



Drs. Janet Stout and Victor Yu have opened a research facility of their own after rare lab specimens, including some from the original outbreak of Legionnaires' disease, were destroyed. James V. Carroll

death of a specimen

Former VA researchers are enraged their Legionella samples were destroyed.

BY JAMES V. CARROLL

THIRTY-THREE YEARS AGO. Mario Maloberti and Mario Antonucci lay in hospital intensive-care units, with fevers approaching 107 degrees. Their bodies were weak. Their muscles ached. A week earlier, both felt fine.

"I didn't know what was going on, but I really got scared when I learned my friend, Julius Gaggiani – a World War I veteran – had died," recalled Antonucci, a Navy veteran and member of American Legion Post 295 in Brownsville, Pa. "A lot of other people I knew were getting sick."

Maloberti, an Army veteran from Legion Post 344 in Jeanette, Pa., also was frightened. "I watched all the funerals on television while I was in the hospital," Maloberti said. "When I came down with

a cough and high fever, I thought I had the flu. But when I heard about so many other people getting sick and a bunch of them dying, I went to the hospital. I'm living today, I guess, because I did. My neighbor and fellow Legionnaire, Louis Byerly – he wasn't so lucky. He died."

Antonucci, 86, and Maloberti, 76, were among the many Legionnaires who fell ill in July 1976, after attending their state convention in Philadelphia. Of the 180 who got sick, 29 died. The mysterious illness soon became known as "Legionnaires' disease." And last year, some of the key evidence scientists were studying to unravel the mystery was destroyed and lost forever.

The death toll might well have been higher,

Maloberti said, if not for Edward Hoak, then the Pennsylvania Legion's adjutant. He called Legionnaires across the state to warn them of the outbreak, and urged them to seek medical care.

The organism behind the disease was unknown to scientists at the time, but it had been causing serious and sometimes fatal pneumonia in America for a number of years. Its origins could be traced to Washington, D.C., in 1965. It also appeared in Pontiac, Mich., in 1968, and at another convention in Philadelphia in 1974.

Hoak, along with a special committee formed by American Legion National Commander William J. Rogers, helped scientists make connections between the convention and the potentially deadly illnesses.

In January 1977, Dr. Joseph E. McDade, a microbiologist at the Centers for Disease Control in Atlanta, discovered the then-unknown bacterium, and announced that it was the apparent cause of the epidemic in Pennsylvania.

Dr. Kenneth J.S. DeSimone, a fellow of the American College of Surgeons and a member of the commander's special committee, reported that the scientific community had all but given up on the investigation into the causes of the disease until The American Legion stepped up. "The cause might never have been found had it not been for pressure brought to bear by The American Legion, and specifically the Department of Pennsylvania, on the scientific community, particularly through the media."

Because of that, and media attention to the Legion connection, DeSimone recommended naming the condition Legionnaires' disease. Hoak said the Department of Pennsylvania did not object. The national commander wrote a letter to the CDC requesting that the disease be named Legionnaires' disease and that the organism itself be named McDade-Legionnaire, recognizing the CDC microbiologist. The CDC soon made it official.

Years would pass, however, before scientists understood how Legionella was transmitted. In 1981, while investigating similar outbreaks in a number of VA hospitals, microbiologist Dr. Janet Stout discovered that Legionella grew and thrived in warm water. It could be found anywhere from hotels to household tap water, from hospitals to manufacturing plants – even roadside puddles, she said. Stout worked at the time in the Special Pathogens Laboratory at VA Pittsburgh Health System.

"Today, we know that most people contract the Legionella bacteria by breathing vapor into the



WHAT IS LEGIONNAIRES' DISEASE?

Like many other forms of pneumonia, symptoms vary, making Legionnaires' disease difficult to diagnose at first. Signs of the disease can include high fever, chills and a cough. Some people may suffer from muscle aches and headaches. Chest X-rays are needed to find the pneumonia caused by the bacteria, and other tests can be done on sputum, as well as blood or urine, to find evidence of the bacteria. Symptoms usually begin two to 14 days after exposure.

Healthy people usually recover from the infection, but the disease can be deadly to others. Most cases are treated successfully with specific antibiotics.

Pontiac fever is a milder infection caused by the same family of *Legionella* bacteria. Symptoms usually last two to five days and may also include fever, headaches and muscle aches. However, there is no pneumonia that comes with it. Symptoms go away on their own, without treatment.

The bacteria are not spread from one person to another. People get Legionnaires' disease when they breathe in a mist or vapor that has been contaminated. Outbreaks have occurred in hospitals, hotels, cruise ships and other community places linked to aerosol sources.

Those most likely to get the disease include people 65 years or older, smokers, or people who have a chronic lung disease like emphysema. People who have weak immune systems from diseases such as cancer, diabetes or kidney failure are also more likely than others to get sick from the bacteria. People who take drugs to suppress their immune systems are also at greater risk.

If you believe you were exposed to the bacteria, talk to your doctor or local health department. Be sure to mention if you have traveled in the past two weeks. If you suspect that your workplace is the source of your illness, contact your local health department.

More about Legionnaires' disease can be found at www.cdc.gov/legionella, or by calling the CDC at (800) 232-4636.



Pennsylvania Legionnaires attended a November 1976 consumer protection subcommittee hearing on Legionnaires' disease in Philadelphia. As news spread of 29 dead and nearly 200 taken ill, reporters named the disease after stricken Legion members. AP

lungs as they drink water or by inhaling mist from contaminated sources, such as hot tubs or showers,” Stout says. “We know that the majority of cases occur at hospitals. Those affected often have unrelated illnesses, or immune systems degraded as a result of cancer treatments or organ transplants. Heavy smokers also have increased risk.”

As deadly as Legionnaires’ disease (*Legionellosis*) might be, early diagnosis and treatment are effective, says Dr. Victor Yu, former chief of VA’s Infectious Disease Section in Pittsburgh. He was the leader of the team credited with finding appropriate antibiotics to treat it.

“Accepted antibiotics for pneumonia are not an effective treatment for Legionnaires’ disease,” Yu says. “That’s why diagnosis is extremely important. The sooner a diagnosis, the sooner proper therapy can begin. Patients who are diagnosed early, and are treated with the right antibiotics, have a higher rate of recovery. If therapy is delayed, or inappropriate antibiotics administered, people can die.”

Outbreaks of *Legionellosis* have been reported often since the 1976 convention. The largest outbreak was in Spain in 2001, where 449 confirmed cases led to six fatalities. The overall mortality rate for the disease has ranged from 5 to 30 percent during various outbreaks, Yu says.

An estimated 8,000 to 18,000 people are infected with the *Legionella* bacteria each year in the United States. Many more victims go undiagnosed. Some people can be infected and have mild or no symptoms at all. Young, healthy people are at little or no risk.

A TROUBLING TURN. Yu, Stout and others at the Pittsburgh lab have been recognized as worldwide leaders in Legionnaires’ disease research, diagnosis and treatment therapies since the 1980s. The facility housed more than 30 years’ worth of computer information and human microbial pathogens. Yu and Stout are credited with saving hundreds, if not thousands, of lives.

Their activities for VA came to an abrupt end in late 2006. VA fired Yu, forced Stout to resign, and shut down the lab. VA officials padlocked the lab and destroyed, without warning, more than 11,000 unique microbes – including specimens of bacteria that caused the original outbreak of *Legionellosis*.

Hundreds of researchers around the country and the world were outraged. They signed a petition urging an independent investigation. A subcommittee of the House Committee on Science and Technology decided to conduct hearings whose described purposes were to “learn how such a unique collection could be destroyed, and what could be learned about federal policies for management of biomaterials collections.”

A subcommittee staff report concluded that closing the Special Pathogens Laboratory (SPL) and destroying the biomaterials was the culmination of an “acrimonious process” and that “it was breathtaking that a federal health-agency official would order destruction of a human specimen collection without discussing it with, and receiving approval from, the agency’s research officials.” The report further said that it “was even more breathtaking that the top officials at the Pittsburgh VA Health-Care System and the Department of Veterans Affairs had taken no formal action to make sure that such action never occurs again.”

“The material in the lab represented more than 30 years of research that can never be replaced,” Yu says. “The collection was unique in that the microbes and specimens were linked to clinical histories of patients who were infected by these microbes. That data can never be replicated.”

It’s common for researchers who leave one laboratory for another to take their collections with them if colleagues are not interested in continuing the research, Stout says. “But in this case, VA officials decided to destroy all the SPL research samples. They decided, for whatever reason, to not only throw us out, but to destroy a lifetime of research that can never be recovered.”

Pittsburgh VA officials claimed in testimony to Congress that the lab was conducting unauthorized research, and that the samples were destroyed because they were inappropriately identified.

Dr. Mona F. Melhem, a University of Pittsburgh pathologist at the time of the specimen destruction, was contacted for this article, but deferred to the public record.

“It was like a book-burning,” said Dr. David Snyderman, an infectious disease expert at Tufts Medical Center in Boston, who also lost samples housed in the collection.

The congressional subcommittee staff concluded that the “deliberate and secret destruction of a bio-specimen collection that has been used to advance the detection and treatment of infectious diseases with significant mortality rates is a great loss, not only to the researchers who so carefully compiled it, but to future patients who will not have the benefit of continuing research. It is a particular travesty because it was done by a federal health agency charged with protecting the health of our nation’s veterans, and it appears to involve personality conflicts ... Personality conflicts should have no role in managing federal programs, in federal health-care systems, or in decisions to maintain bio-specimen collections. Hopefully, the Veterans Affairs Department will finally take necessary steps to make sure that it doesn’t happen again.”

According to the subcommittee report, Melhem claimed that the facility’s director at the time – Michael E. Moreland – authorized destruction of the samples, but congressional staff concluded that “there was no clear evidence the director had ordered the destruction of the isolates on that day or any other day.” Melhem’s motivation to destroy the samples was unclear, the staff concluded, but in an interview with the committee, she said that destroying the samples was the right thing to do and expressed “personal animosity toward both Yu and Stout.”

In a statement to *The American Legion Magazine*, Pittsburgh VA spokesman David Cowgill said, “Mr. Moreland nor I can comment on the issue, due to pending litigation ... but I can confirm that Mr. Moreland has been promoted to network director, VISN (Veterans Integrated Service Network) 4 and that Dr. Melhem has been promoted to associate chief of staff along with her role as vice president, Clinical Support Services.” Melhem also remains a faculty member in the department of pathology at the University of Pittsburgh School of Medicine.

In an e-mail to *The American Legion Magazine*, Melhem wrote, “The allegations in this subcommittee’s report predated the official hearing where the VA’s testimonies are now of public records (sic).”

Stout says that VA contends it was justified in

closing the lab and “destroying our life’s work because we were conducting unauthorized research. Of course, we disagree on both points. In the end, it makes little difference why the material was destroyed. We have lost decades of medical research that can never be retrieved. That’s an unconscionable act.”

After leaving VA, Yu and Stout started their own private Special Pathogens Laboratory in Pittsburgh, which offers microbiology services to health-care industries, water-treatment industries, and other commercial and industrial businesses. The lab specializes in the detection, control and remediation of waterborne pathogens such as *Legionella*, *Pseudomonas*, mycobacteria and fungi. 🌿

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PREVENTION BY DISINFECTION

In addition to their discovery of the source of the *Legionella* bacteria and effective antibiotics to treat the disease, Drs. Victor Yu and Janet Stout are also leaders in developing testing and disinfection methods. It costs a typical hospital about \$100,000 to install a testing and disinfection system, and that’s not a lot of money, considering that mortality rates for Legionnaires’ disease in hospitals may be as high as 40 percent.

Methods proven effective in killing or reducing the presence of *Legionella* in hospitals, hotels and other large public facilities include:

- Disinfection by copper-silver ionization, where an electrical current releases positively-charged copper and silver ions that bond to and kill bacteria.
 - Hyper-chlorination, ultraviolet irradiation or super-heating of water systems.
- Homeowners can reduce the threat of *Legionella* by:
- Raising hot water-tank temperatures to the maximum setting: 140 degrees.
 - Flushing each outlet for 20 to 30 minutes.



Sources: Drs. Janet Stout and Victor Yu, Centers for Disease Control, *The Pittsburgh Tribune-Review*