

# She Was an Anthrax Tracker (plus Some Anthrax Questions)

By ACSH Staff — November 15, 2002

This week brings news that Osama bin Laden may be alive, audiotaping new denunciations of the West, and planning new terror attacks. It also brings word that weapons inspectors may be allowed back into Iraq. It seems like a fitting time, then, to ask what we know about biological weapons that might be used by our enemies, starting with anthrax, and what we know about ability to defend against such attacks. It's also a good time to hear a few words from Dara Friedman, who worked for the Centers for Disease Control (CDC) tracking anthrax during the 2001 attacks.

HFAF reader Mike Lucas summed up the public's anxiety well in an e-mail asking the following questions (among others) about anthrax:

What is the probability of an anthrax attack?

How much anthrax would a person of reasonable health need to be exposed to in order to become infected?

Exactly what does the vaccine protect you from?

How much anthrax is naturally occurring on the ground in most grasslands in the U.S.?

How many agricultural workers have been infected with anthrax in the past ten years?

How do you decontaminate an infected area?

Who has the technology and resources to use anthrax as a weapon?

How do they handle it to keep from becoming infected themselves?

What are the best possible prevention measures other than the vaccine?

I can answer some of those questions, and I hope that HealthFactsAndFears will devote more attention to a variety of bioterror questions in the months ahead.

The best precaution against the threat of anthrax is the anthrax vaccine. The vaccine produces immunity to a deadly toxin that is created during reproduction by the bacterium called *Bacillus anthracis*, which, before finding a host, takes the form of long-lived spores and is found in soil around the world. We can't know for sure who has amassed the expertise necessary to produce anthrax in large quantities, so we don't know the probability of an attack, but with that expertise, the technology and storage facilities necessary to stockpile anthrax are fairly inexpensive. It is difficult to quantify how many people want anthrax badly enough to pay for the handful of existing experts or badly enough to train new experts.

The CDC puts the risk of contracting anthrax *accidentally* (that is, in a normal year, without a deliberate dispersal of anthrax) at about one in 300 million. Because of the low risk, the CDC normally does not recommend that individuals take special steps to prevent anthrax contamination, except people at special risk such as workers in labs using anthrax, who wear rubber gloves and masks to decrease the odds of contact, and people working around dirty animal hides, who usually account for the (approximately) one case per year in the U.S. It may take as little as 2,000 spores to infect a human, though that number may be as high as 50,000 for healthy, strong individuals. A few milligrams of powder, barely enough to see, can contain millions of anthrax spores.

The clean-up procedure for contaminated buildings generally involves about a half day of spraying hundreds of pounds of an anthrax-killing gas called chlorine dioxide, then spraying neutralizing chemicals that convert the chlorine dioxide to harmless salt and water, after which the site is tested for residual spores.

In the event of future attacks, the government will likely respond with antibiotic treatment for exposed individuals, which has proven highly effective especially in treating cutaneous anthrax, which is very unlikely to prove fatal when treated. Inhalation anthrax can also be treated with antibiotics if treatment begins *before symptoms occur*, but they are almost always deadly after that point (in about four out of five cases), even with antibiotic treatment, which means it is crucial to detect anthrax exposure before inhalation symptoms appear. If an attack takes place years from now, perhaps the government will have instituted a program of mass vaccination, thus avoiding the problem of the narrow antibiotics time window but today the CDC recommends the vaccine only for high-risk individuals, such as people working with anthrax in the lab and military personnel in areas likely to be targeted for biological warfare. For now, we must hope that any attack is discovered at the time it occurs or that symptoms of easily-treated cutaneous anthrax appear, alerting us to the threat, well before large numbers of inhalation anthrax cases develop (inhalation symptoms may take days or weeks to appear, whereas cutaneous symptoms normally appear within days).

While attacks on America with most biological weapons, such as smallpox, remain hypothetical, America has already suffered an anthrax attack (whether from a foreign or domestic source remains unclear). That's something easily forgotten amidst memories of the World Trade Center collapse and fears about novel, unanticipated methods of attack in the future.

Dara Friedman worked as a spore tracker during that tense time just over a year ago, and e-mails the following note:

"I was sent to Trenton, NJ on October 20, 2001 to be part of the CDC team investigating the anthrax exposures originating from a spore-containing letter that was processed at the Hamilton postal facility. I was there for two weeks. It was grueling and stressful, with changes in information and response occurring constantly. There were approximately twenty of us on the team, and we worked well together. We worked on different subteams investigating the cases, surveillance for new cases, identifying and notifying potentially exposed persons, and providing antibiotic prophylaxis. Because of my laboratory background (Ph.D. in molecular biology), I worked with the case investigation and surveillance effort, advising hospital laboratories about conditions for

storing and shipping anthrax cultures and samples...and getting them from NJ to the CDC. It took some thinking and a lot of logistics.

"It was such a difficult time for everyone, I'm sure, after September 11th. Reading about the firefighters going back into the towers in those minutes after the attack to save people it was a marvel, and very humbling to ask, What am I doing to help? Going to Trenton was great...I felt like I was finally doing something to help."

Thanks to Friedman's CDC colleagues, the answers to many anthrax questions can be found on their official [anthrax page](#) [1]. And click [here](#) [2] to hear more about the November 14 debate about smallpox between Richard Preston and ACSH's Dr. Elizabeth Whelan.

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**Links**

[1] <http://www.bt.cdc.gov/agent/anthrax/anthraxgen.asp>

[2] [https://www.acsh.org/factsfears/newsID.237/news\\_detail.asp](https://www.acsh.org/factsfears/newsID.237/news_detail.asp)