Spores: The Threat of a Catastrophic Anthrax Attack on America

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By ExecutiveAction, LLC

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I. Forword

I lay awake at night worrying about an anthrax attack on America and our lack of preparedness. Such an attack, in my view, has the potential to be far more devastating than the 9/11 terrorist strikes in terms of casualties and economic consequences.

It is frustrating to know that, as a nation, we have the ability to provide protection against a biological weapon attack such as anthrax. But we are not doing so in the urgent manner that reflects the threat we face. As a consequence, we are vulnerable to a crippling attack.

Six years after the 2001 anthrax incidents in the U.S., our main line of defense remains antibiotics, which are most effective when taken soon after exposure. But as time passes, the disease progresses and the effectiveness of antibiotics declines. By the time symptoms appear from an infection, it is usually too late for treatment with antibiotics.

This means in an undetected anthrax strike, antibiotics will not be effective to treat victims.

To fully protect America from an anthrax attack, we must also have available a safe and effective vaccine and therapeutics. The government has provided funding to procure and stockpile such drugs, but progress is agonizingly slow. We appear to have lost momentum. With time our priorities have shifted and providing protection against an anthrax attack no longer seems an urgent requirement.

While much has been written publicly on anthrax since the 2001 incidents, a great deal of information about the threat is outdated or classified and not available to the general public.

To fill this vacuum, my company tasked Dr. Neil C. Livingstone, one of our nation's premier terrorism experts, to conduct an independent assessment of the threat of an anthrax attack. Dr. Livingstone, CEO of ExecutiveAction, LLC, has

authored nine books on terrorism and security issues, including "America the Vulnerable: The Threat of Chemical and Biological Warfare," the first major book on the threat of a terrorist attack with chemical and biological weapons.

The report by ExecutiveAction brings together information from a wide range of sources to provide a current assessment of the threat of an anthrax attack. It also contains various scenarios that demonstrate our vulnerability to an attack and the potential catastrophic consequence of strikes with just small amounts of anthrax.

My hope is that this monograph will prompt a call to action by the government and public to fully protect our nation against an anthrax attack.

David Wright
CEO
PharmAthene Inc.

II. Introduction

This report assesses the risk of an anthrax attack on the United States. It updates what we know about al Qaeda's past efforts to build an anthrax weapon and their ability to do so now.

The report examines the challenges terrorists face to develop or gain access to an anthrax weapon and America's preparedness in the event of a strike.

Three scenarios are provided to demonstrate the country's vulnerability to a terrorist attack with a small amount of anthrax and the potential devastation in terms of casualties and economic harm.

Information for the report was gathered from open sources and proprietary databases, as well as discussions with microbiologists and other scientists familiar with anthrax.

III. Executive Summary

Risk Assessment

The United States faces a high risk of an attack by terrorists with an anthrax weapon. The probability of an attack by al Qaeda with a biological weapon, although difficult to measure, is substantial.

Al Qaeda embarked on a program in the late 1990s to develop non-conventional weapons.[1] The terrorist organization recruited a Pakistani microbiologist to set up a secret laboratory in Kandahar to produce and weaponize anthrax. He was assisted by a Malaysian with a chemical degree from a U.S. university.

The lab, in operation only a short while, was shut down after authorities learned of its presence. Since then, al Qaeda has regrouped and regenerated key infrastructure, including a safe haven, operational lieutenants, and top leadership, according to a National Intelligence Estimate.[2]

Dr. al-Zawahiri, Osama bin Laden's top deputy, headed al Qaeda's initial program to develop non-conventional weapons. He has the authority and motivation to reconstitute the program and develop an anthrax weapon.

Al Qaeda "will continue to try to acquire and employ chemical, biological, radiological, or nuclear material in attacks and would not hesitate to use them if it develops what it deems is sufficient capability," the National Intelligence Estimate stated in July 2007."[3]

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[1] At the Center of the Storm. George Tenet. HarperCollins. 2007. p. 260.
[2] "The Terrorist Threat to the U.S. Homeland." National Intelligence Estimate. July 2007.
[3] Ibid.

An anthrax attack would likely have severe consequences. In strikes with small amounts of anthrax, terrorists can cause high casualties and extensive economic damage. One gram of weaponized anthrax shut down the U.S. Senate Hart Office Building for five months. Decontamination costs ran into the tens of millions of dollars.

To demonstrate the potential deadliness of a large anthrax attack, former U.S. Defense Secretary William Cohen held up a five pound bag of sugar and warned, if "this amount of anthrax could be spread over a city – let's say the size of Washington – it would destroy at least half of the population."[4]

A report by the Congressional Office of Technology Assessment "calculated that 100 kilograms of anthrax spread over Washington could kill from 1 to 3 million people if disseminated effectively under the right environmental conditions. In contrast, a one-megaton nuclear warhead would kill from 750,000 to 1.9 million."[5]

A report by the Centers for Disease Control and Prevention estimated the economic impact of an anthrax attack would be $26 billion per 100,000 people exposed.[6]

Given the probability of an anthrax attack is substantial and the consequences would likely be severe, there is a high risk to America of an anthrax attack.

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[4] "Cohen Cites Iraqi Ability on Weapons: 'Millions' Have Been at Risk: Resumption of Production Feared." *The Washington Post*. November 17, 1997.

[5] "Bioterrorism and Biocrimes." Center for Counterproliferation Research. National Defense University. Fredonia Books. 2002. Also see: "Proliferation of Weapons of Mass Destruction: Assessing the Risks." U.S. Congress, Office of Technology. OTA-ISC-559 (Washington, D.C., Government Printing Office, August 1993).

[6] "The Economic Impact of a Bioterrorist Attack: Are Prevention and Postattack Intervention Programs Justifiable?" Arnold F. Kaufmann, Martin I. Melzer, and George P. Schmid. Centers for Disease Control and Prevention. April-June 1997.

Obtaining an Anthrax Weapon

An anthrax weapon does not need to be elegantly weaponized to be effective. As long as virulent anthrax spores or live bacilli can enter deep into a victim's lungs, they can replicate and cause death.

Acquiring a deadly strain of anthrax does not pose an overwhelming obstacle to terrorists. Lethal strains of anthrax are used in laboratories around the world for research and are stored in repositories.

Terrorists could recruit a legitimate scientist in a laboratory that conducts research on anthrax or in a laboratory that has access to culture collections to obtain a sample of a virulent anthrax. Security at such laboratories in many parts of the world is far less strict than the United States. Alternatively, they could gain a lethal sample by breaking into a laboratory, bribing a scientist, or threatening the life and family of a researcher.

Many countries conduct research on anthrax or are suspected of doing so, including the U.S., Russia, Iran, China, Syria, India, North Korea, Israel, Taiwan, and Egypt.[7] An anthrax strain could be stolen from a state program and sold or diverted to a terrorist organization. The possibility also exists that weaponized anthrax could have been diverted from a country's military program in years past and now fall into the hands of terrorists.

Once terrorists have obtained a lethal strain of anthrax, building a weapon requires minimal laboratory equipment and expertise.

The U.S. government set up a secret program in 1999 called Project Bachus to determine the level of difficulty for

[7] "A BW Risk Assessment; Historical and Technical Perspectives." The Nonproliferation Review. Fall-Winter. 2004.

terrorists to develop an anthrax weapon. Technicians assembled a laboratory in a remote location in Nevada, using equipment purchased from local hardware stores and the Internet, including a 50-liter fermentor and a milling machine.[8] After several months, the team successfully produced a couple of pounds of non-lethal anthrax, demonstrating the barriers for terrorists to build an anthrax weapon are surmountable.

Highly educated professionals are joining the jihad against the West. In the summer of 2007, a group of physicians and an aeronautical engineer attempted to detonate vehicle bombs outside a nightclub in central London. While the terrorist plot failed, the event is significant because it revealed that doctors and other professionals are moving into the frontlines to mount attacks.

Physicians in terrorist cells pose a unique threat due to their education, access to money, and their ability to travel with minimal suspicion. They have a fundamental knowledge of biology, have laboratory experience, and have potential access to biosafety level 3 laboratories, where dangerous pathogens, such as anthrax, are stored. Doctors also have access to pathogens and can be expected to understand the processes to develop a biological weapon.

Instead of building a vehicle bomb, a terrorist cell with physicians might next time produce and disseminate an anthrax weapon.

America Largely Unprepared and Defenseless

In the 2001 attack on Capitol Hill, no one died because the envelopes with anthrax delivered to the Senate offices were detected early. Everyone in the building was given antibiotics,

[8] Germs. Judith Miller, Stephen Engelberg, William Broad. Simon & Schuster. 2001. p. 298.

which are most effective when administered soon after exposure.

Had a small amount of anthrax been secretly disseminated in a Congressional hearing room, hallway or cafeteria, it likely would not have been discovered until victims had shown symptoms of infection from anthrax, which normally appear several days after exposure. The initial signs of infection are a cough, stuffy nose, headache and achy joints – symptoms not unlike flu or a cold. At this point, however, antibiotics are minimally effective and people who had been infected would likely have died.

Only U.S. military personnel currently have access to an anthrax vaccine, which requires multiple shots over an 18 month period. In 2004, the government signed a contract to purchase 75 million doses of a newly developed vaccine. The company supplying the vaccine experienced production problems and the contract was cancelled in December 2006. Since then, the government has entered into contracts to purchase about 29 million doses of the military vaccine for civilian use.

To treat an anthrax infection, biotech companies have developed other medical countermeasures, called therapeutics. They provide protection when antibiotics start to lose their effectiveness and work beyond the period when symptoms first arise. The U.S. government has awarded contracts to purchase 30,000 doses of a therapeutic. Due to the availability of newer, more promising anthrax therapeutics, the government also signaled its intent to issue additional Requests For Proposals (RFPs) to procure the new medicines. But as of November 2007, nothing has happened.

The public is best protected against an anthrax attack by having available antibiotics, therapeutics, and an improved vaccine. But to achieve this goal takes time.

Once the government awards a contract for an anthrax therapeutic or a new vaccine, it can take years for a company to complete required manufacturing, conduct safety and efficacy trials, satisfy Food and Drug Administration requirements, and produce and stockpile the drugs.

Procuring therapeutics and a new vaccine will reduce the potential severity of an anthrax attack and thereby the overall risk of an attack. While costly, the expense is far less than the potential damage of a single attack with a small amount of anthrax.

America cannot afford further delays. "The enemy is not standing still," Homeland Security Secretary Michael Chertoff warned at a Congressional hearing on September 10, 2007. "They are constantly revising their tactics and adapting their strategy and their capabilities."[9]

A Senate Permanent Subcommittee on Investigations report directed by then-U.S. Senator Sam Nunn on chemical, biological and nuclear weapons stated, "It is not a matter of 'if' but rather 'when' such an event will occur."[10]

Having already suffered an anthrax attack, it's no longer a matter of if, but when we will be attacked *again*.

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[9] "Confronting the Terrorist Threat to the Homeland Six Years After 9/11." Testimony by Secretary of Homeland Security Michael Chertoff. Senate Committee on Homeland Security and Government Affairs. September 10, 2007.

[10] "Turf Wars Aggravate Ill-Equipped Terrorism Response Units." *Associated Press.* March 27, 1996.

IV. New York Subway Attack

Abrahim Atef arose an hour before dawn in his small Queens apartment. He gazed out through the smudged window at the lights of Manhattan in the distance, stroking his beard as he did so, the beard he had proudly worn since his teens to show that he was an observant Muslim. The beard would soon be gone and he knew that he would feel naked. But it was necessary and God would understand.

After prayers and a cup of strong black coffee, Atef adjourned to the bathroom and carefully shaved off his dark beard. The skin underneath was lighter and tender to the touch. He dressed hurriedly in a grey suit, white shirt, regimental tie, and well-polished black cap-toe shoes. With his hair neatly combed, a briefcase, and tinted glasses, he would blend in with all of the other young traders, accountants, and lawyers going to work in the city. That was the key: to blend in. He had followed the advice of a how-to manual widely available on the web, which said that jihadists should take care that their appearance does not suggest any Islamic orientation, including their "beard, toothpick, long shirt, or Koran."

It was still dark when he left his apartment. A moment later another man stepped from the shadows. It was Salah, his accomplice. He, too, had shaved off his beard that morning and, with it, at least ten years. He looked like a kid without his beard and Atef barely recognized him.

The men embraced.

"God is great," said Atef.

"And we are his instruments," replied Salah.

The two men hurriedly crossed the street and then split up, Atef walking toward a subway station three blocks away, and Salah hailing a cab and setting off for another subway station a mile distant. They had carefully

choreographed their movements for weeks and practiced each element of the plan for so long that Atef was certain he could execute the attack in his sleep.

The day was perfect: clear, no wind, and low humidity.

Atef entered the subway station, passed down the stairs, and crossed over to the subway platform. He glanced up at the closed circuit television cameras mounted on the walls and pillars. The New York Metropolitan Transportation Authority had installed another 1,000 cameras in the subway system after the 2005 London terrorist bombings, but Atef knew that they were not a threat to him. Unless a person's face is well-known to authorities or their behavior is exceptionally bizarre, commuters are unlikely to attract the attention of the authorities.

Atef soon heard a distant rumble. He reached into his briefcase as a headlight beam in the tunnel signaled the approach of a train. He moved to the edge of the platform, with his back to the nearest CCTV camera, as the train pulled into the station, brakes squealing loudly, air whipping across his face. As the last car passed by him and the train came to a stop, he removed his hand from the briefcase, gripping a light bulb.

While passengers streamed from the cars and others began to board, Atef let the light bulb slip from his hand. There was a pop as it shattered on the darkened tracks, releasing trillions of anthrax spores.

The car doors closed and the train began to pull slowly out of the station, sucking the deadly spores behind it to the next station and beyond, beginning the process of contaminating the entire subway system. Atef smiled as he exited the underground, knowing that Salah was repeating the same action in another station up the line, adding to the lethality of the attack.

He soon boarded a bus and made his way to LaGuardia Airport. From LaGuardia he flew to Toronto, where he caught a flight to London. Once in London, he would go underground and slowly make his way back to Pakistan.

Meanwhile, in New York City, everything appeared to be normal. There was the usual hustle and bustle, heavy cross-town traffic, and droves of tourists descending on Times Square.

A. Subways as Targets

One of the most frightening biowarfare scenarios is an anthrax attack on a subway system. The underground passageways are especially attractive targets for saboteurs because of the large concentrations of people in an enclosed environment. An estimated 4.5 million commuters travel daily on New York's transit system, our nation's largest. Nearly 8 million people ride Tokyo's subway each day. London's Tube transports 3.4 million commuters daily.

Chemical and biological agents quickly dissipate in the open air and are vulnerable to the sun's ultraviolet rays. By contrast, deadly pathogens dispersed in an enclosed environment, such as a subway, remain concentrated and therefore lethal for a longer period of time.

Anthrax spores, once dispersed in a subway, will rapidly contaminate adjacent stations as trains push air through the tunnels. In an anthrax attack, a subway is like a production line for infecting people. Commuters enter a station that is contaminated, breathe deadly spores into their lungs, and then are whisked away, making room for another group to infect. Train after train, large numbers of people can be rapidly exposed to anthrax.

As early as the 1930s, military planners have viewed subways as a potential target using a deadly pathogen. The German military was reportedly interested in determining the number of potential fatalities from an airplane attack on a subway station with a biological weapon. Plans were allegedly drafted to spray a harmless bacteria, *Bacillus prodigiosus*, at entrances of the subways in London and Paris to measure how air currents would distribute the bacilli inside the stations.[11]

In the late 1940s, the U.S. military examined potential scenarios for disseminating biological weapons, from ventilating systems to water supplies, stamps, envelopes, cosmetics, and contamination of food and beverages.[12] A secret report concluded that "Biological agents would appear to be well adapted to subversive use since very small amounts of such agents can be effective. A significant portion of the human population within selected target areas may be killed or incapacitated."[13]

To measure the vulnerability of America's subways to an attack, the U.S. Army's Special Operations Division at Fort Detrick carried out a series of experiments in the 1960s. Personnel shattered light bulbs filled with *Bacillus globigii*, a non-lethal bacillus, in the New York subway system and then took air samples at different stations over a period of time. While details from the tests remain classified, a report stated an attack "with a pathogenic agent during traffic periods could be expected to expose large numbers of people to infection and subsequent illness or death."[14] The Special Operations Division conducted similar tests at Washington National

[11] Biological Weapons. Jeanne Guillemin. Columbia University Press. p. 41.
[12] "Buried Secrets of Biowarfare." *The Baltimore Sun*. August 1, 2004.
[13] Ibid.
[14] Ibid.

Airport and at bus stations in Washington, D.C., Chicago, and San Francisco.

The first deadly attack on a subway with a chemical weapon occurred in March 1995. Members of Aum Shinrikyo, a Japanese cult founded by Shoko Asahara, boarded five cars in the Tokyo subway during rush hour, carrying packets of sarin, a nerve agent, wrapped in newspapers. Each member also brought an umbrella with a sharpened tip, which they used to puncture the packets. The coordinated attack killed a dozen people and injured more than 1,000.

B. Al Qaeda

> *Al Qaeda continues to adapt and move forward with its desire to attack the United States using any means at its disposal. Their intent to attack us at home remains, and their resolve to destroy America has never faltered.*
>
> FBI Director Robert Mueller

To develop or acquire non-conventional weapons, al Qaeda set up a series of highly compartmentalized networks in the late 1990s that included members of its top leadership.[15] Al Qaeda had been impressed by the Aum Shinrikyo subway attack and sought to use it "as a model for achieving their own ambitions," according to former CIA Director George Tenet.[16]

The program to obtain chemical, biological and radiological weapons was spearheaded by Dr. Ayman al-Zawahiri, a 1974 graduate of Cairo University. He studied

[15] At the Center of the Storm. George Tenet. HarperCollins. 2007. p. 260.
[16] Ibid., p. 351.

pharmacology and psychology, then went on to earn a masters degree in surgery in 1978. Rather than pursue a career in medicine, he joined the Egyptian Islamic Jihad, taking control of the terrorist group in the mid-1980s. Zawahiri soon thereafter formed an alliance with al Qaeda. The two organizations merged in 1998 in Afghanistan and Zawahiri became bin Laden's top deputy.

Chemical and biological weapons programs were established by al Qaeda at two training camps in Afghanistan.[17] One facility, at Darunta, was managed by Abu Khabab al-Masri, an Egyptian who graduated from Alexandria University in 1975. He also was a member of the Egyptian Islamic Jihad.

At the training camps, al Qaeda developed a variety of chemical agents, one of which was a "home-brew nerve gas made from insecticides and a chemical additive that would help speed up penetration into the skin."[18]

Other chemical weapons al Qaeda sought to develop included "World War I-era agents such as hydrogen cyanide, chlorine, and phosgene," according to U.S. intelligence sources.[19] Al Qaeda also reportedly was involved in "producing agents such as botulinum toxin and toxins from venomous animals."[20]

Tests of various agents were conducted at Darunta on dogs and other animals. One test, the video of which was widely disseminated by CNN after the Afghanistan war, showed a caged dog dying from exposure to a toxin.

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[17] Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction.

[18] "PC Apparently Used by Al-Qaeda Leaders Reveals Details of Four Years of Terrorism." *The Wall Street Journal.* December 31, 2001.

[19] Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction. March 31, 2005.

[20] Ibid.

In May 1999, Khabab was deemed to have made "significant progress" in developing non-conventional weapons.[21] Still, a report the following month stated the program's reliance on nonspecialists had "resulted in a waste of effort and money." As an alternative strategy, the report urged the recruitment of experts from educational institutions who, it predicted, would be the "fastest, safest, and cheapest" route to gain access to non-conventional weapons.[22]

To develop an anthrax weapon, al Qaeda recruited Abdur Rauf, a Pakistani with a doctorate in microbiology.[23] At the time, he was working at the Pakistan Council of Scientific and Industrial Research in Lahore, and was a member of the Society for Applied Microbiology, based in Britain.

Rauf traveled throughout Europe to obtain a lethal strain of *Bacillus anthracis* and the necessary equipment to set up a laboratory in Kandahar. Documents recovered from the terrorist training camps in Afghanistan detail some of Rauf's activities.

In a note to Zawahiri, Rauf said he had acquired or arranged to purchase respirators, a fermentor, and vaccines to protect lab workers.[24] He also provided to Zawahiri a diagram of a biological lab that described in detail the space allocated to culture and develop an anthrax weapon, and the space needed to conduct tests on animals.

At least one effort by Rauf to locate a lethal strain of *Bacillus anthracis* proved futile. He told Zawahiri that he had found a source at a laboratory but it turned out to be a harmless

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[21] Ibid.
[22] Ibid.
[23] A non classified analysis of U.S. intelligence describes anthrax as "Agent X." *U.S. News & World Report* said sources identified "Agent X" as a strain of anthrax. See "On al Qaeda, Totally in the Dark." April 11, 2005.
[24] "Suspect and a Setback in Al-Qaeda Anthrax Case." *The Washington Post.* October 31, 2006.

strain. "Unfortunately, I did not find the required culture of B. anthrax – i.e., pathogenic," he confided to Zawahiri.[25]

In a later communication, Rauf stated he had "successfully achieved the targets." Exactly what this refers to is unknown. In the communication, he also described a visit to a biosafety level 3 laboratory that had a "special confidential room in which thousands of cultures are placed."[26]

Assisting Rauf on the anthrax project was Yazid Sufatt, a member of Jemaah Islamiyah, a Malaysian Islamic terrorist organization with close ties to al Qaeda. Sufatt received a degree in chemistry in 1987 from California State University, Sacramento. Afterwards, he returned to Malaysia to serve in the army, achieving the rank of captain. During his service, he was a laboratory technician assigned to the medical brigade.

Sufatt had been recommended in 2000 by Riduan bin Isomuddin (also known as Hambali), the leader of Jemaah Islamiyah. In a meeting with Zawahiri, Hambali introduced Sufatt as "the man who was capable of leading al Qaeda's biological weapons program."[27]

For several months in 2001, Sufatt worked on the anthrax project in the Kandahar laboratory set up by Rauf. Sufatt, who described himself as the "CEO" of al Qaeda's anthrax program, discussed with Hambali the possibility of "continuing the anthrax program in Indonesia."[28]

Weeks after the 9/11 terrorist attacks, Thai law enforcement officers captured Hambali. He was handed over to U.S. custody and later interrogated by Jordanian authorities. Hambali claimed al Qaeda had "produced high-grade anthrax" and disclosed the location in Kandahar. "The CIA soon

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[25] Ibid.

[26] "Suspect and a Setback in Al-Qaeda Anthrax Case." *The Washington Post*. October 31, 2006.

[27] At the Center of the Storm. George Tenet. HarperCollins. 2007. p. 278.

[28] "Interrogation: Al Qaeda and Anthrax." *Newsweek.* April 12, 2004.

descended on a house in Kandahar and discovered a small, extremely potent sample of the biological agent."[29] The anthrax was produced in the months before 9/11, according to the intelligence agency, and could have been readily cultured and weaponized.[30]

Al Qaeda's non-conventional weapons program was severely disrupted by the Afghanistan war. Training camps were destroyed, the Kandahar laboratory was shut down, and key leaders either fled, were captured or were killed. Pakistani authorities detained Rauf in late 2001. Al-Masri was killed in a U.S. missile attack in January 2006.

Not every facility, however, was destroyed in the war. In 2000, al Qaeda provided funding to Abu Musab al-Zarqawi, founder of the Islamic extremist group, Jund al-Sham, to establish a training camp in northern Iraq, adjacent to Iran's border. Zarqawi had led numerous attacks in Jordan, including the bombing of three hotels in Amman that killed 57 people, and the unsuccessful plot to bomb the Radisson Hotel in Amman during the new Millennium.

While in northern Iraq, Zarqawi joined Ansar al-Aslam, a "radical Kurdish Islamic group" allied with al Qaeda. He set up a chemical and poisons laboratory at Khurmal in northern Iraq, which he supervised from May 2002, until it was bombed during the Iraq War in early 2003. To test weapons, experiments were reportedly conducted on animals at the training camp and, in one case, on a "hapless associate" of Zarqawi.[31] After the camp was bombed, samples were obtained from the laboratory that confirmed "poisons and toxins had been produced at the camp."[32]

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[29] The One Percent Solution. Ron Suskind. Simon & Schuster Paperbacks. 2006. p. 251

[30] Ibid.

[31] At the Center of the Storm. George Tenet. HarperCollins. 2007. p. 277.

[32] Ibid., p. 351.

Zarqawi planned a series of chemical weapons attacks in Europe, which "began to mature" in December 2002. The main targets were in the United Kingdom, France, Spain, and Italy. By tracking activities in Khurmal, authorities successfully disrupted the planned attacks and nearly 100 Zarqawi operatives were arrested. [33]

Zarqawi later emerged in Iraq, where he is credited with bombings against the Coalition Forces. He was killed in an air attack on June 7, 2006.

The war in Afghanistan greatly disrupted al Qaeda's leadership, training camps, and finances. Since then, the terrorist organization has regrouped and is gaining strength, according to a 2007 National Intelligence Estimate. Al Qaeda has been able to regenerate key infrastructure, including a safe haven in western Pakistan, operational lieutenants, and top leadership.[34]

The intelligence assessment states al Qaeda "will continue to try to acquire and employ chemical, biological, radiological, or nuclear material in attacks and would not hesitate to use them if it develops what it deems is sufficient capability."[35]

C. Anthrax Attack Discovered

New York's Mayor was enjoying dinner at an Upper East Side neighborhood restaurant when a police officer from his protective detail approached the table.

"There's been a terrorist attack in the subway," he whispered in the Mayor's ear.

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[33] Ibid.

[34] "The Terrorist Threat to the U.S. Homeland." National Intelligence Estimate. July, 2007.

[35] Ibid.

"What?"

"A terrorist attack," continued the officer. "It looks like anthrax."

The news struck the Mayor like a fist to his gut.

"Are you certain?"

"It's bad."

"What is it?" inquired the Mayor's wife, reading the concern etched in his face.

He shook his head. "Something I have to check out," he answered trying not to alarm those at the table. "I might be late; don't wait up for me, dear."

He took a deep breath and followed the officer outside to his limo. The usual chase car had been augmented by several SUVs with black-tinted windows and a number of police cruisers.

A plainclothes officer stood by the limo with the rear door open. "Take my wife out to our place on the Island," he told the officer. Tell her to wait there for me."

Then he climbed into one of the SUVs and the convoy sped off with lights flashing. The convoy raced downtown to the city's crisis management facility, where the Mayor was met by Angelo Corsi, his chief of staff, a heavy-set man with slicked-back black hair, tinted glasses, and braces.

"Is it as bad as they say?" the Mayor wanted to know.

"Worse," replied Corsi.

The Mayor followed Corsi through a large room with ringing telephones, scores of people huddled around computers and large screens on the walls tuned to various television channels.

"Nothing on TV yet," Corsi informed him.

"Thank God for small favors," said the Mayor.

They entered the command center, where more than a dozen men and women were assembled around a large table to brief the Mayor and other city officials. The Mayor took

his seat and the city's Homeland Security chief stood up and began the briefing immediately.

"Early this evening, as usual, air filters from the biological detectors around the city were collected and taken to a lab," he began, choosing his words carefully. "As you know, the BioWatch program was established in 2003 to protect New York and thirty other cities against a bioweapon attack. The detectors are about the size of a telephone booth and we monitor them every day.

"At the lab, which is part of the Laboratory Response Network, one of more than 150 labs across the country, biochemists analyzed the particles trapped in the filters. Normally they find various pollutants but tonight...the filters were tested and retested and there's no doubt about it: they detected anthrax. At that point, the lab director was summoned and the chief of your security detail was informed on a secure line. Then they began contacting a prearranged list of officials, including the Centers for Disease Control, the NYPD, the FBI, and others."

"Where was the point of release?" the Mayor wanted to know.

"We're not absolutely certain but every indication suggests the subway system in Queens."

The head of the Metropolitan Transportation Authority spoke next. He informed those present that the subway system had been shut down and passengers evacuated via the nearest exit.

"Have we heard from the Governor?" the Mayor said to no one in particular.

"No," responded Corsi. "He's on a trade mission to Japan."

"How about the President?"

"I assume he's being informed. I think he's on the West Coast, speech and a fundraiser."

"Well, get him on the phone. Now."

The Mayor retreated to his private office. A side door opened and a young woman, the Mayor's press secretary, stuck her head into the room.

"The local stations are reporting the subway evacuations," she announced. "CNN and Fox can't be far behind."

The Mayor cursed under his breath. A moment later the phone rang. He snatched the receiver and jabbed the blinking button on the phone.

"It's the President, sir," came a voice on the other end of the line.

"Put him through." He had met the President on a number of occasions but didn't know him well.

"Mr. President."

"Yes, Mr. Mayor. Terrible news. Terrible. What kind of world are we living in?"

"A dangerous one, sir."

"I'm afraid so; more dangerous than I ever could have imagined."

"Yes, sir."

"I want you to know that every possible federal resource will be available to you and the people of New York."

"That's a great comfort, Mr. President."

"We are raising the Homeland Security threat level and the Vice President is chairing an emergency meeting of the National Security Council. At this time we have no reason to believe that there have been any other attacks elsewhere in the country."

"That's good news."

"I suspect that you'll want to make a public statement soon. I'll wait for you to make the first announcement and I'll have a statement within the hour."

"That'll be just fine, sir."

"Alright. I'm sure we'll speak again before the night's out. God protect you and the people of New York."

"Thank you, Mr. President." The Mayor hung up the phone and slumped back into the high-backed chair. He'd have to give the President credit; the guy was on top of things and it sounded like the federal government was already going into action.

The Mayor returned to the briefing room and listened to a detailed description of the city's contingency plans for addressing an anthrax attack. The plan was predicated on the assumption that thousands of health care workers, first responders, and law enforcement personnel would respond seamlessly, without conflicts or shortcomings, to the emergency, but everyone in the room knew otherwise. Once the public learned of the attack, all hell would break loose and the most carefully crafted plans would likely be rendered obsolete and irrelevant. If the panic spread unchecked, and that was a very real possibility, the social order would collapse and chaos would engulf the city.

It was with such images tugging at his consciousness and a deep sense of foreboding that the Mayor faced the television cameras twenty minutes later. In a calm, matter-of-fact voice he described the known facts. There had been an anthrax attack in the subway system. There was no indication yet who had carried out the attack but it was likely that tens of thousands of subway riders had been exposed. Health workers and first responders were setting up emergency centers, dubbed PODS for Point of Dispensing Sites, throughout the city to distribute antibiotics to those who believed they might be at risk.

"It is vital that everyone exposed to anthrax begin taking an antibiotic regimen as soon as possible," said the

Mayor, punctuating his words with a jab of his forefinger. “As soon as possible,” he repeated for emphasis.

What he didn't say was that after about 24 hours your chances of survival when treated with antibiotics will start to decline with every passing minute.

He concluded his five-minute address with a plea for calm.

"Please, please, don't panic. There are enough antibiotics for everyone, but if order breaks down we won't be able to operate our PODS and people won't get the help they so desperately need."

The Mayor rose and slowly exited the studio. He went to his private office and took a call from his wife, who was still in the car. Unaware of what had happened, she was spitting nails and demanding to know why she had been shipped off to their weekend getaway on Long Island. Her anger quickly dissipated and turned to alarm as he described the emergency facing the city.

"Boss," Corsi said, entering the room. "We’ve got to talk."

"Honey, I've got to go, but I'll call you back as soon as I can," said the Mayor, hanging up the phone. "What is it?"

"The Midtown Tunnel and all of the bridges are jammed with people fleeing the city," Corsi began. "Looting has broken out at several locations and we've put out a call for every police officer in the five boroughs to report to their precinct stations but so far the turnout is minimal. I suspect they're staying at home with their families. Same with doctors and other health care workers. Hospitals report they're already being mobbed with people demanding antibiotics, some with guns. We're going to need the army, probably martial law, otherwise this thing is going to get out of control fast."

The Mayor hesitated for a moment and then nodded in resignation. "Get me the President again."

"It's going to be a long night," said Corsi as he left the room.

"Yeah, I pray we all survive it."

D. Strategic National Stockpile

To respond to a medical crisis in the United States, the government in 1999 created the Strategic National Stockpile (SNS). It is designed to provide "large quantities of essential medical materiel to states and communities...within 12 hours of the federal decision to deploy."[36] The SNS is managed by the Centers for Disease Control and Prevention (CDC) and the Department of Health and Human Services (HHS). The Homeland Security Department is responsible for distributing the medical materiel and there is an agreement with the Department of Defense to assist in planning and support.

The stockpile consists of 50-ton prepackaged payloads, called Push Packets, positioned at 12 locations around the country. The Push Packets contain emergency medicines and equipment, including antibiotics, chemical antidotes, and antitoxins. The supplies are designed to be loaded onto cargo planes or trucks and shipped to anyplace in the U.S. within 12 hours. Each Push Packet contains enough supplies to provide medicines for several hundred thousand people.

The supplies are first transported to Receiving, Staging, and Storage (RSS) sites. The number of RSS sites in a state is dependent on a variety of factors, including population, geography, and airfield availability. From the RSS sites, the

[36] Centers for Disease Control and Prevention. http://www.bt.cdc.gov/stockpile/

medical materiel is then distributed to health care networks. To rapidly distribute prophylaxis (medicines such as antibiotics and vaccines) to the public, special clinics or PODS (points of dispensing sites) will be established.

During an emergency, the drugs and equipment will be dispensed free to the public by trained individuals. The goal for each POD is to achieve a throughput in the first hour of 500 people and thereafter 1,000 people per hour.

The Push Packets represent less than ten percent of the nation's available inventory of medical materiel. If additional supplies are needed, private industry will tap its inventories, based on prearranged agreements with the government, and ship the supplies to arrive in 24 to 36 hours.

To provide assistance to the public in the event of a chemical attack, the CDC has prepositioned caches of antidotes to treat 1,000 victims in selected cities.

To request emergency medical supplies, a governor's office must make a request to the CDC or HHS. The request will be promptly evaluated by federal authorities and a decision will be made. The federal government can also initiate the deployment of supplies.

New York City is designated "green status," which means it can get immediate access to the medical materiel, the only city in the U.S. with such authority. New York City has plans to set up more than 200 PODS to "mass-medicate" the public. In a drill, the city's highest rate of dispensing drugs at a POD was 1,400 people an hour.[37]

The city also has a plan to provide medications to first responders so they are protected and can provide assistance to the public.

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[37] "Remain Calm: Avian Flu, Hurricane, Chemical Spill, Terrorist Bomb, Earthquake." *New York Magazine*. November 14, 2005.

An anthrax attack over a large geographic area is viewed as a "worst-case scenario." New York City is the nation's most populous city, with more than eight million people, as well as the nation's densest population.

Richard Falkenrath, former Deputy Head of the Homeland Security Council and now Deputy Commissioner of the NYC Police Department for Counter-Terrorism testified that no city in the U.S. is prepared to distribute drugs in the required timeframes.[38]

[38] "Preparing for Bioterrorism: Our Top Ten Consequent Management Problems." Richard Danzig. April 2007.

E. Anthrax

Anthrax (*Bacillus anthracis*), is a bacteria that primarily infects animals, commonly found in areas where livestock graze. Humans are usually exposed to anthrax by coming into contact with infected animals or animal products, such as hides, wool, and leather.

The term bacillus refers to any rod-shaped microbe. When *Bacillus anthracis* is stressed, such as if it "runs out of food, becomes too cold, too dry, too low in carbon dioxide – it resorts to a defense mechanism. The DNA and other essential cell matter gather together near the middle of the cell, and a hard wall forms around the cluster." [39] The result is a spore that can survive in extreme temperatures for decades.

Anthrax is not contagious. The bacteria can enter the body through a scratch or cut in the skin. An infection that forms on the skin – cutaneous anthrax – is deadly about 20 percent of the time if untreated. When spores are eaten, most often through contaminated meat, gastrointestinal anthrax can develop that is lethal, if untreated, in 60 percent of the cases.

Inhalation anthrax, the most deadly form, occurs when the bacteria are inhaled deep into the lungs. If a virulent strain is untreated, the rate of death is close to 100 percent.

There are about 300 known strains of anthrax.[40] According to experts, strains have different properties, with some more virulent than others. A more deadly strain, for example, may be more infectious and kills more rapidly.

Anthrax spores range in size from .5 to 1 micron, which are invisible to the naked eye. For comparison, a human hair is about 50 microns wide. Active anthrax bacillus ranges from 1-

[39] "Milling Anthrax: One Click Away." *Human Events*. October 29, 2001.
[40] "Panel Will Call for $3.2 Billion in Biological Defense." UPI. September 5, 2000.

2 microns in diameter and 3-4 microns in length. Our body's defenses generally stop particles larger than five microns from entering the lungs.

Anthrax spores that enter the lungs are attacked by white blood cells (alveolar macrophages), a normal immune response. "But instead of succumbing to the defensive assault, they survive and germinate within the cells, traveling with the macrophages in their normal sentinel duty throughout the body to the lymph nodes."[41] Here, the bacillus rapidly proliferate, overwhelming the lymphatic system in a matter of hours, and then enter the blood stream, leading to systemic shock.

The number of spores inhaled to ensure infection is believed to be 8,000 to 10,000. Some scientists, however, state there is no safe level of exposure and "even one spore has some probability of causing infection."[42]

Victims normally do not experience symptoms for several days. The first signs of infection might include a slight cough, achy joints, chills, and headache – the same as a cold or flu.

Antibiotics, such as Cipro (ciprofloxacin hydro-chloride), are used to treat inhalation anthrax. They are most effective when administered soon after exposure. With time, the disease progresses and the effectiveness of antibiotics declines. "Once the patient shows specific symptoms of anthrax infection," according to Ken Alibek, "it is usually too late."[43]

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[41] "Molecular Mechanism Underlying Anthrax Infection Described by UCSD School of Medicine Researchers." Science. August 29, 2002.

[42] "No Such Thing as "Safe" Dose of Anthrax, Biologist Says." *Grand Rapid Press*. November 1, 2001.

[43] "Bioterrorism and Potential Sources of Anthrax." Testimony before the House Committee on International Relations. December 6, 2001.

People with weakened immune systems are more vulnerable to infection and likely will experience symptoms before healthier individuals.

After exposure to anthrax, treatment with antibiotics is recommended for 60 days. Penicillin, tetracyclines and floroquinolones can all be effective if administered early.

A vaccine to protect against inhalation anthrax has been developed that is available to military personnel. Most soldiers are vaccinated, a process that requires six shots and yearly boosters.

F. New York Medical Center

It was near midnight and Dr. Marc Grossman had been on shift for eleven hours when a wild-looking man, dressed in a rumpled suit and tie, burst into the hospital's emergency room. He grabbed Grossman, who was evaluating a patient complaining of severe chest pain.

"Doc, doc, you've got to help me."

"Call security. Get this man out of here," cried Grossman, pushing the man away. The man crashed into a cart, upending it, sending medical supplies scattering across the floor. A nurse screamed.

"I need antibiotics," cried the man, as he slowly picked himself up off the floor. "Antibiotics. If I don't get 'em I'll die."

"Where's security?" Grossman demanded of a nurse with her ear to the telephone.

She cupped her hand over the mouthpiece. "They say there's a riot outside and every officer is deployed at the doors."

"Where's the pharmacy?" the intruder shouted at one of the nurses. "The pharmacy?"

The terrified nurse didn't reply and the man staggered from the ER mumbling to himself.

"What the hell is going on?" asked Grossman.

"The anthrax attack," a male nurse said. "People are going crazy."

Grossman had been informed of the attack but had been busy all night with the usual array of emergency room cases: a coronary thrombosis, three people injured in a car accident, a knife wound, a baby with third-degree burns.

Grossman turned his attention to the cardiac patient, checking vital signs, when he heard a female voice behind him.

"Doctor, you've got to come, quick." It was one of the surgical residents.

"I can't. I'm busy."

"Dr. Katz says he needs you now." Arthur Katz was the hospital director.

"But--"

"Now, he said. At the entrance."

Grossman left the ER and quickly made his way down the crowded hospital corridor to the front of the building. He could hear angry voices and shouts from outside. Dr. Katz was standing near the admissions desk, surrounded by a group of white-jacketed orderlies. When he caught a glimpse of Grossman, he waved him on over.

"Marc, am I glad to see you."

"What's going on Arthur?"

"We're a designated POD," Katz told him. "We got a shipment of antibiotics from a government stockpile and we've been handing them out for about three hours." He turned to one of the orderlies.

"How many people are we processing per hour?"

"Maybe 1200 an hour," the orderly responded.

"The crowd is growing with every passing minute," Katz said. "I'm told there are at least 10,000 people out there now and things are getting nasty."

Grossman peered out the window at the sea of people engulfing the tables where the pharmaceuticals were being handed out. A dozen hospital security guards and a couple of uniformed NYPD officers were doing their best to maintain order but the situation was rapidly deteriorating.

Television news choppers hovered overhead filming the growing chaos and in the distance smoke began rising along the skyline from several fires burning out-of-control.

"We'll run out of antibiotics in a few more hours," Katz continued. "I've got to get on the horn and find some more or that crowd will storm this place. You take over until I return."

Grossman gave a nod of resignation.

As the minutes ticked by, the crowd outside became increasingly restless. Angry voices could be heard above the din, urging the crowd to storm the tables and take what they needed.

A rock suddenly crashed through one of the plate-glass windows, not far from where Grossman was standing, showering him with glass. The crowd surged forward toward the hospital, overrunning the tables, pushing the health care workers out of the way, snatching up every package of drugs on the tables and carting off boxes of ciprofloxacin.

The guards by the entrance to the hospital gave way as the crowd rushed the doors and spilled into the medical center looking for more antibiotics. A man holding a pistol in one hand and a child by the other, made a beeline for Grossman. He pointed the gun at Grossman's forehead.

"I know there's Cipro here," the man shouted. "I don't want to hurt anybody but I will if you don't get me some now. I'm not going to let my family die."

"But I don't have any," pleaded Grossman, raising his hands, his eyes wide with fear. "It was...outside."

"Cipro," screamed the man.

"I...the pharmacy. There may still be some in the hospital pharmacy."

"Which way?"

Grossman turned and pointed weakly at a long corridor behind him. "There."

Desperate men and women were pushing by them, bumping them as they passed, oblivious to the man with the gun and little drama playing out before their eyes.

"You better be telling the truth." The man cocked the pistol.

"I am, I swear I am," cried Grossman.

"No, you just --"

A large man wearing Levis and a Jets jacket stumbled and fell to his knees. An instant later another man tripped over him and hit the gunman square in the back. The gun discharged, the bullet slamming into Grossman. He was dead even before he hit the floor.

The gunman stood dazed, the smoking pistol in his hand.

"Whaaa?"

Then he was shot by a policeman standing a short distance away.

G. Aftermath

Two weeks after the attack, a reporter asked the Mayor what had gone wrong.

He responded simply, "The city went nuts."

The events at the New York Medical Center were repeated across the city. Hysterical crowds stormed hospitals

and clinics, taking what they wanted and woe to anyone standing in their way. Virtually every pharmacy in the city had been broken into. Looting was widespread and fires had gone unfought because the streets were full of mobs and gunfire.

Ultimately order was restored by the National Guard and federal troops airlifted to the city. Unlike the civilian population, most military personnel are vaccinated against anthrax.

About sixty hours after the attack, people began appearing at hospitals and clinics complaining of aches, fever, and sore throats. Many of the health care facilities, however, were closed with only skeletal staffs, owing to the violence and disorder in the city. Thus, people began to collapse in their homes and on the streets. At first, bodies were simply left where they had fallen because funeral homes and city services were not functioning.

Thousands who needed antibiotics could not get them in time since the PODS throughout the city had been overrun, and it took the military three days to set up new distribution centers with proper security and adequate supplies of antibiotics. People would have to take antibiotics for sixty days.

Catastrophe was averted though because the anthrax strain used in the attack, while lethal, was crudely weaponized. As a consequence, casualties were a fraction of what they could have been. Still, the number of deaths had reached beyond 16,000.

The Metropolitan Transportation Authority announced the city's subway system, which carried more than 4.5 million people on a normal day, would be closed indefinitely. No one knew how long it would take to clean up the trillions of anthrax spores distributed throughout the tunnels. Spores had also escaped above ground – through the

ventilation system, or by migrating up the stairs and escalators at stations, or pulled out of the tunnels by the trains – which would remain a threat until degraded over time by sunlight. Afraid of being infected, most people refused to enter Manhattan or Queens.

Perhaps the greatest impact was on the economy of the nation. The New York Stock Exchange had closed on the morning after the attack and not yet reopened. An effort to stand up the bond market had failed and U.S. government paper could not be sold; as a consequence, Washington was about to run out of money. More than three million people had been idled or lost their jobs, and the ripples were just beginning to be felt around the country. Economists feared that the unemployment rolls could increase by as many as nine million people.

The attack had reverberated everywhere, like the ripples from a stone tossed into a pond. Markets around the world had dropped by more than forty percent and a global depression seemed all but certain. And if the New York subway system could be hit, then people knew every other underground in the world was vulnerable; subway ridership was down as much as eighty percent in the U.K. and France.

New York City itself was a ghost town. The lights of Times Square and the marquees of the Great White Way were dark. Its museums, restaurants, and stores were barred and shuttered. Most apartment buildings were empty; everyone who could leave the city had done so. Decontamination crews and military patrols, wearing respirators and moon suits, moved soundlessly up the once bustling streets as rats skittered over the broken glass.

H. Obtaining *Bacillus Anthracis*

> *Al Qaeda spared no effort in its attempt to obtain biological weapons*.
>
> Former CIA Director George Tenet

To develop an effective anthrax weapon, it is first necessary to acquire a virulent strain of *Bacillus anthracis.* The bacteria are present in soils around the world.

Terrorists could collect samples from feedlots and pastures where cows, sheep, and other animals congregate. But a fleck of dirt can contain dozens of different bacteria. To isolate the *Bacillus anthracis* is a time consuming process that requires a level of knowledge and skill. Once a strain is isolated, there is no guarantee it will be deadly. The bacillus must be cultured and then tested on animals to determine its virulence.

As an alternative, terrorists could seek to acquire a sample of *Bacillus anthracis* from an animal killed by anthrax. Reports are regularly publicized on animal deaths around the world from the disease.[44]

Strains of *Bacillus anthracis* are located in culture repositories, such as the American Type Culture Collection (ATCC) in Virginia and the Pasteur Institute in Paris. The repositories provide samples of biological materials for research. They also offer microorganisms, cell lines, and other biological materials as standard references to ensure valid comparisons of research results.

As of 2001, there were 473 microbe repositories in 62 countries, according to the World Federation of Culture

[44] http://www.promedmail.org. 2007.

Collections.[45] Of this total, *Bacillus anthracis* was available for sale from 46 facilities.[46]

According to Ken Alibek, "Viruses and bacteria can be obtained from more than 1,500 microbe banks around the world."[47]

Until 1995, gaining access to dangerous pathogens from culture collections in the U.S. was relatively easy. Laws were tightened after Larry Wayne Harris created a fake laboratory letterhead to obtain vials of *Yersinia pestis*, a bacterium that causes plague. Researchers now must be legitimately employed and credentialed before receiving any samples.

Public and private laboratories around the world conducting research on pathogens also are a potential source of *Bacillus anthracis.* Terrorists could recruit a legitimate researcher in a laboratory working with pathogens or with access to a microbe repository to obtain a sample of *Bacillus anthracis.* Other countries have less stringent restrictions on the distribution of deadly pathogens.

Alternative strategies terrorists could pursue include breaking into a laboratory, bribing a scientist, or threatening a researcher to gain access to a lethal sample.

Many countries conduct research on anthrax or are suspected of doing so, including United States, Russia, Iran, China, Syria, India, Pakistan, North Korea, Israel, Taiwan and Egypt.[48] An anthrax strain could potentially be removed from the state programs and sold or diverted to terrorists. The possibility also exists that weaponized anthrax may have been diverted from a country that formerly developed an anthrax

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[45] "Ordering Germs? There Are Hurdles First." *The Washington Post*. October 12, 2001.
[46] Ibid.
[47] Biohazard. Ken Alibek. Random House. 1999. p.278.
[48] "A BW Risk Assessment; Historical and Technical Perspectives." *The Nonproliferation Review*. Fall-Winter. 2004.

weapon. Since the 1960s, six countries are known to have weaponized anthrax, including the United States, Soviet Union, United Kingdom, Canada, South Africa, and Iraq.

The U.S. unilaterally renounced the use of chemical and biological weapons in 1969, and signed the Biological and Toxin Weapons Convention in 1972, which prohibits the development, production, and stockpiling of chemical and biological weapons. The treaty requires the destruction of existing chemical and biological weapon stockpiles.

The Soviet Union was a signatory to the Convention at its inception. Iraq also signed, but did not ratify the protocol. Iraq, however, is a party to the 1925 Geneva Convention that forbids the use of chemical and biological weapons.

Both the Soviet Union and Iraq violated the treaties and secretly developed biological and chemical weapons in the 1980s.

1. Soviet Union

Soon after signing the Biological and Toxin Weapons Convention, the Soviet Union established a new massive bioweapons program. At its peak, some 60,000 workers were employed at more than 55 secret sites throughout the country.[49] The largest anthrax manufacturing facility was located on Vozrozhdeniye Island ("Voz Island"), a desolate stretch of land in the Aral Sea. Summertime temperatures on the tiny isle reach a scorching 140 degrees.

The island had been used for decades by the Soviet Union for open-air bioweapon tests. Seven large plants were constructed to produce biological and chemical agents. Just one facility was equipped with ten 20-ton fermentors to culture

[49] "Terrorist and Intelligence Operations." Testimony by Ken Alibek. U.S. Congress, Joint Economic Committee. May 20, 1998.

anthrax and plague. The site produced two tons of anthrax a day "in a process as reliable and efficient as producing tanks, trucks, cars or Coca-Cola."[50]

The Soviet Union developed a highly lethal strain of anthrax. The original sample, dubbed Strain 836, was collected from a rodent in a sewer in 1956. It proved to be the "most powerful of the dozens of strains investigated over the years by army scientists for their weapon's potential."[51] To compare its virulence with other weaponized anthrax, the KGB obtained 14 strains from other countries in 1984. Based on tests, Strain 836 was deemed ten percent more deadly than the most virulent foreign strain. In subsequent years, the Soviets enhanced the lethality of the anthrax strain threefold, according to Ken Alibek, who headed the anthrax program on Voz Island.[52]

The Soviet Union produced tons of anthrax for its strategic arsenal. In an attack, ICBM warheads would disperse anthrax over cities. A single warhead reportedly could kill the entire population of New York City.

Concerned the West might discover its bioweapons program, the Soviets began to destroy its stockpile of anthrax in 1988. Hundreds of tons of anthrax stockpiled throughout Russia were placed into stainless steel containers, soaked with bleach to kill the spores, and then transported by rail back to Voz Island. Soldiers there buried the anthrax in pits after again dousing the spores with bleach.

Tests of biological weapons continued at Voz Island until 1992, when then-President Boris Yeltsin announced the closure of all Russian bioweapon sites. In 1995, U.S. experts had an opportunity to visit the island and confirmed the plant had been dismantled.

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[50] Biohazard. Ken Alibek. Random House. 1999. p. 105.
[51] Ibid., p. 78.
[52] Ibid., p. 145.

A U.S. team returned to the island in 2002 to further clean up the site. Active spores were discovered in some of the burial pits. The team uncovered 11 stainless steel containers with anthrax, which were decontaminated with chlorine and reburied. The team also applied about 70 tons of chloride to destroy remaining anthrax spores.

Official records on the production of anthrax by the Soviet Union have never been made available to the West. The total amount of anthrax manufactured and destroyed is unknown. Small amounts of anthrax could have been diverted without notice. Even if records were available, the data is likely unreliable. To keep track of inventories, officials relied on paper records. According to a source in Russia, separate inventories were often maintained off the books to make up for production shortfalls.

Voz Island is now the world's largest burial ground for anthrax. After decades of open-air tests, the site remains a potential repository of anthrax strains that could be gathered by terrorists. On the testing range, "there's so much anthrax everywhere that it's virtually lying on the ground waiting for someone to pick it up," a news source stated.[53]

Gruinard Island, used by the British as a testing site for anthrax during World War II, was contaminated for 36 years. To clean up the island required the removal of the most contaminated topsoil and 280 tons of formaldehyde spread over 520 acres.

2. Iraq

Iraq's bioweapons program began in 1974 at the Al Hasan Ibn-al-Haytham Institute, founded by Ghassan Ibrahim, a

[53] "USSR One of Many Sources for Anthrax." *The Baltimore Sun*. October 17, 2001.

captain in the chemical corps, and Faiz 'Abdallah al Shahin, an officer in the Iraqi Intelligence Service.[54] Scientists at the Institute's main laboratory, located in a suburb of Baghdad, conducted basic research, including growing an "anthrax organism and inducing sporulation."[55]

The Institute was closed down in 1978 after Ibrahim was charged with fraud and embezzlement, and then imprisoned. Iraq's bioweapons program made little progress until 1980, when Saddam Hussein came to power. He made the development of chemical and biological weapons a top priority. Research initially focused on mustard gas, which was subsequently used in the war against Iran.

Not until the mid 1980s did Iraq revitalize its biological weapons program at Al Salman. Studies were conducted on the scale-up production of anthrax and aerosolization. During this period, Iraq purchased four strains of anthrax from the American Type Culture Collection (ATCC), as well as samples from the Pasteur Institute.[56] It settled on the ATCC "strain 14578 as the exclusive strain for use as a BW."[57]

In March 1988, Iraq selected a production site "at a remote desert location about 55 kilometers southwest of Baghdad," initially designated Project 324.[58] It later was "known as Al Hakam and became Iraq's main BW production facility."[59]

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[54] www.globalsecurity.org

[55] Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD. Biological Weapons. September 30, 2004. p. 20.

[56] "Iraq Says Virginia and French Labs Supplied All its Germs." *International Herald Tribune*. March 17, 2003.

[57] Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD. Biological Weapons. September 30, 2004. p. 21.

[58] "The Iraqi Biological Weapons Program." Deadly Cultures. Harvard University Press. 2006, p. 177.

[59] Ibid.

At the site, scientists used 7- and 13-liter laboratory-scale fermentors to culture bacteria. Iraq also "obtained two capable dryers that were air freighted into Baghdad in 1980."[60] Scientists first produced a non-lethal bacteria, *Bacillus subilis*, to validate growth and production processes.

In March 1989, Iraq began to manufacture anthrax. "About 15 or 16 production runs were performed, producing up to 1,500 liters of anthrax, which was concentrated to 150 liters."[61]

Full production started in 1990. Iraq reportedly manufactured 8,425 liters of anthrax at Al Hakam.[62] The production allegedly utilized a "novel one-step process that involved drying spores in the presence of aluminum-based clays or silica powders."[63] As described by UN weapons inspectors, "Saddam's military biologists were no longer relying on mechanical milling machines to render dried-out paste-colonies of *anthracis* bacteria into a fine dust, but had instead refined a spray drying technique that produced the dust in a single step."[64]

The anthrax was incorporated into bombs and rocket warheads. The bombs contained 50 pounds of anthrax and the rocket warheads were filled with ten pounds of anthrax.[65]

After the 1991 Iraqi War, a UN Security Council Resolution required Iraq to surrender all weapons of mass destruction and destroy its bioweapons infrastructure. Rather than submit to the demands, Saddam ordered the destruction of

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[60] Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD. Biological Weapons. September 30, 2004. p. 20.
[61] "Biological Weapons Program: History." www.fas.org.
[62] Ibid.
[63] "Milling Anthrax: One Click Away." *Human Events*. October 29, 2001.
[64] "Remember Anthrax?; The FBI Seems to Have No Idea Who Sent It, But Won't Let Go of its 'Lone American' Theory." *The Weekly Standard*. April 29, 2002.
[65] "Milling Anthrax: One Click Away." *Human Events*. October 29, 2001.

evidence of its chemical and biological weapons program. Stockpiles of weapons and agents were destroyed or hidden. Twenty-five missiles equipped with biological warheads (botulinum toxin, anthrax, and aflatoxin) were concealed in an embankment of the Tigris Canal, northwest of Baghdad. Ten other warheads filled with botulinum toxic were secreted in a former railway tunnel in northeast Baghdad.[66]

The amount of anthrax produced and destroyed by Iraq is unknown because detailed documents were not maintained or were destroyed. Also unknown is the quantity of anthrax incorporated into weapons.

A small amount of anthrax could have been diverted and could still exist. Only a tiny quantity is necessary as a feedstock to culture additional bacteria.

In 1989, Iraq declared it had not produced anthrax spores. But UNSCOM "acquired evidence that anthrax spores were produced at Al Manal, located on the outskirts of Baghdad."[67]

Saddam's remaining bioweapons program may have been transferred to Syria. According to former Iraqi General Georges Sada, Saddam secretly transported elements of his biological and chemical weapons program to Damascus in June 2002, using cargo planes converted from 747 and 727 commercial jets. The passenger seats, galleys, and storage compartments were removed from the planes and new flooring was installed. Filled with bioweapon supplies, the planes flew to Syria under cover of providing aid to victims of a flood, caused by the collapse of a dam.[68]

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[66] Comprehensive Report of the Special Advisor to the DCI on Iraq's WMD. Biological Weapons. September 30, 2004. p. 50.

[67] "The Iraqi Biological Weapons Program." Deadly Cultures. Harvard University Press. 2006, p. 178.

[68] "Saddam Sent WMD to Syria, Former General Alleges." CBSNews.com. February 2, 2006.

Sada said he learned about the secret mission from two Iraqi Airways captains who had flown the planes. Two flights were made daily, Sada alleged. "Fifty-six sorties were done between Baghdad and Damascus."[69]

[69] Ibid.

V. Reload Attacks

A. First Attack

FBI Special Agent Sandi Timmons was squeezed between two dark-suited attorneys at a noisy bar in the back of a Washington, D.C. restaurant, waiting for a friend to join her for dinner. A large-boned dishwater blonde with a pretty face, she had arrived early, directly from the office. Sandi was on her second glass of wine, absentmindedly watching CNN on a television mounted above the bar, when a Special News Report interrupted the regular program.

The news anchor announced that health officials in Minneapolis had contacted the Centers for Disease Control and Prevention in response to a mysterious illness. Victims of the illness had been rushed by ambulance to area hospitals, but details remained sketchy. A talking head was introduced who speculated that, "contaminated food is often the culprit in cases like this. It could be *E. coli*, salmonella, or something like Legionnaires' disease."

Sandi was pondering the possibilities when her Blackberry went off. She dug it out of her shoulder bag and gazed down at it. An email announced, "Red Code Alert. Confirm."

"What now?" she thought to herself. She had been looking forward to dinner but it would have to be put on hold. She tapped out a return message, dropped a $20 bill on the bar, and rushed outside to M Street, where she hailed a taxi that would take her back to headquarters.

Three hours later she was on a government jet en route to Minneapolis, part of a special task force sent to investigate the mystery illness. Owing to her undergraduate

degree in microbiology, she was often tasked to investigate cases involving germs.

On the plane, Sandi was briefed by Special Agent Hector Morales. Earlier in the day, he told her, a white male teen from St. Paul had been admitted to a hospital suffering from choking fits and convulsions. A short time later he went into shock and expired. Subsequently, eight other patients had died after experiencing similar symptoms.

"Preliminary tests indicate anthrax as the probable cause," Hector concluded.

The diagnosis startled Sandi. She had worked on the anthrax investigation in 2001 that to this day remained unsolved. Envelopes containing anthrax had been mailed to various media personalities and politicians. Five people had died, most of them in the postal facilities that had processed the mail.

She wondered if the same perpetrator had resurfaced. In a mindset characteristic of law enforcement professionals, she was, in a strange way, happy that a new opportunity may have arisen to bring him to justice, even if it meant some dead bodies.

The jet touched down at Minneapolis/St. Paul International Airport and taxied to a private hanger where vehicles were waiting to shuttle the task force to a hotel near the federal building; everyone would assemble in the morning at the FBI offices.

Sandi couldn't sleep and rose early, eager to get the investigation under way. She skimmed the *Minneapolis Star Tribune.* The banner headline screamed, "Anthrax Attack on the Twin Cities: Governor Declares State of Emergency." The body count from the attack had climbed to thirteen; most of the victims were teenagers.

Events moved quickly. It was soon ascertained that all of the victims had attended the same movie at a Cineplex in

the Mall of America, the country's largest mall with 520 stores. The complex had opened at 9:00 a.m. but police, acting on orders of the Governor and federal officials, evacuated the mall and announced that it would remain closed until further notice.

Public health officials issued an alert for everyone who had visited the mall during the past week, and their families, to seek immediate medical assistance. PODS were set up to distribute antibiotics. Health care workers took nasal swabs to test for exposure at more than two dozen locations set up around the Twin Cities, and another dozen throughout the state.

The FBI Task Force began gathering every piece of potential evidence. They collected guest lists at every hotel and motel within a hundred mile radius of the Mall of America, airline and rail passenger manifests, and rental car contracts. Every law enforcement informant was leaned on, and leaned on hard. Copies were made of hard drives at local internet cafes.

Tapes and discs from every security camera near the Mall were collected and analyzed. In view of the fact that more than 100,000 people a day visited the Mall, authorities were not optimistic that they could identify the attacker.

Sandi did a rough calculation regarding how many people were probably directly exposed to the anthrax at the Cineplex. On the day of the attack, the theater had sold 478 tickets of the three showings of the film attended by the victims. Another 900 people had attended screenings before the theater was shut down. Once audience members were contaminated, they had exited the theater, passed through the lobby, and strolled through the Mall, carrying anthrax spores with them wherever they went, potentially exposing everyone with whom they came into contact. Tens of thousands of people were at risk.

CDC scientists analyzed the spores collected in the Mall and in the effects of those infected. The particular strain of anthrax was highly virulent, but different from the Ames strain employed in the 2001 attacks. The efforts, however, to weaponize the anthrax were not very sophisticated, suggesting that the deadly spores had been produced by relative amateurs in a small lab.

There were no obvious suspects despite the fact that a number of extremist groups in the U.S. and abroad had claimed responsibility for the attack. None of the claims were credible, Sandi and her colleagues concluded, although every one had to be run down to the extent possible.

As the days passed, more than 800 people died from inhalation anthrax and then, as suddenly as it began, the outbreak died away, with no new cases reported.

Two months later, Sandi and the members of the Task Force were no closer to solving the case than they were on the day they began their investigation. It was, in many ways, a replay of the 2001 investigation where the FBI expended a half a million man hours investigating the case without a single arrest.

B. Developing an Anthrax Weapon

The U.S. government set up a secret program in 1999, called Project Bachus, to determine the level of difficulty for terrorists to develop an anthrax weapon.[70] Technicians set up a laboratory at a remote location in Nevada, using equipment

[70] There reportedly have been other programs to determine the difficulty of building an anthrax weapon. They include Bite Size, Clear Vision, and Operation Divine Junker.

purchased from local hardware stores and the Internet, including a 50-liter fermentor and a milling machine.[71]

After several months, the team successfully produced a couple pounds of non-lethal *Bacillus thuringiensis*, demonstrating the barriers for terrorists to build an anthrax weapon are surmountable.

Bacillus anthracis is deadly by itself, whether it is a rod-shaped microbe in a liquid or a dry spore. It becomes a weapon when a large number of microbes or spores are massed together that can be dispersed as particles less than five microns.

Culturing bacteria, such as *Bacillus anthracis*, is a basic procedure taught in biology classes. To grow bacteria, a specimen is placed in a Petri dish that has been sterilized and prepared with a gelled nutrient. Transferring the dish to a warm environment, the bacteria will begin to rapidly reproduce.

About 2,000 bacterial species have been cataloged, of which *Bacillus anthracis* is among the easiest to detect. Described as an "opportunist," the bacteria are among the first to grow when placed in a rich nutrient medium.

Producing a large amount of anthrax is a matter of scaling up the process. When *Bacillus anthracis* is placed in a flask filled with liquid and a nutrient, it will begin to reproduce. It consumes the nutrient and excretes waste. When stress occurs, such as a lack of nutrient or dehydration, the bacteria naturally sporulate. This process can also be induced through chemical means.

When *Bacillus anthracis* is cultured and dehydrated, what remains is a cake of dried material that includes spores, organic matter, and dried nutrient. Caked together the spores and debris cannot enter the body to cause infection. If grinded in a milling machine, which is readily available in the

[71] Germs. Judith Miller, Stephen Engelberg, William Broad. Simon & Schuster. 2001. p. 298.

marketplace, the caked material can be turned into particles less than five microns, small enough to evade the body's natural defenses.

When *Bacillus anthracis* is weaponized, the spores are separated from the debris. Small single spores are concentrated and coated with silica to prevent clumping.[72] Silica absorbs moisture and is also commonly used to prevent clumping in spices, cake mixtures, and powders.

Even if spores are not separated from the milled debris, they still can be deadly. In a crude weapon, the concentration of spores will be much less than weaponized anthrax. The spores that do not clump together in groups larger than five microns will be able to enter the lungs and cause infection.

C. Second Attack

As a result of the anthrax attack at the Cineplex, movie attendance around the country dropped by more than half in the weeks that followed and the number of people visiting shopping malls was down by twelve percent. Americans were jittery, hunkered down.

Three months after the attack, Sandi and the other Task Force members were running out of leads, growing more and more discouraged with every passing day. To make matters worse, jihadist websites monitored by the FBI and other government agencies were threatening another imminent attack. The difficulty was no one knew whether to take the threats seriously; there was no real evidence linking the first attack to al Qaeda or any overseas terrorist operation. The threats could simply be opportunistic efforts

[72] Iraq substituted bentonite to prevent clumping.

by jihadists to pile on and take advantage of America's fragile condition.

She had just left another fruitless meeting of the Task Force when her Blackberry sounded. She reached into her purse and checked the screen: "Red Alert. Confirm."

It had happened again. Sandi returned to the FBI offices, where other members of the team were quickly reassembling. They learned that the second attack had occurred in Las Vegas. The first victims had arrived at hospitals that afternoon.

She and the other team members left immediately for Las Vegas and convened as soon as they arrived at the incident command center set up by the FBI. Cognizant of the Twin Cities attack, local health care workers had rapidly diagnosed the symptoms and concluded that it was another anthrax attack.

Interviews with the victims suggested that the point of infection was a low-end casino near the Strip, where patrons – mostly elderly pensioners – were attracted by the $1.99 buffet and huge banks of nickel slots. The casino was shut down immediately and health officials issued a public alert warning anyone who had visited the establishment to seek immediate medical attention.

As in the previous attack, by the time most of the victims realized they were infected by anthrax, it was too late for antibiotics to be effective, especially considering that the majority of the victims were elderly. By the following morning, the first death had been recorded, and by the end of the day sixteen people had succumbed.

The FBI Task Force began collecting names and evidence from every conceivable source. Agents hoped to find connections to the Twin Cities attack. Unlike the Cineplex incident, which had occurred in a dark theater, the

casino was covered by CCTV cameras, and agents hoped they could isolate the perpetrator on video.

The FBI got its first break when investigators found a number of discarded sugar packets, with special linings to prevent bleed-through, contaminated with anthrax spores. It appeared that the attacker had simply ordered coffee and taken the phony sugar packets out of his or her pocket, ripped them open like someone sweetening their beverage, and dumped the spores onto the table. Any movement of air would whisk them away, contaminating the room. As long as the attacker had been vaccinated or taken appropriate levels of antibiotics, they were at little risk of infection.

Within hours of the official confirmation of the attack and the public health warning, the Strip was all but deserted. Only eighteen die-hard fans showed up for the evening performance of the Cirque d'Soleil. At the end of the third day, casino owners estimated that the attack had cost more than $200 million dollars already in cancellations and no-shows, and would likely end up driving some of the gaming companies into bankruptcy.

The videos from the surveillance cameras in the casino were digitally enhanced by computers and scrutinized by Sandi and other members of her team. Working in round-the-clock shifts, they finally isolated a possible suspect: a male with short grey hair and mottled beard wearing thick glasses, a yarmulke, and a dark suit. More than likely it was a disguise; none of the Task Force members believed the perpetrator was Jewish, although nothing could be ruled out at this time.

Armed with a photo of the suspect, the FBI fanned out around Las Vegas and its environs – visiting motels, restaurants, stores, the airport, strip clubs, even synagogues – to see if anyone remembered seeing the man. After four days hitting the pavement by more than a hundred special agents,

there were still no leads. It was like the man had materialized out of nowhere.

D. The Doctor's Plot

> *The fear must be that there are many more Kafeel and Sebeel Ahmeds out there.*
>
> Senior Indian analyst

Two Mercedes sedans, packed with fuel-air bombs constructed from explosives, gasoline and nails, were parked in Central London on June 28, 2007. The terrorists' planned to remotely detonate one bomb outside the Tiger Tiger nightclub, wait for emergency responders to arrive, and then set off the bomb in the second vehicle parked nearby.

When both explosive devices failed to detonate, another plot was rapidly hatched. Two of the bombers traveled to Glasgow and crashed a Jeep Cherokee, filled with gasoline, into the city's international airport, causing minor damage.

While the vehicle bombs could potentially have killed many people, what make the attacks noteworthy are the terrorist plotters – four doctors and an aeronautical engineer.

Dr. Bilal Abdulla jumped from the Jeep before it smashed into the airport and was promptly arrested by authorities. He was born in Britain while his father was studying medicine. The family moved back to Iraq when Bilal was two years old. He grew up in Baghdad, attending elite schools. After earning a medical degree in 2004, graduating at the top of his class, Bilal traveled back to Britain, where he worked as a diabetes specialist at the Royal Alexandria Hospital in Paisley, near Glasgow. Relatives describe Bilal as a "reluctant doctor" who pursued medicine "because his father wanted him to."[73]

[73] "Bombing Suspect Had Privileged Past." *The Miami Herald*. July 8, 2007.

Shiraz Maher, once a member of Hizb ut-Tahrir (Party of Liberation), an international Islamic extremist group, remembered Bilal, who also was a member of the organization. "Bilal talked about the validity of jihad as the highest pinnacle of Islam," Maher said.[74]

Authorities believe Bilal and Kafeel Ahmed were the ringleaders of the secret terrorist cell. The vehicle bombs are believed to have been built by Kafeel, 28, an aeronautical engineer from India. He received an undergraduate degree in Davangere, India, ranking fifth in a class of 80 students. Kafeel went on to earn a masters degree in mechanical engineering from India's Kuvempu University and a master of philosophy in aeronautical engineering from Queen's University in Belfast. He began a Ph.D. at Anglia Ruskin University but then suspended his studies rather than take out a loan, a practice he found un-Islamic and objectionable. Kafeel, the driver of the Jeep Cherokee, suffered third-degree burns over much of his body and died in early August 2007.

Kafeel's younger brother, Dr. Sabeel Ahmed, 26, was arrested for withholding evidence that could prevent terrorism. Sabeel worked at Halton Hospital in Cheshire. An average student, Sabeel had studied medicine at Ambedkar Medical College. Both parents of Kafeel and Sabeel are medical doctors. During their careers, they worked in India, Iran, and Saudi Arabia.

Dr. Mohammed Asha, 26, the fifth member of the Doctor's Plot, is a neurologist, trained at the University of Jordan. He earned a perfect score of 4.0 while attending medical school and placed third in a national science test. After finishing school, Asha moved to Britain to continue his studies while working at the North Staffordshire Hospital.

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[74] "The People Who Cure You Will Kill You." *The Sunday Telegraph*. July 8, 2007.

Authorities believe the doctors came together in Cambridge in 2005. Their possible links to al Qaeda or other Islamic extremist groups remain unknown.

Doctors have previously been affiliated with terrorist groups, but primarily in leadership positions. Dr. George Habash, for example, founded the Popular Front for the Liberation of Palestine (PFLP). Dr. Ayman al-Zawahiri, a surgeon, is Osama bin Laden's top deputy.

The Doctor's Plot is significant because it reveals physicians and other highly educated professionals are moving into the frontlines of terrorism to mount attacks. According to Ed Husain, a Damascus University teacher, there is tremendous parental and societal pressure in Muslim cultures for students to study medicine and engineering. Often, he explained, it is the only way they can "please their parents, attain high social status, and in many cases, escape the Arab world and live in the West."[75]

Many students, Husain maintains, are frustrated and prefer to study other topics such as literature, history, and theology. Some of the students seek a greater meaning in life and are drawn to Islamic fundamentalism.

"As a teenager," Husain said he "attended extremist Islamic meetings with tens of medical students at the Royal London Hospital." He contends "Islamists in almost every British medical school held similar meetings."[76]

Husain described a path often traveled by Islamic extremists. They begin with a membership in the Muslim Brotherhood, receive a secular education, reject mainstream Muslims, develop hatred for the West, and finally join the jihad.

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[75] "Opinion: Osama's Army of Doctors." Ed Husain. *Newsweek.* July 10, 2007.
[76] Ibid.

Doctors in terrorist cells pose a unique threat due to their education, access to money, and ability to travel with minimal suspicion. Physicians have a fundamental knowledge of biology, have laboratory experience, and have potential access to biosafety level 3 laboratories, where dangerous pathogens, such as anthrax, are stored. The doctors also have access to scientific literature on pathogens and can be expected to understand the processes to develop a biological weapon.

E. Third Attack

Sandi was just leaving a service station convenience store west of the city when she learned of a third attack, this one in Anaheim, California. At least twenty children and seven adults were ill, one had already died, all of the cases attributable to anthrax. All of the victims had recently been to Disneyland.

While some of the agents remained behind in Las Vegas to continue the casino investigation, Sandi and the bulk of the Task Force were immediately dispatched to California. En route to John Wayne Airport, she stared out the window and wondered to herself how long the attacks would last before they finally apprehended the perpetrators. She had been living out of her suitcase for more than three months and she was both weary and increasingly apprehensive about where the attacks would lead. It had been an eternity since she had spent a night at her Alexandria, Va., townhouse, and she was beginning to feel like she might never see it again.

By the time she arrived at the FBI field office in Riverside, authorities had already closed Disneyland, for only the fourth time since it opened in 1955. The first closure was the result of John F. Kennedy's assassination in 1963, the second was during an anti-Vietnam march in 1970, and the

third time was in the aftermath of the 9/11 attacks. Now America's most famous theme park, and one of the nation's leading recreational destinations, was locked down, ringed with yellow evidence tape, and surrounded by law enforcement personnel and National Guard Troops. CDC investigators, wearing full protective moon suits, gloves, boots, and respirators, were combing the sprawling facility, taking samples from every conceivable surface, while FBI and other investigators interviewed park employees and viewed hours of tape from CCTV cameras.

It did not take more than a day for the CDC specialists to isolate one of the restaurants in the park as the probable location of the attack. Although they hadn't found discarded sugar packs yet, Sandi was convinced that the perpetrator had used the same MO again. No doubt he had sat down at one of the tables in the restaurant, ordered a meal, and then casually torn open one or more of the innocuous sugar packs and dumped the spores out on the table.

Federal authorities rapidly set up PODS to distribute antibiotics to all who believed they had been exposed to anthrax. Treatment efforts were complicated by the fact that potential victims were scattered across the nation since many were just visitors to Disneyland on the day of the attack and had returned home afterwards, unaware that they had been exposed to the deadly spores.

Despite the extensive presence of CCTV cameras at the park, they had been unable to isolate a single likely suspect; instead they had more than a dozen possible suspects, none bearing more than a passing resemblance to the man with the yarmulke in Las Vegas.

Business was grinding to a halt at movie theaters, malls, casinos, and theme parks across the nation, as terrified Americans, fearful of becoming the next victims of the

anthrax killer, stayed away in droves. School attendance was down and absenteeism was climbing at businesses around the nation. The economy was already beginning to slow down and economists predicted negative growth by the end of the year unless the perpetrator or perpetrators of the attacks was stopped, and stopped soon.

Among the investigators there was a rapidly growing consensus that they were up against al Qaeda. The choice of targets supported that assessment. Not only had five of the 9/11 hijackers made earlier trips to Las Vegas, presumably to survey it as a potential target, but Disneyland and the Mall of America had both been described on jihadist websites and in intelligence reports as possible al Qaeda targets as well.

Three days after the Disneyland attack, the Attorney General and the Director of the FBI, in an unprecedented move, met with the Task Force, which had grown to more than 3,000 agents and other personnel, in a Los Angeles auditorium. Sandi was seated in the second row among those in the audience.

"This is an unprecedented crisis," said the Attorney General. "If we cannot find the perpetrators of these horrific crimes and bring them to justice, and soon, I fear for the future of our country. Some members of Congress are already calling for the imposition of martial law and the suspension of individual liberties and Constitutional protections until these crimes are solved. The stock market has lost more than 5,000 points since the first attack and it is likely to fall even further. Our allies are watching with disbelief as we sink into a well of self-doubt, fear and accusation."

F. 2001 Anthrax Attacks

The perpetrator in the 2001 anthrax strikes carefully folded each letter, with the corners creased inward to contain about a gram of anthrax. The process was invented by pharmacists to send medicine in the mail. The letters were then placed into pre-stamped envelops and Scotch tape was positioned over the flaps in the back to ensure a tight seal.[77]

"Greendale School, Franklin Park, NJ 08852," a false return address, was written on one envelope.

Less than a week after the 9/11 attacks, it is believed the perpetrator dropped two batches of envelopes into mailboxes. The first evidence of the attack appeared about two weeks later. On Tuesday, October 2, 2001, Bob Stevens, 63, a photo editor for *The Sun*, was hospitalized in Boca Raton, Florida. Two days later, news stories announced Stevens had been diagnosed with inhalation anthrax and on Friday he died.

Authorities traced his death to a letter mailed to American Media Inc., a publisher of tabloid newspapers, including *The Sun*.

Ernesto Blanco, 73, a mailroom worker at the publishing house, was the second victim. He happened to be in a hospital for an unrelated health problem. A test was taken and he tested positive for exposure to anthrax.

U.S. Senate Majority Leader Tom Daschle received a letter that read, "Death to America. Death to Israel. Allah is Great." Anthrax-laced letters were also sent to U.S. Senator Patrick Leahy, the *New York Post*, and NBC anchorman Tom Brokaw.

The letters were processed in mail distribution centers by high-speed sorting machines, causing anthrax spores to leak

[77] "The Pursuit of Steven Hatfill." *The Washington Post*. September 14, 2003.

from the envelopes. Two workers in the Brentwood distribution center in Northwest Washington, D.C. developed inhalation anthrax and died. Two other deaths – a hospital worker in New York and a woman in Connecticut – likely resulted from contaminated mail.

Based on a DNA analysis, scientists determined the anthrax was the Ames Strain, which is available in laboratories around the world. Scientists are interested in studying the strain because of its high lethality. If a vaccine or therapeutic is effective against the Ames Strain, it likely can protect against a less deadly strain.

The anthrax spores in the Daschle letter were 1.5 to 3 microns in size and "processed to a grade of 1 trillion spores per gram – 50 times finer than anything produced by the now-defunct U.S. bioweapons program and 10 times finer than the finest known grade of Soviet anthrax spores."[78]

The sophistication of the weaponized spores is unclear. Ken Alibek, who examined anthrax from the attacks, stated the spores were mediocre and not produced industrially with a coating to reduce static.[79] This view is supported by Harvard University biologist Matthew Meselson, who said "there is no evidence that I know of that it [the spores] was treated in any special way."[80] But another author suggested whoever "weaponized the spores was operating at the outer limits of known aerosol technology."[81]

The source of the anthrax employed in the attacks remains a mystery. One possibility discussed in the media is a

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[78] "FBI'S Theory on Anthrax is Doubted." *The Washington Post*. October 28, 2002.
[79] "Does al Qaeda Have Anthrax?" Better Assume So." *The National Journal*. June 1, 2002.
[80] Ibid.
[81] "FBI'S Theory on Anthrax is Doubted." *The Washington Post*. October 28, 2002.

biodefense facility, which uses small volumes of the biological agent for research, including vaccines, therapeutics, protective clothing and containment, detection, alarms, and decontamination. It is postulated that someone with access to such a facility may have stolen small amounts of anthrax and decided to use it for the attacks after the Iraq war erupted.

The cost to clean up the contamination from the five letters exceeded $1 billion. The Senate Hart Office Building was closed for five months. More than 33,000 people were given antibiotics, mainly ciprofloxacin and doxycycline.

VI. Academy Award Attack

Rashid Mukhtar hated Madonna even more than he hated the American president. Madonna and the other degenerates from the music and film industry were polluting the minds of people around the world and sowing disrespect of the tenets of Islam. Influenced by Madonna, Beyonce, and their ilk, young Muslim women were prancing around half-naked with bare midriffs and their faces painted like harlots.

America's late night shows openly made fun of Islam and Hollywood movies glorified sex, drinking, and the equality of men and women which, of course, was an abomination. Women were not the same as men; they were weak creatures with small minds who God mandated should bear and raise children, not work alongside men.

Mukhtar, who had been raised in London, had joined al Qaeda nearly ten years earlier. As a young man he had fallen under the spell of Abu Hamza, an extremist cleric who had lost both hands and one eye in Afghanistan.

Mukhtar had been trained in terrorist camps in Sudan and Afghanistan, and then sent to the United States as a "sleeper" with a new name and an invented resume. He attended Kansas State for two years, then dropped out, married an American woman and had three children before moving to Los Angeles a year after 9/11, where he secured a job with a security company. His colleagues at the company knew him as Dave Kaddura, a Maronite Christian of Lebanese descent.

He lived in the Valley, kept his lawn neat and well-trimmed, and belonged to the local PTA. His neighbors and coworkers would never, in a million years, have suspected that he was an al Qaeda operative, eager to bring death and destruction on the United States which, despite the blessings

heaped on him by his adopted land, he grew to hate more with each passing year.

Now he was ready to carry out the operation for which he had waited so long. Just three months earlier he had been contacted by a man calling himself Basil, who approached him in the parking lot near his office where he parked his three-year old Toyota every day. Basil told him he had been sent by bin Laden himself and that he had been entrusted with a mission that would shake America to its knees. They would attack the Academy Awards, and not just with guns or explosives, but with something infinitely more insidious: anthrax. And in front of more than a billion people tuning in around the globe.

Mukhtar's company was one of the firms in charge of security at the Kodak Theater, where the awards ceremony was to be held. Preparations for the event had been going on for months, and Mukhtar, as a security supervisor on the loading dock, was tasked with making certain every vehicle, box, container, stage prop, and set was thoroughly examined for hidden explosives as it arrived at the theater. Bomb-sniffing dogs were employed as guards opened every trailer, car trunk, and container. Mirrors on long poles were utilized to examine the undercarriage of each vehicle.

What no one knew was that Mukhtar, working with confederates, had brought a small metal canister into the theater, which had escaped any scrutiny. He subsequently hid the device behind a panel he had removed in one of the bathrooms, where he could retrieve it on the day of the awards ceremony.

A. Aerosolizing Anthrax

Anthrax can be dispersed in dry form as spores or as a liquid aerosol. It is generally believed that a dry agent is more difficult to produce but easier to disseminate, while liquid anthrax is easier to produce but more difficult to disseminate.[82] This understanding, however, may be changing as a result of new technology to aerosolize wet agents.

Fifteen years ago, Aum Shinrikyo, a Japanese cult, attempted to build and disseminate an anthrax weapon. The cult set up a sophisticated laboratory with 2,000-liter capacity fermentors to produce anthrax.

An anthrax weapon created by the cult was disseminated from the top of its headquarters building in Kameido, near Tokyo, using two sprayers. No injuries were reported, although people complained of a foul smell and loss of appetite.[83] Later the cult placed a spraying machine on the back of a vehicle and drove through the city dispersing the anthrax. The sprayer evidently was prone to clog and again there were no injuries.

Experts believe the droplets produced by the sprayers were too large to be inhaled into the lungs. The attack also reportedly failed because the *Bacillus anthracis* strain was insufficiently virulent.

Since the Aum Shinrikyo attacks, new sprayer technology has been developed to greatly facilitate the dispersal of liquid agents, such as a rotation atomizer. The high-tech device does not require compressed air, steam, or high pressure. It consists of a small porous cylinder hooked to an electric motor that spins up to 30,000 rpms. Liquid travels through a hollow shaft into the cylinder and is driven by centrifugal force

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[82] "Biological Terrorism and Aerosol Dissemination." *Politics and the Life Sciences*. September 1996.

[83] "Terrorist Use of Biological Weapons." Mark Wheelis and Masaaki Sugishima. Deadly Cultures. Harvard University Press. 2006, p. 298.

through a porous material, forming tiny droplets. Adjusting the motor's speed alters the size of the droplets.

Rotation atomizers were originally developed to spray insecticide from aircraft. Since then the technology has been refined and made compact. The atomizers work with normal tap water and without any filtration.

Based on pesticide studies, spray technologies are readily available to disseminate biological agents from an airplane, backpack sprayers, or truck-mounted foggers. "Forest protection personnel, mosquito control personnel, and farmers have been doing so for over two decades," a report states.[84] According to the authors of the report, the same crop-dusting technology employed to kill gypsy moths could be used to spread liquid anthrax.

If a liquid anthrax can be easily disseminated, producing an effective weapon is greatly facilitated. All that is necessary is to culture a virulent strain of *Bacillus anthracis* in a flask and then disburse the liquid using an aerosolizer that produces small micron-size droplets.

Knowing whether a technologically-advanced sprayer will be effective to disseminate a liquid agent containing anthrax cannot be known for certain without empirical evidence. But given available data on the performance of atomizers, it is likely we have reached such a threshold or can expect to do so in the near future. At that point, a liquid anthrax, which is easier to produce than a dry agent, will also be easier to disseminate than dried anthrax spores.

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[84] "Anthrax Attack Possible From the Air." *The Vancouver Sun*. March 31, 2003. Also see: "Potential for Aerosol Dissemination of Biological Weapons: Lessons from Biological Control of Insects." *Insecurity and Bioterrorism.* 2003.

B. Movie Stars Infected

Mukhtar arrived early in the morning on the day of the awards ceremony, prior to the lockdown of the building, after which no one but stage hands, television crews, performers and invited guests would be admitted. Dogs and their handlers carried out a last sweep of the facility while Mukhtar and his coworkers conducted a final inspection.

Late in the afternoon, limousines began lining up outside the theater on Hollywood Boulevard. Movie stars, in designer dresses and tuxedos, began to run the gauntlet of television cameras and paparazzi lining the 500-foot red carpet leading into the building, while fans screamed and applauded in the background.

As guests began to file in to the theater, Mukhtar took a break. He retrieved the aerosolizer from behind the panel in the bathroom and poured the contents from a thermos, which he had brought to the theater that morning. He then hurried up a back stairwell to the theater and climbed onto a skywalk high above the stage.

Mukhtar secured the aerosolizer in a bracket that he had installed earlier among the lights and wiring. Then he set a timer that would activate an electric motor and release an invisible cloud of liquid teeming with *Bacillus anthracis*. The cloud would silently drift over the stage and then out into the audience where it would be inhaled by the 3,400 people attending the ceremony. The impact would not be immediate; it would take several days for the victims to manifest the first symptoms of anthrax poisoning.

As two dozen male and female dancers, clad in brief and revealing costumes, took their places on the stage for the opening act, Mukhtar smiled to himself. With luck, after tonight the world would not be subjected to such filth

anymore. The so-called creative class in Hollywood would be decimated and it would send a powerful message to others around the globe that they ignored God's laws at their own peril.

After the awards ceremony, Mukhtar left the theater and drove to LA International Airport, where he took a flight to New York and then onto Rome. Stage hands began to strike the sets at the theater to prepare for the next production. A lighting technician, crossing the skywalk, stumbled across the aerosolizer, which looked suspicious. He alerted his boss about the strange device, who informed the night security officer. He in turn contacted the police, who dispatched an officer to the theater. The officer had no idea what the device was and had it sent to a laboratory for analysis.

The following morning, a laboratory technician determined the remaining liquid in the aerosolizer was swarming with bacteria. Further tests revealed the bacteria were *Bacillus anthracis.*

CDC officials were notified and additional tests were conducted to confirm the results. Early that afternoon, the mayor of Los Angeles announced the anthrax attack and urged everyone who had been at the Kodak Theater or who had come into contact with someone present at the Academy Awards to go to the nearest hospital for treatment. The paparazzi staked out the emergency entrances of local hospitals, snapping photos of each frightened and disheveled celebrity as they arrived.

Because the attack had been detected early and antibiotics quickly distributed, doctors were hopeful the number of deaths would be limited. They continued to monitor victims of the attack, while public attention turned to potential suspects. Mukhtar had not come into work in the morning. When authorities discovered his fingerprints on

the aerosolizer, an all points bulletin was issued for his arrest.

Brad Pitt had taken Cipro the same as many other attendees of the awards ceremony. He awoke on the third morning after the show feeling strangely restless, with a cough and achy joints. He called his doctor, who was never too busy to take a call from his most famous patient. Pitt was told to come immediately to the hospital for tests. Pitt wasn't the only patient who had complained to the doctor of cold and flu-like symptoms. A Hollywood screenwriter who'd won an Academy Award had arrived earlier at the hospital and doctors were running a series of tests in an attempt to diagnose his ailments.

As the day wore on, Pitt's condition grew worse. Attended by a team of physicians, he was fighting for his life. In the meantime, hundreds of other celebrities and show business professionals began flooding into L.A.-area hospitals, all complaining of the same symptoms. Not until late evening did the CDC determine the anthrax used in the attack was resistant to Cipro. But other antibiotics had been tested and doxycycline appeared to be most promising. By then Pitt had slipped into unconsciousness and died hours later. Also dead were Martin Scorsese, Ang Lee, Barbara Streisand, Morgan Freeman, Reese Witherspoon, Michael Douglas, Natalie Portman, and Jessica Alba.

Although late at night, CDC officials decided that all those who had been treated with Cipro would have to be contacted to return to hospitals to receive the alternative treatment. Everyone who could be reached was awakened and told to make their way to the nearest hospital, but many celebrities and studio executives had unlisted numbers and other barriers to shield them from the public and remained oblivious to the change of course by the CDC until the next day. For many of them this proved fatal.

As the hours passed, those exposed continued to die at an alarming rate. By the following morning, Meryl Streep, George Lucas and Julia Roberts were among those stricken. Quentin Tarantino was already dead, as was George Clooney. Jack Nicholson had died earlier that evening at his home, although no one knew it yet.

Hollywood was in an absolute uproar as reporters from around the globe descended on the city, and police and federal authorities launched a massive investigation.

C. Antibiotic Resistant Anthrax

Antibiotics are drugs that treat infections caused by bacteria and other microorganisms. Some antibiotics are naturally occurring (penicillin), while others are synthetic (ciprofloxacin).

Antibiotics circumvent a bacterium's ability to survive and reproduce in different ways. One antibiotic, for example, may interfere in a bacteria's ability to turn glucose into energy, while another may interrupt its ability to construct a cell wall.

Many antibiotics that were once widely used are no longer effective due to bacteria developing resistance to the antibiotics. Bacteria can spontaneously mutate, allowing them to survive. Their offspring then exhibit the same resistance.

According to Richard Corlin, Director of the American Medical Association, the overuse of antibiotics and the failure to take antibiotics for an extended period of time, "virtually guarantees the emergence of antibiotic resistant strains."[85]

Students in biology learn about antibiotic resistance in laboratory experiments. Bacteria placed in a Petri dish are

[85] "Anthrax Action Shapes Up." October 24, 2001. http://www.innovations-repport.com

exposed to antibiotics and surviving bacteria are cultured and re-exposed to the antibiotic. Through this process, students determine how quickly a given bacterium develops resistance to the antibiotic.

This same process can be used to develop an antibiotic-resistant anthrax. "We know that antibiotic-resistant anthrax is easy to make. It's been done. It's in the literature," explained C.J. Peters, Director of the Center for Biodefense at the University of Texas.[86]

Knowing that antibiotics are effective in treating anthrax, military weapons have been developed that are resistant to antibiotics. The Soviet Union created an anthrax strain that was resistant to multiple types of antibiotics and did not lose its virulence in the process.[87]

According to a senior Iraqi official, a genetic engineering unit was established at Al Hakam to "produce antibiotic-resistant anthrax."[88]

[86] "Finding an Antidote to Bioterror." *Technology Review*. March 2003.
[87] "The Soviet Biological Weapons Program." Deadly Cultures. Harvard University Press. 2006, p. 144.
[88] "The Iraqi Biological Weapons Program." Deadly Cultures. Harvard University Press. 2006, p. 178.

VII. Analysis

A. Risk of an Anthrax Attack

America faces a high risk of another anthrax attack. With just a small amount of crudely weaponized anthrax, terrorists can severely disrupt our society in attacks that cause potentially mass casualties and enormous economic losses.

Risk is a function of probability and severity. While the probability of an anthrax attack is difficult to measure, it is substantial:

- Dr. Ayman al-Zawahiri, Osama bin Laden's top deputy, led an effort in Afghanistan from 1999 to 2001 to develop an anthrax weapon.

- Al Qaeda understands the steps necessary to produce an anthrax weapon. An internal report captured in Afghanistan stated the "fastest, safest, and cheapest" route to develop such a weapon is to recruit experts from educational institutions.

- Al Qaeda recruited a Pakistani with a doctorate in microbiology to set up a laboratory in Kandahar to develop an anthrax weapon. He traveled throughout Europe to purchase equipment and sought to gain access to a lethal strain of *Bacillus anthracis.*

- Former CIA Director George Tenet stated, "We established beyond any reasonable doubt that al Qaeda had clear intent to acquire chemical, biological, and radiological/nuclear (CBRN) weapons, to posses not as

a deterrent but to cause mass casualties in the United States."[89]

- As a result of the Afghanistan war and other actions by Western allies, al Qaeda's operations were severely disrupted. Since then, the terrorist organization has regrouped and regenerated key elements necessary to mount attacks, including a safe haven, operational lieutenants, and its top leadership, according to a National Intelligence Estimate.[90]

- Zawahiri has the authority and motivation to reconstitute al Qaeda's non-conventional weapons program and develop an anthrax weapon.

- The Doctor's Plot in London revealed there are highly educated medical professionals eager to join the jihad against the West and form secret cells to mount terrorist attacks.

- Virulent strains of *Bacillus anthracis* are located in laboratories around the world.

- Jihadists with graduate education in medicine and microbiology likely can develop an anthrax weapon in a minimally-equipped laboratory.

- According to the National Intelligence Estimate, al Qaeda "will continue to try to acquire and employ chemical, biological, radiological, or nuclear material in

[89] At the Center of the Storm. George Tenet. HarpersCollins. 2007, p. 287.
[90] "The Terrorist Threat to the U.S. Homeland." National Intelligence Estimate. July 2007.

attacks and would not hesitate to use them if it develops what it deems is sufficient capability."[91]

The severity of an anthrax attack is more easily clarified and measurable:

- A small amount of anthrax can cause catastrophic consequences. Just one gram of anthrax contaminated the Senate Hart Office Building. It was closed five months for decontamination, which cost tens of millions of dollars. A sugar packet filled with anthrax could be easily disseminated in a wide range of buildings with devastating effect, including the U.S. Capitol, state capitals, government departments, hospitals, skyscrapers, financial centers, malls, convention centers, entertainment arenas, and transportation hubs such as airport terminals, train stations, and subways.

- According to former Secretary of the Navy Richard Danzig, "Making a gram of readily aerosolized anthrax spores in a weaponized 1-to-5-micron range is a technical challenge, but, once production is accomplished, it is a much lesser challenge to make 1 kilogram. And it is not a significant challenge for a terrorist organization that can make a kilogram to make 10 or 100 kilograms."[92]

- To demonstrate the potential deadliness of a large anthrax attack, U.S. Defense Secretary William Cohen held up a five-pound package of sugar and said if "this

[91] Ibid.
[92] Catastrophic Bioterrorism – What is to be Done? Richard Danzig. August 2003.

amount of anthrax could be spread over a city – let's say the size of Washington – it would destroy at least half the population."[93]

- "The Office of Technology Assessment calculated that 100 kilograms of anthrax spread over Washington could kill from one to three million people if disseminated effectively under the right environmental conditions. In contrast, a one-megaton nuclear warhead would kill from 750,000 to 1.9 million people."[94]

- An aerosolized anthrax dispersion by a truck passing a stadium with more than 74,000 in attendance could cause more than 20,000 infections and 4,000 deaths, according to Dr. Thomas V. Inglesby, Johns Hopkins Center for Civilian Biodefense Studies.[95]

- A truck with an aerosol dispersion device spraying anthrax into the air while driving through five cities in the U.S. would expose 350,000 people, of whom 13,500 would die, according to a Homeland Security scenario.[96]

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[93] "Cohen Cites Iraqi Ability on Weapons: 'Millions' Have Been at Risk; Resumption of Production Feared." *The Washington Post.* November 17, 1997.

[94] "Bioterrorism and Biocrimes." Center for Counterproliferation Research. National Defense University. Fredonia Books. 2002. Also see: "Proliferation of Weapons of Mass Destruction: Assessing the Risks." U.S. Congress, Office of Technology. OTA-ISC-559 (Washington, D.C., Government Printing Office, August 1993).

[95] "Anthrax: A Possible Case History." Thomas V. Inglesby. http://www.cdc.gov/ncidod/EID/vol5no4/inglesby.htm.

[96] "Scenarios of Possible Terror Strikes Read Like Doomsday Plan." *New York Times*. March 16, 2005.

- The economic impact of an anthrax attack is estimated at $26 billion per 100,000 people exposed, according to a report from the Centers for Disease Control and Prevention.[97]

Given a substantial probability of an anthrax attack and its potential to be severe, America faces a high risk of another anthrax attack.

B. U.S. Unprepared for Anthrax Attack

Six years after suffering the anthrax attacks, America remains largely unprepared and defenseless.

Our main line of defense is antibiotics, which are most effective when administered soon after exposure. With time the disease progresses and their effectiveness declines. Once symptoms appear, usually several days after exposure, antibiotics are unlikely to be effective.

As a result, unless an anthrax attack is promptly detected, antibiotics offer minimal protection.

The U.S. has developed and stockpiled a vaccine to protect against anthrax infection but it is only available to military personnel. It requires multiple shots over an 18-month period.

In 2004, the Department of Health and Human Services (HHS) signed a contract to purchase 75 million doses of a newer technology vaccine. The company failed to meet development requirements and the contract was cancelled in December 2006.

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[97] "The Economic Impact of a Bioterrorist Attack: Are Prevention and Postattack Intervention Programs Justifiable?" Arnold F. Kaufmann, Martin I. Melzer, and George P. Schmid. Centers for Disease Control and Prevention. April-June 1997.

Biotech companies have developed other medical countermeasures, called therapeutics, to protect against toxins produced by anthrax bacteria. Importantly, they provide protection when antibiotics start to lose their effectiveness and work beyond the period when symptoms first arise

The government awarded contracts in the summer of 2006 to purchase 30,000 doses of a therapeutic. Other more promising therapeutics have been developed, prompting HHS to signal its intent to issue additional procurement Request For Proposals (RFPs) to fulfill the 200,000 treatment requirement established in 2004. But as of November 2007 nothing has happened.

The public is best protected against an anthrax attack by having available a vaccine, therapeutics, and antibiotics. But to achieve this goal takes time.

Once the government awards a contract to purchase an anthrax therapy or vaccine, it can take years for a company to develop and build manufacturing equipment, conduct clinical trials, satisfy Food and Drug Administration requirements, and produce and stockpile the drugs.

In December 2003, President George Bush signed Homeland Security Presidential Directive 8, which established policies to enhance our preparedness against terrorist attacks, major disasters, and other emergencies. Among the 15 scenarios the U.S. is required to prepare for is a biological attack with an "aerosol anthrax." But without having access to a modern anthrax vaccine and therapeutics, the U.S. cannot adequately prepare for this attack scenario.

America cannot afford further delays. "The enemy is not standing still," Homeland Security Secretary Michael Chertoff warned at a Congressional hearing on September 10,

2007. "They are constantly revising their tactics and adapting their strategy and their capabilities."[98]

[98] "Confronting the Terrorist Threat to the Homeland Six Years After 9/11." Testimony by Secretary of Homeland Security Michael Chertoff. Senate Committee on Homeland Security and Government Affairs. September 10, 2007.