
Introduction to Diabetes and Obesity Epidemiology
Epidemiology in Evidence Based Policy
Epidemiologic Methods for Planning and Evaluating
Health Services
Ethics Issues of Human Subjects Research
in Developing Countries

ONE-DAY WORKSHOPS

Critical Reading of Epidemiologic Literature
Methods for Clinical and Translational Research
Causal Inference with Latent Variable Models

DIRECTOR:

Moyses Szklo, MD, DrPH, MPH

THE INSTITUTE WILL BE HELD AT:

Johns Hopkins
Bloomberg School of Public Health
Baltimore, Maryland

FOR INFORMATION, PLEASE CONTACT:

Ayesha Khan, Coordinator
Graduate Summer Institute
of Epidemiology and Biostatistics
615 North Wolfe Street
Baltimore, MD 21205
410-955-7158
Fax: 410-955-0863
Email: akhan@jhsph.edu
www.jhsph.edu/summerepi



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*Course offerings and faculty are subject to change. Proficiency in English language is required.

**ASSOCIATE/FULL PROFESSOR,
AGING EPIDEMIOLOGY**

The Department of Epidemiology, Graduate School of Public Health, University of Pittsburgh invites applications for a full-time senior faculty position at the level of Associate or Full Professor as part of the newly established Center for Aging and Population Health (CAPH) based in the Department of Epidemiology. The individual we seek will have a doctoral degree and training in the epidemiology of aging, with research experience including but not limited to the epidemiology of healthy aging, mobility, and neuroimaging, or aging and global health. The individual will have experience in study design and administration, data analysis, proposal writing and manuscript preparation. The successful candidate will be responsible for establishing independent research through scientific applications for funding and published manuscripts. The individual will also be expected to take on doctoral students and develop or take over a course within the epidemiology of aging graduate education program. This position is in the tenure stream. Salary and rank will be commensurate with experience. Applications will be reviewed until positions are filled. Send letter of intent, curriculum vitae, and the names of three references to: Position # 0117715, c/o D. Bushey, Department of Epidemiology, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA 15261.

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Public Health Surveillance Course

Directed by: Philip S. Brachman, M.D.

This course is scheduled from **June 7-11, 2010**. It is a comprehensive up-to-date course on public health surveillance and includes discussions of the history, planning, data sources and collection, analysis and data interpretation, communication, evaluation, ethical and legal issues, state and local issues, and issues in developing countries as concerns public health surveillance. Tuition: \$650, fee includes textbook and course materials. Meals and housing extra. Classes will be held at Emory University in Atlanta, Georgia and will be taught by Emory University faculty and the Centers for Disease Control and Prevention staff.

We also have other courses such as:

- Epidemiology in Action (April 26-May 7, 2010)
- Epi Info: Basic Level (May 17-19, 2010)
- Epi Info: Int/Adv Level (May 20-22, 2010)

Contact: Pia Valeriano, MBA, Program Coordinator
Phone 404-727-3485; Email: pvaleri@emory.edu
Website: <http://www.sph.emory.edu/EPICOURSES>

The University of Chicago Comprehensive Cancer Center

Specific Title: Technical Director, Epidemiology and Research Recruitment Core (ERRC)

Division/Department: University of Chicago Comprehensive Cancer Center (UCCCC)

General Summary:

The University of Chicago Comprehensive Cancer Center (UCCCC) is an integral component of the Biological Sciences Division (BSD). It is the largest of four Divisions of the University and includes the Pritzker School of Medicine. UCCCC administers six established scientific programs, while the Cancer Center Support Grant provides funding for thirteen Shared Facilities. In response to the expansion of population research, the UCCCC is establishing an Epidemiology and Research Recruitment Core. The core will have a faculty-level Scientific Director and a senior staff member who will be the full time Technical Director of this new shared resource. Summary of core functions include: day-to-day oversight of the Core and Core staff; strategic planning; staff education; regulatory management; grant preparation.

The Technical Director of the ERRC will be responsible for identifying faculty needs, developing appropriate services, and providing administrative, financial and technical direction to the Core. In addition to other potential services such as interviewing, the core will play an integral role in the recruitment of subjects and relevant data, including biospecimen samples in hospital- and population-based research studies in cancer. The Technical Director will work closely with the Scientific Director, UCCCC leadership and population researchers, to design and oversee Core staff in designing and planning approaches for subjects recruitment, eliciting informed consent, and collection of data and biospecimen samples for cancer related research studies. In addition, the Technical Director will participate in strategic planning with respect to the core and the recruitment of additional Core staff.

Qualifications:

Advanced degree (PhD, DrPH) or must have received degree by start date, in epidemiology, public health or related field required. Strong familiarity with research methods, study designs, recruitment and interview procedures and data/sample collection processes and associated trouble shooting required. Exceptional organizational, communication, writing and leadership skills required. Strong problem solving skills for development and implementation of efficient work processes required. Ability to provide senior guidance for the study design and methods related to the development and implementation of participant identification, recruitment, and interview procedures and associated informatics and database management is required. Knowledge of legal and ethical standards for the use of human subjects in research institutions preferred. Demonstrated experience in research oversight, project management and strong presentation skills preferred. A cover letter and resume are required to be considered for this position.

To apply for this position, please paste link below to internet browser:
jobopportunities.uchicago.edu/applicants/Central?quickFind=206228
Requisition Number: 084075

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**CLINICAL EPIDEMIOLOGIST
ASSISTANT/ASSOCIATE PROFESSOR**

The Department of Surgery in the College of Medicine and the Center for Clinical and Translational Science (CCTS) at the University of Vermont seek applicants for a tenure-track faculty position as a clinical epidemiologist concerned with cancer prevention and control, with interests in cancer screening. The University implements several registry systems including the Vermont Breast Cancer Surveillance System (VBCSS) incorporating a state-wide mammography registry allied with a national consortium.

Responsibilities: (1) provide leadership for current research projects in population-level research concerned with cancer prevention and control, including a state-wide breast cancer screening registry (VBCSS); (2) develop new projects in related areas; (3) support interdisciplinary research collaborations through the CCTS. Teach clinical epidemiology: (1) to students enrolled in the educational and career development programs of the CCTS; (2) to medical students; (3) mentor junior faculty and residents. Participate in the activities of the university and/or community.

Qualifications: Expertise in clinical epidemiology and cancer screening or related areas; knowledge of health services research theory and methods; demonstrated success in obtaining peer-reviewed funding for research projects; demonstrated success in peer-reviewed research publications; demonstrated success in teaching; doctoral degree in epidemiology or health services research or related field. The University of Vermont is committed to increasing the representation of women and minority members among its faculty and encourages applications from these candidates. For further information contact Prof. Berta Geller at (802) 656 4115 or (Berta.Geller@uvm.edu).

Applications: Please apply by sending a curriculum vitae and a letter containing a statement of research interests to the Search Committee Chair: Brian Flynn ScD, c/o Jeanne Jackson, University of Vermont, 267FL4 - MC Campus, 111 Colchester Avenue, Burlington, VT 05401 (jeanne.jackson@vtmednet.org) or through the University of Vermont Human Resources system at <http://www.uvmjobs.com> (Job Requisition Number: 033192).

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