

# Bio & Terror Bible

## EXPOSING THE COMING BIO-TERROR PANDEMIC

**BIOTERRORBIBLE.COM:** Totally inexcusable lab “[accidents](#)” have been occurring at BSL Labs (biosafety level labs) within the United States and around the world. Should a bio-terror pandemic arise, it is possible that a lab “accident” may serve as the scapegoat and source of the deadly pathogen.

**Title:** AIDS Virus Creates Lab Risk

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**Source:** [Science Mag](#)

*Two cases of HIV infection in lab workers have made laboratory personnel understandably nervous and prompted officials to strengthen their safety programs*

THE National Institutes of Health is expanding its biosafety program after the recent discovery that two laboratory workers are infected with HIV, the human immunodeficiency virus that causes AIDS. The two cases, which came to public attention last fall, do not mean that laboratory-acquired infection is common. But they do mean that infection is possible and people working with the virus are very concerned.

The first worker is clearly infected with a laboratory strain of HIV, which makes it virtually certain that the infection resulted from occupational exposure to HIV. The worker can recall no specific incident that may account for the infection, however. In contrast, no one is certain that the second worker is infected with a laboratory strain of the AIDS virus. But he\* remembers a laboratory accident that could have exposed him to HIV at a high concentration. Both cases were discovered during scientific surveys designed to assess occupational risk.

The most controversial aspect of the second case is that the worker was not informed for 16 months that he had been infected. This unreasonable delay, which NIH officials characterize as a monumental blunder, provoked an investigation that resulted in a reprimand for the scientist in charge of the study.

Until now NIH has not had a general surveillance program for either workers in clinical settings or those in research laboratories who are exposed to HIV. But as a result of the HIV infections in the two laboratory workers, a campus-wide medical surveillance program is scheduled to begin in mid-February under the direction of Robert McKinney, director of safety at NIH.

The two recent cases have important factors in common. Both workers handle large volumes of the AIDS virus in so-called high containment laboratories that are under contract with NIH; neither is an NIH employee. Both perform techniques to concentrate the virus as part of commercial processes and follow biosafety guidelines. Both

deny having any risk factors for acquiring HIV other than their work in the laboratory.

In the absence of any gross breach of good laboratory practices, especially in the first case, safety officials can only surmise what might have caused the infections. W. Emmett Barkley, the former director of the division of safety at NIH, states in a report that, “the two infections can be attributed to human error and failure to recognize and prevent opportunities for worker exposure to contaminated materials.”

***“The two cases clearly demonstrate that there is a finite risk among laboratory workers who handle the AIDS virus.”***

The first worker was part of an epidemiological survey conducted between 1985 and 1987, the results of which appeared in *Science* (1 January, p. 68). “The study was designed to include workers who handle high concentrations of the virus, because previous studies had indicated that the overall risk of infection in lab workers is very low,” says Stanley Weiss of New Jersey Medical School in Newark. The study included 265 study participants, 225 of whom had laboratory exposure to HIV.

“We collected samples from different groups of lab workers,” says William Blattner of the National Cancer Institute (NCI). “These were sent as a batch to be screened. If anyone had a positive result, clear or borderline, we sent the same serum sample to separate facilities for Western blot and radioimmunoprecipitation analyses.” Both tests are used to confirm the presence of specific antibodies to the AIDS virus. Clearly positive results are interpreted to mean that the person is infected with HIV.

No one knows how the first lab worker became infected with HIV. “There were no events that the worker recalled that suggested direct exposure to the AIDS virus,” says

Barkley. “But in discussions with the worker, there were a number of situations that might have involved exposure, including frequent spills of contaminated material.” Barkley also cited instances in which the worker had some small cuts on his arm, but said that the worker always wore gloves. In addition, he noted that workers in high-production commercial laboratories may be under inappropriate pressures to salvage contaminated biological material, which could increase their risk of exposure.

This lab worker was the only one in the Weiss and Blattner study who was ultimately confirmed as being infected with HIV, and he was notified of his test results about 6 weeks after the study began. But a full year elapsed between that time and the scientific confirmation that he was infected with a laboratory strain of the AIDS virus.

“We spent 6 months just trying to talk to this individual,” says Blattner. “The person didn’t want to talk to us. We did not know his name. The contact physician had interviewed the individual and had not identified any risk factors other than possible laboratory exposure to HIV.” When the worker did talk to two additional researchers in the Blattner group, he again denied any other means of exposure to HIV. At this point, Blattner notified Barkley.

From then on, the researchers focused on determining the source of HIV that had infected the worker. Some were convinced that he had acquired the infection through a sexual contact or perhaps intravenous drug use; Weiss says he thought that lab infection was likely. Proving the source of viral infection turned out to be much more difficult than anticipated, however.

The single biggest problem was that, at first, no one could get HIV from the lab worker to grow in tissue culture. Culturing was necessary in order to do the molecular analyses that could determine what strain the virus was. Six different laboratories made nine or ten unsuccessful attempts to grow the worker’s virus. Then, after a conversation with Howard Stryker of NCI, Weiss turned to researchers in Robert Gallo’s laboratory at NCI to see if the virus could be isolated from macrophages. Finally, Mika Popovic and Suzanne

\*For simplicity, both workers are referred to as “he” in this story. Their identities are being kept confidential.

([Science Mag, 1988](#)).