

NEWS

Death renews biosecurity debate

The suicide of a biodefence researcher who was being investigated in connection with the 2001 anthrax attacks has raised questions about the US government's regulation of research on dangerous pathogens — even as Congress considers a bill to improve oversight.

The Federal Bureau of Investigation (FBI) had been working to link Bruce Ivins, a microbiologist at the US Army Medical Research Institute of Infectious Diseases (USAMRIID) in Frederick, Maryland, to five people who died after anthrax spores were sent through the mail soon after the terrorist attacks on 11 September 2001. The case has still not been solved, some say because of a long-running focus on a single, different suspect (see 'How the anthrax investigation unfolded').

Ivins died on 29 July of an overdose of Tylenol, a paracetamol-based painkiller. His lawyer and many of his colleagues maintain his innocence, and the FBI's evidence allegedly implicating Ivins had not been released as *Nature* went to press.

"If it turns out the evidence is compelling, it does raise a lot of questions about the insider threat and whether the current vetting procedure is valid," says Jonathan Tucker, a bioweapons expert with the Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism based in the Washington DC area.

Although the FBI had been investigating Ivins for months, he continued working at USAMRIID until 10 July this year. A social worker had reported him as being mentally unstable, and some co-workers have said the pressure of the investigation had got to him.

In 2002, Ivins was involved in a security breach when he failed to report contamination outside a biosecure laboratory to his supervisors. But officials apparently let the incident go, afraid that punishing Ivins would discourage others from reporting contamination.

Ivins was one of about 14,000 US researchers with clearance to work with pathogens or toxins from the government's list of 72 'select agents', such as the Ebola virus, avian influenza and ricin. These scientists must pass an FBI security assessment that includes fingerprinting, and checking for a criminal record or any history of drug abuse or hospitalization for mental illness. Congress is considering a bill that would, among other things, have the National Academy of Sciences evaluate the impact so far of the select-agent programme.

Working with select agents has required more

paperwork since the passage of the Patriot Act of 2001 and the Bioterrorism Act of 2002. "A lot of good scientists have said it's just too much trouble," Tucker says.

The penalties for running afoul of the regulations can be strict. "If you forget to file some of the appropriate paperwork, or some of the vials in your inventory get autoclaved and nobody writes it down, you can get in trouble," says James Roth, a professor of veterinary medicine at Iowa State University in Ames. In 2004, Thomas Butler, a microbiologist at Texas Tech University in Lubbock, received a two-year prison sentence in a case that started with missing plague samples.

Yet the increased interest in research on bioterror agents has been a boon for some. Civilian spending on biodefence rose from \$685 million in 2001 to a peak of \$8.2 billion in 2005, before levelling off at around \$5 billion in recent years.

"The research I'm doing on anthrax spores is work that I would have been interested in doing in other species, but I chose to do it in anthrax because there was plenty of funding available," says David Popham, a microbiologist at Virginia Polytechnic Institute and State University in Blacksburg. Because he works with a harmless variant of anthrax, he did not have to go through the select-agent clearance procedure.

In his research Ivins prepared spores of a virulent strain of *Bacillus anthracis* and infected



Bruce Ivins was to be indicted in connection with the anthrax attacks.

lab animals with them, to evaluate new vaccines and treatments. He co-authored, for example, a report published this week that tested whether blood plasma from humans treated with an anthrax vaccine could protect mice from the pathogen (J. F. Hewetson *et al.* *Vaccine* 26, 4262–4266; 2008). Ivins worked at the Army lab for more than 35 years, and received the Department of Defense's highest civilian honour in 2003 for his work

on an anthrax vaccine.

The fallout for the rest of the research community is not clear. "Are all of our biomedical scientists going to have to undergo evaluation deep into their psyches?" asks Alan Pearson, director of the Biological and Chemical Weapons Control Program at the Center for Arms Control and Non-Proliferation in Washington DC. "I think the opposition is going to be fierce."

Tara O'Toole, director of the Center for Biosecurity at the University of Pittsburgh Medical Center in Baltimore, Maryland, says that it is impossible to secure all pathogens because they occur in nature. "The notion that we can somehow prevent a bioattack by locking up pathogens in research laboratories is ridiculous," she says. Instead, she says, the solution is to be found in better medicines and vaccines. "We have to make it so hard to kill a lot of people that the terrorists aren't interested in trying." ■

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For more on this story, see <http://tinyurl.com/66scnf>.

HOW THE ANTHRAX INVESTIGATION UNFOLDED

September–October 2001

Letters containing anthrax spores are mailed from New Jersey to reporters in New York and Florida, as well as members of Congress in Washington DC. Five people die from anthrax exposure.

August 2002

Attorney-general John Ashcroft names bioweapons expert Steven Hatfill as a "person of interest" in the case.

August 2003

Hatfill sues the Department of Justice and, later, media outlets, for mentioning his name in connection with the investigation.

August 2004

The FBI searches the home of New York physician Kenneth Berry, who had worked on emergency responses to bioterrorism. No charges are brought.

June 2008

The Department of Justice agrees to pay Hatfill \$5.85 million to drop his civil suit.

July 2008

Bruce Ivins, a microbiologist who had worked at the US Army Medical Research Institute of Infectious Diseases, commits suicide in Frederick, Maryland. The FBI had been investigating him in relation to the 2001 attacks.

USAMRIID