



U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON ENERGY AND COMMERCE

February 10, 2016

TO: Members, Subcommittee on Oversight and Investigations

FROM: Committee Majority Staff

RE: Hearing entitled “Outbreaks, Attacks, and Accidents: Combatting Biological Threats”

The Subcommittee on Oversight and Investigations will hold a hearing on Friday, February 12, 2015, at 9:00 a.m. in 2123 Rayburn House Office Building, entitled “Outbreaks, Attacks, and Accidents: Combatting Biological Threats.” The Subcommittee will hear testimony from members of the Blue Ribbon Study Panel on Biodefense and other experts on (a) the current threat of natural, intentional, and accidental biological events against the United States, (b) the extent of our preparedness for such an event, (c) the need to modernize our approach to biodefense preparedness, including addressing the lack of leadership on the issue within the Federal government, and (d) other specific recommendations by the Blue Ribbon Panel that fall within the jurisdiction of the Energy and Commerce Committee.

I. WITNESSES

- Donna Shalala, Panel Member, Blue Ribbon Study Panel on Biodefense;
- James Greenwood, Panel Member, Blue Ribbon Study Panel on Biodefense;
- Tara O’Toole, M.D., M.P.H., Senior Fellow and Executive Vice President, In-Q-Tel;
- Gerald Parker, D.V.M., Ph.D., M.S., Associate Vice President, Public Health Preparedness and Response, Center for Innovation in Advanced Development and Manufacturing, Texas A&M University.

II. BACKGROUND

a. The Blue Ribbon Study Panel on Biodefense Report

The Blue Ribbon Study Panel on Biodefense (Panel) was established in 2014 to assess gaps and provide recommendations to improve U.S. biodefense. The Panel, chaired by Senator Joe Lieberman and Secretary Tom Ridge, charged itself with this work and did not receive a commission from Congress or the President. The Panel held a series of public hearings, hearing from experts at all levels of government, industry, academia, and advocacy, before issuing its report in October 2015.

The Panel's report makes clear that this threat is not new. In fact, many of their recommendations are based on previous recommendations made by earlier panels or commissions. For example:

- The U.S. Commission on National Security/21st Century, also known as the Hart-Rudman Commission, “recognized the potential for epidemics to become pandemics and the dual-use nature of scientific discoveries.”¹
- The Commission on Terrorist Attacks on the United States, also known as the 9/11 Commission, “posited that more than two dozen terrorist groups were pursuing biological materials but that high-level government leaders were expressing various levels of concern regarding this threat.”²
- The Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction echoed the concerns of the earlier commissions and “described in excruciating detail the failings and weaknesses of the [Intelligence Community] regarding the biological threat.”³
- The Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism “determined that the priority placed on addressing the biological threat was too low to ensure national security.”⁴

Many of the Panel's recommendations—33 in all—address the need for a comprehensive plan for biodefense with a clear leader. Better leadership is needed to achieve coordination and accountability, improve collaboration, and drive innovation across the numerous biodefense programs in the Federal government in particular.

Unlike previous commissions, the Blue Ribbon Panel does not plan to disband now that their report has been released. This year, the Panel will begin assessing the government's implementation of its recommendations. The Panel also plans to begin an agency-by-agency review the United States' biodefense preparedness, which will be more specific than the overview assessment discussed in the Panel's report.

i. The Threat of Natural and Intentional Biological Events

The Panel believes that the biological threat to the United States—including natural and intentional incidents—is growing. Our understanding of, and response to, the threat must be elevated accordingly.

¹ Bipartisan Report of the Blue Ribbon Study Panel on Biodefense, *A National Blueprint for Biodefense: Leadership and Major Reform Needed to Optimize Efforts* 5 (Oct. 2015) [hereinafter Panel Report].

² *Id.*

³ *Id.*

⁴ *Id.*

Pandemic and other highly pathogenic or emerging diseases are occurring with greater frequency and spreading more quickly throughout the world. The same mosquito, for example, spreads the Zika, Dengue fever, and Chikungunya viruses. These diseases do not just affect the human population. Naturally occurring diseases also have an impact on livestock, crops, and dairy or produce supplies.

Since 2002, the world has seen outbreaks of severe acute respiratory syndrome (SARS), Chikungunya, Zika, cholera, influenza, measles, Ebola, and Middle East respiratory syndrome (MERS). Most of these outbreaks have occurred since 2008.⁵ Appendix 1, a timeline of outbreaks since 2002, demonstrates the increasing frequency of infectious disease outbreaks, epidemics, and pandemics. As noted by the Commission on a Global Health Risk Framework, the rate of emergence of new infectious diseases appears to be increasing.⁶ This seems to be the result of the following factors: greater probability of zoonotic (animal to human) transmission because of increased population and consequently greater human-wildlife interaction and increased livestock production, and ever-increasing global trade and travel.⁷

With respect to the intentional (e.g., terrorist) threat, it is easier for nation states and terrorists to obtain the resources necessary to produce biological weapons than ever before. Further, given in part the ease with which one can obtain these resources, it is difficult for the intelligence community to collect, analyze, and produce intelligence about biological threats. Former Representative Mike Rogers who chaired the House Permanent Select Committee on Intelligence told the Panel, “the longer [terrorist groups] have freedom of operation in any space that contains those kinds of elements, I think that’s dangerous to the United States and our European allies.”⁸ Many groups, including terrorist organizations, domestic militia groups, and lone wolves, have expressed the intent to use and have shown some capability to develop biological weapons. While events of this nature have previously been described as “low probability-high consequence,” the better classification of likelihood and consequence today is “indeterminate.”⁹

A recent report published by Gryphon Scientific for an NIH advisory committee details terrorist and extremist events tied to biological warfare since 1972. With respect to the capabilities of transnational terrorist groups in particular, Gryphon Scientific found that the groups are “well-funded, well-organized, well-armed, and highly motivated . . . They are capable of orchestrating complex attacks and have suitable resources to orchestrate long-term plots . . . They may have a chemical or biological weapons program involving scientifically trained individuals . . .”¹⁰ Appendix 2, a timeline of bioterror events since 1972 and currently designated foreign terrorist organizations, shows the historical progression of bioterror attacks and the large number of groups who may attempt to procure biological weapons. This historical information, coupled with the “indeterminate” risk assessment, demonstrates that the likelihood of such an attack is not as remote as one would hope.

⁵ Sands, *et al.*, *The Neglected Dimension of Global Security—A Framework for Countering Infectious Disease Crises*, NEW ENGLAND J. OF MEDICINE (Jan. 13, 2016)

⁶ *Id.* at 4.

⁷ *Id.*

⁸ Panel Report, *supra* note 1., at 4

⁹ Briefing by Dr. Tara O’Toole to Committee staff (Feb. 3, 2016).

¹⁰ Gryphon Scientific, *Risk and Benefit Analysis of Gain of Function Research* 850 (Dec. 2015).

With respect to ISIS in particular, recent press reports indicate that ISIS militants are seeking biological weapons. According to non-classified sources, in August 2015, a Syrian rebel group reported that they found a laptop belonging to ISIS that included documents on biological weaponry.¹¹ On October 7, 2015, Brigadier General Maria Gervais, head of the Army's Chemical, Biological, Radiological and Nuclear School stated, "Intelligence has recently discovered that ISIS intends to pursue biological agents and is also trying to figure out how to weaponized bubonic plague through the use of infected animals."¹² In November 2015, ISIS executed the head of the Department of Physics at the Department of the University of Mosul, reportedly because of his refusal to develop biological weapons.¹³

Nearly all of the pathogens at issue in either a bioterrorism event or a pandemic are zoonotic, which means that they reach humans through animals. Emerging infectious diseases, for example, are often first seen in areas where human populations are putting pressure on remote wildlife habitats, such as near a rainforest.¹⁴ Accordingly, the Panel promotes a "One Health" approach, utilizing disease surveillance and detection in both human and animal populations.

ii. The Need for Leadership and Collaboration on Biodefense Issues

The Panel believes that the lack of leadership and the fractured nature of responsibilities on biodefense issues is a major factor in our lack of preparedness for an intentional or natural biological event.

Currently, biological responsibilities are spread across numerous departments, agencies, and programs. There is no central leadership in the U.S. government accountable for strategic planning, budgeting, or coordination. The Department of Defense handles biological programs related to national security. The Department of Health and Human Services (HHS) has responsibility for biological threats to humans, while the Department of Agriculture (USDA) has similar responsibilities for animals and plants.

Each of the last three Presidents has addressed biodefense staffing differently. During President Clinton's administration, former Secretary of Health and Human Services Donna Shalala detailed an assistant surgeon general from the U.S. Public Health Service to the National Security Council.¹⁵ During the Bush administration, Assistant to the President Tom Ridge created a biodefense directorate in the Homeland Security Council staffed with a Special

¹¹ Harold Doornbos & Jenan Moussa, *Found: The Islamic State's Terror Laptop of Doom*, FOREIGN POL'Y (Aug. 28, 2014) (available at <http://foreignpolicy.com/2014/08/28/found-the-islamic-states-terror-laptop-of-doom/>) (last accessed Feb. 5, 2016).

¹² Sarah Sicard, *ISIL Determined to Acquire Biological Weapons*, NAT'L DEF. MAG. (Oct. 7, 2014) (available at <http://www.nationaldefensemagazine.org/blog/lists/posts/post.aspx?ID=1632>) (last accessed Feb. 5, 2016).

¹³ Abdelhak Mamoun, *Source: ISIS executes Head of Physics Department for refusing to develop bioweapons in Mosul*, Iraqi News (Nov. 12, 2015) (available at <http://www.iraqnews.com/iraq-war/source-isis-executes-head-physics-department-refusing-develop-bioweapons-mosul/>) (last accessed Feb. 5, 2016).

¹⁴ Briefing by Dr. Tara O'Toole to Committee staff (Feb. 3, 2016).

¹⁵ Panel Report, *supra* note 1, at 7.

Assistant to the President and three additional staffers.¹⁶ President Obama merged the staffs of the National Security Council and the Homeland Security Council, eliminating the biodefense office. Currently, the various biosecurity functions are distributed through the National Security Council. In 2014, President Obama also appointed an Ebola czar, who has since retired, to coordinate the Federal government's response to that crisis from the White House.¹⁷

The Panel believes the current biological preparedness and response construct is too fragmented to ensure an effective national strategy. Accordingly, it recommends that biodefense be institutionalized in the Office of the Vice President. In the opinion of the Panel, the Vice President should receive the necessary jurisdiction and authority to coordinate the various biological groups throughout the federal government, and also receive authority to review and advise on all biodefense budgetary issues.¹⁸ The Panel further recommends that the Vice President establish a biodefense coordination council within the White House and develop, implement, and update a comprehensive national strategy for biodefense.¹⁹

iii. Preparing for a Biological Event

The Panel identified numerous specific areas where the Federal government must improve its efforts to implement an end-to-end biodefense system. According to the Panel, the United States “remains unprepared for known, unknown, and unexpected threats.”²⁰

The 2014 Ebola outbreak demonstrated the current state of preparedness for an outbreak. Most hospitals were unprepared to handle the disease. In a departure from normal procedures in which the Occupational Safety and Health Administration (OSHA) developed guidelines for hospitals, the Centers for Disease Control and Prevention (CDC) instead developed flawed guidelines. The Panel described the overall preparedness at the hospital level:

Flawed guidelines released by the CDC to hospitals (which addressed issues not under CDC purview, such as [personal protective equipment] and hospital operations), inadequate coordination between CDC and OSHA regarding federal messaging and waste management, poor training regarding the implementation of the requirements described in those guidelines, and insufficient attention paid to some potentially useful hospital disaster plans exacerbated already insufficient levels of preparedness.²¹

In the wake of the Ebola outbreak, HHS provided grants to help hospitals better address Ebola in the future. Yet, as the Panel points out, disease-specific funding is inefficient and is not the best way to fund preparedness for future attacks—which may or may not involve the same pathogen.

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.* at 9.

¹⁹ *Id.* at 11-15.

²⁰ *Id.* at 52.

²¹ *Id.* At 38.

Efficiently and effectively preparing for biological events will require innovation in several key areas. Accurate biosurveillance and biodetection capabilities are among the most critical elements of an end-to-end approach. The systems must work quickly—detecting the presence of a pathogen in hours, not days. The Panel recommends that the Federal government implement an integrated national biosurveillance capability that works, unlike the numerous surveillance and detection systems—including the ineffective BioWatch program—currently in use. Further, this network should share data among the various agencies, including that collected by the CDC, USDA, and other entities, and also improve surveillance of animal pathogen data.

BioWatch, a Department of Homeland Security (DHS) biosurveillance program launched in 2003, is criticized by the Panel for failing to realize its potential over the last 12 years. BioWatch detectors, deployed in a few dozen cities, collect air samples for a select number of bioterror pathogens. The samples are analyzed by non-Federal public health laboratories. The Panel described the limitations of the system: “it relies on winds blowing in optimal directions”; “it can take up to 36 hours to alert the possible presence of a pathogen”; “specimens are inactivated, preventing determinations of whether live organisms were released”; “it cannot differentiate between normal background bacteria and harmful pathogens”; and “it cannot identify atypical threats.”²² DHS failed to acquire next-generation technology that could have reduced time-to-detection to as few as 6 hours, so the program uses the same technology as it did upon deployment in 2003. The Panel recommends that a new, advanced environmental detection system be developed to replace BioWatch. As discussed below, the U.S. Governmental Accountability Office (GAO) also recommends that the government in effect end BioWatch.

The development of flexible medical countermeasures will allow for a timely response to a number of different scenarios. While traditional vaccines can address specific threats, platforms that allow for rapid vaccine development and production may have the flexibility to address as-yet-unknown threats. The development of rapid diagnostic tests would aid physicians in identifying emerging diseases or select agent pathogens. For example, the availability of such a rapid diagnostic test would have significantly improved patient screening during the Ebola crisis. In order to develop new medical countermeasures and rapid diagnostic tests, the Panel believes that government research agencies, such as Biomedical Advanced Research and Development Authority and the National Institutes of Health, should prioritize innovation over incrementalism in research and development.

b. Additional Panel Recommendations Within the Committee’s Jurisdiction

The Blue Ribbon Panel report includes 33 recommendations across the entire government. Many recommendations fall within this Committee’s jurisdiction, including:

- **Prioritize emerging and reemerging infectious diseases.** The Panel recommends that the Secretary of Health and Human Services, along with the Secretaries of Agriculture and Defense, develop a multi-criteria tool to prioritize emerging infectious disease threats.²³

²² *Id.* at 59.

²³ *Id.* at 21.

- **Prioritize and align investments in medical countermeasures (MCM) among all Federal stakeholders.** Federal agencies must prioritize and budget for the right countermeasures, focusing in greater part on specific product goals and end-user needs, such as medical countermeasures for specific diseases or pathogens (i.e., Ebola).²⁴
- **Establish and utilize a standard process to develop and issue clinical infection control guidance for biological events.** Federal agencies must standardize the development of clinical guidelines before an event occurs, and not change those processes in the midst of an event.²⁵
- **Develop and implement a medical countermeasure response framework.** An operational plan to distribute and dispense MCMs could speed the allocation of vaccines or other countermeasures from the Strategic National Stockpile or local supplies.²⁶
- **Allow for forward deployment of Strategic National Stockpile assets.** Providing assets to qualified cities in advance is a near-term solution while a broader medical countermeasure response framework is developed.²⁷
- **Harden pathogen and advanced biotechnology information from cyber attacks.** Databases containing genetic sequences of pathogens, advanced methods for genetic engineering, or other biological information may be stored on cloud systems vulnerable to cyber attack.²⁸
- **Review and overhaul the Select Agent Program.** The regulatory regime of the program does not fully address underlying issues, including pathogen safety and security.²⁹
- **Address prioritization and funding for influenza preparedness.** The Panel recommends that Congress consider providing complementary legislative authorization to define and guide pandemic influenza programs.³⁰

c. Other Recent Reports on Biopreparedness

Since the Blue Ribbon Panel's Report was published, several reports published by the GAO and one by the DHS Office of Inspector General (OIG) have been released. Given that these reports were released after publication of the Blue Ribbon Report on Biodefense, the Panel was not able to consider the findings of these reports and incorporate them into their work. These reports highlight the importance of the work done by the Panel and the

²⁴ *Id.* at 22.

²⁵ *Id.* at 38.

²⁶ *Id.* at 43.

²⁷ *Id.* at 44.

²⁸ *Id.* at 46.

²⁹ *Id.* at 60.

³⁰ *Id.* at 56.

recommendations that they made. The findings and recommendations of each report are summarized below.

i. BioWatch

On October 23, 2015, GAO released a report entitled, “Biosurveillance: DHS Should Not Pursue BioWatch Upgrades or Enhancements Until System Capabilities are Established.” The GAO found that DHS does not have reliable information about BioWatch Generation 2’s (Gen-2) ability to detect a biological attack and as a result is not able to make informed decisions about whether or not we should upgrade the system. DHS still lacks performance requirements that would allow for accurate interpretation of test results and the ability to make conclusions about BioWatch’s effectiveness and reliability. It was also discovered that DHS tested Gen-2 by using simulated biothreat agents in a chamber, rather than in real world settings, which limited the validity of the results. Despite all of this uncertainty, DHS took steps to acquire and test a new generation for BioWatch, Gen-3. DHS canceled Gen-3 acquisition in April 2014. However, GAO reports there are components of Gen-3 that could be applied to upgrade Gen-2 rather than acquiring a next generation. As a result of their findings, GAO recommended that DHS wait to pursue upgrades to Gen-2 until it can establish the system’s current capabilities with certainty, and DHS generally concurred with GAO’s recommendation.³¹

ii. Emerging Animal Diseases

On December 15, 2015, GAO released a report entitled, “Emerging Animal Diseases: Actions Needed to Better Position USDA to Address Future Risks.” The GAO found that the USDA failed to take regulatory action during the initial response to the outbreaks of Swine Enteric Coronavirus Diseases that started in May 2013, because the agency did not believe that such action was necessary. USDA supported industry-led efforts, but due to a lack of data collection, USDA does not have information regarding the location of where the outbreak originated. USDA also acknowledged that they failed to follow their guidance that requires them to perform epidemiological investigations at the onset of an outbreak. Due to USDA’s inaction, it is unlikely that we will ever know the source of the disease. In June 2014, USDA issued an order with reporting requirements of newly infected herds. They have also drafted guidance, but the guidance does not include important details involved in a response, such as roles and responsibilities. As a result of their findings, GAO recommended that USDA develop a process to help guarantee its guidance for investigation of animal diseases is followed and clarify and document how it will respond to emerging diseases. USDA generally agreed with GAO’s recommendations.³²

iii. Air Travel

On December 16, 2015, GAO released a report entitled, “Air Travel and Communicable Diseases: Comprehensive Federal Plan Needed for U.S. Aviation System’s Preparedness.” The

³¹ U.S. Gov’t Accountability Office, *Biosurveillance: DHS Should Not Pursue BioWatch Upgrades or Enhancements Until System Capabilities are Established* (Oct. 2015) (GAO-16-99).

³² U.S. Gov’t Accountability Office, *Emerging Animal Diseases: Actions Needed to Better Position USDA to Address Future Risks* (Dec. 2015) (GAO-16-132).

GAO found that all of the airports and airlines that they reviewed during this study have plans in place for responding to communicable disease threats. However, the United States does not have a comprehensive national aviation-preparedness plan that would prevent and contain the spread of diseases from air travel. There is not a requirement for U.S. airports and airlines to have preparedness plans, therefore it is unknown which airports and airlines have existing plans. While conducting this study, GAO spoke with aviation stakeholders who flagged challenges in responding to communicable disease threats and actions they took or would take in response; including difficulties sharing timely and accurate information about threats, training, and access to equipment that would help them control exposure to communicable diseases. As a result of their findings, GAO recommended that the U.S. Department of Transportation (DOT) work with relevant stakeholders to develop a national aviation-preparedness plan for communicable diseases. DOT agreed that a plan is needed, but suggested that public health agencies would be more appropriate to lead the effort. Despite DOT's reaction to the GAO's recommendation, GAO still believes that DOT would be the most appropriate agency to spearhead this work.³³

iv. Ebola Response

On January 6, 2016, the DHS OIG released a report entitled, "Ebola Response Needs Better Coordination, Training, and Execution." The DHS OIG found that while the DHS responded quickly to put appropriate screenings in place, there was a lack of coordination, training, and consistent screening of people entering the United States. DHS and HHS did not establish roles and responsibilities for domestic Ebola screening and as a result, there was weak coordination among the relevant agencies, personnel did not receive adequate training, and people with exposure risk may have entered into the U.S. without going through the proper screening measures. As a result of their findings, the OIG developed 10 recommendations and DHS concurred with all of them. The recommendations include but are not limited to, specific steps to improve coordination with relevant agencies, providing guidance and resources to ports of entry, revising training requirements, and updating guidance and screening procedures. The OIG considers 7 of their recommendations resolved and closed, but 3 recommendations require additional steps to ensure that they are properly addressed.³⁴

III. ISSUES

The following issues will be examined at the hearing:

1. The nature of the current threats against the United States and around the world, including intentional, natural, and accidental threats.
2. The lack of leadership or organization of biodefense activities and research across the Federal government.

³³ U.S. Gov't Accountability Office, *Air Travel and Communicable Diseases: Comprehensive Federal Plan Needed for U.S. Aviation System's Preparedness* (Dec. 2015) (GAO-16-127).

³⁴ U.S. Dep't of Homeland Sec., Office of Inspector General, *DHS' Ebola Response Needs Better Coordination, Training, and Execution* (Jan. 6, 2016) (OIG-16-18).

3. The role of Federal, State, and local authorities in preparing for and responding to biological events.
4. The role of the Congress, and the Energy and Commerce Committee in particular, in shaping the response to biodefense issues.

IV. STAFF CONTACTS

If you have any questions regarding the hearing, please contact Alan Slobodin, Jen Barblan, or Brittany Havens at (202) 225-2927.

Appendix 1: Figure 1 From Sands, *et al.*, *The Neglected Dimension of Global Security—A Framework for Countering Infectious Disease Crises*, NEW ENGLAND J. OF MEDICINE (Jan. 13, 2016)

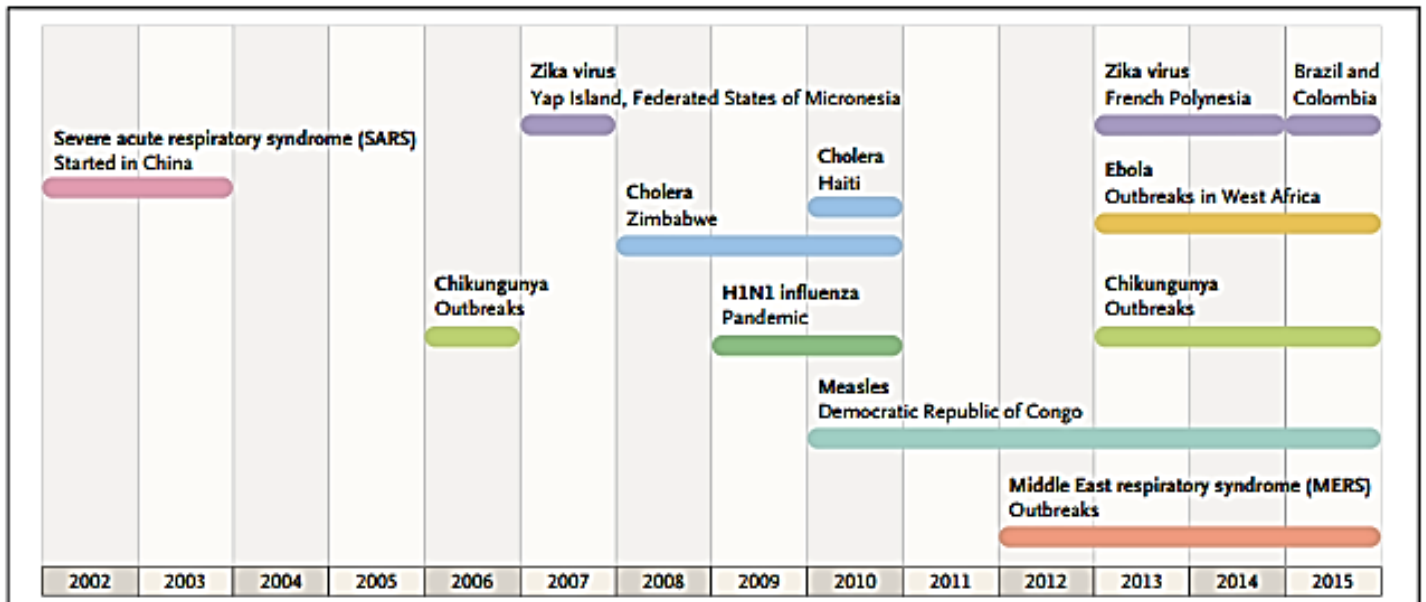


Figure 1. Major Emerging and Reemerging Infectious-Disease Outbreaks, Epidemics, and Pandemics, 2002 through 2015.

16.8 Terrorist and Extremist Events Tied to Biological Warfare

| Table 163. Chronology of terrorist and extremist events tied to biological warfare (BW) | | |
|---|---|--|
| Date of event (most recent to oldest) | Group | Description of event |
| August 28, 2014 | Islamic State of Iraq and the Levant (ISIL, ISIS, Daesh) | <i>Foreign Policy</i> journalists report on the obtained contents of one alleged ISIL member's laptop. ²⁴⁰² It held over 35,000 files dedicated to Jihad, a few of which discussed BW. ²⁴⁰³ |
| 2013 | Communist Party of the Philippines/ New People's Army (CPP/NPA) | Philippines military claims that NPA used feces to spike explosive devices to cause sepsis, in what appears to be a modern take on the Viet Cong punji stick technique. ²⁴⁰⁴ The NPA denies this. ²⁴⁰⁵ |
| May 2012 | Revolutionary Armed Forces of Colombia (FARC) | A defused FARC gas cylinder bomb reportedly had feces mixed with shrapnel in order to cause sepsis upon injury. ²⁴⁰⁶ |

²³⁹⁹ Ibid.

²³⁹⁸ Ibid.

²³⁹⁹ Ibid.

²⁴⁰⁰ Ibid.

²⁴⁰¹ Ibid.

²⁴⁰² Harald Doornbos, Jenan Moussa, "Found: The Islamic State's Terror Laptop of Doom," *Foreign Policy*, August 28, 2014, <http://foreignpolicy.com/2014/08/28/Found-the-islamic-states-terror-laptop-of-doom/>. Accessed June 30, 2015.

²⁴⁰³ Ibid.

²⁴⁰⁴ "Philippine Army finds human feces, snake venom in wounded soldiers' wounds," *Mindanao Examiner*, September 4, 2013, <http://mindanaoexaminer.com/philippine-army-finds-human-feces-snake-venom-in-wounded-soldiers-wounds/>. Accessed June 30, 2015.

²⁴⁰⁵ Ibid.

²⁴⁰⁶ "Army destroys minefield in southwest Colombia," *Colombia Reports*, May 17, 2012, <http://colombiareports.com/minefield-and-explosives-found-in-southwest-colombia/>. Accessed August 11, 2015.

| Table 16.3. Chronology of terrorist and extremist events tied to biological warfare (BW) | | |
|--|--|--|
| Date of event (most recent to oldest) | Group | Description of event |
| 2010 | “Indian Mujahedeen (Assam)” | A 2010 email claiming to be from the “Indian Mujahedeen (Assam)” group threatens biological warfare against India unless its demands are met. ²⁴⁰⁷ However, no evidence exists that this group had or has a BW capability. |
| After 2009, up to 2011 | Al Qaeda (AQ Central) | Senior AQ member Abu-Salih al Somali authors “Terror Franchise: The Unstoppable Assassin, TECHS Vital role for its success” sometime after 2009. ²⁴⁰⁸ The document ends with a detailed list of military topics about which the author is requesting the “techs” to research and share instruction manuals and videos. BW topics figure prominently on this list, and are marked as “ <u>immediately needed</u> .” ²⁴⁰⁹ The document is captured in the 2011 raid that killed Bin Laden. ²⁴¹⁰ |
| 2009 | Al Qaida in the Islamic Maghreb (AQIM) | Highly contested news reports of a BW training camp accident. ^{2411,2412,2413} |

²⁴⁰⁷ “Extremists Warn of Biological Strike in India,” *Nuclear Threat Initiative Global Security Newswire*, October 4, 2010, <http://www.nti.org/gsn/article/extremists-warn-of-biological-strike-in-india/>. Accessed June 30, 2015.

²⁴⁰⁸ David Francis, “Al Qaeda’s Blueprint For How To Start a Homegrown Terror Franchise,” *Foreign Policy*, May 20, 2015, <http://foreignpolicy.com/2015/05/20/al-qaedas-blueprint-for-how-to-start-a-homegrown-terror-franchise/>. Accessed June 30, 2015.

²⁴⁰⁹ Office of the Director of National Intelligence, Bin Laden’s Bookshelf,” <http://www.dni.gov/index.php/resources/bin-laden-bookshelf?start=1>. Retrieved under the “Now Declassified Material” folder: Abu-Salih Al Somali, “Terror Franchise: The Unstoppable Assassin, TECHS Vital role for its success,” p. 2, 5, 10, <http://www.dni.gov/files/documents/ubl/english/Terror%20Franchise.pdf>. Accessed June 30, 2015.

²⁴¹⁰ Ibid.

²⁴¹¹ For a critical review of these accounts, see: René Pita, Rohan Gunaratna, Philip Henika, “Al Qaeda in the Islamic Maghreb (AQIM) and the Alleged Production of the Etiological Agent of Plague,” *ASA Newsletter* 131 (April 2009): p. 1, 21-22, <http://www.asanlr.com/newsletter/09-2/articles/092a.pdf>. Accessed July 17, 2015.

²⁴¹² For the accounts themselves, see:

Eli Lake, “Al Qaeda bungles arms experiment,” *The Washington Times*, January 19, 2009, <http://www.washingtontimes.com/news/2009/jan/19/al-qaeda-bungles-arms-experiment/>. Accessed July 14, 2015. And:

²⁴¹³ Olivier Guitta, “Al-Qaeda in the Islamic Maghreb: A Threat for the West,” *Defence Against Terrorism Review* 3, no. 1 (Spring 2010): p. 57-58, http://www.coedat.nato.int/publication/datr/volume5/03-Al-Qaeda_in_the_Islamic_Maghreb_A_Threat_for_the_West.pdf. Accessed July 14, 2015.

| Table 16.3. Chronology of terrorist and extremist events tied to biological warfare (BW) | | |
|--|-------------------------------|--|
| Date of event (most recent to oldest) | Group | Description of event |
| July 17, 2008 | [Aafia Siddiqui alleged case] | The FBI's complaint filing against Aafia Siddiqui during her trial stated that at the time of Aafia Siddiqui's arrest on July 17, 2008, Afghanistan National Police found "numerous chemical substances in gel and liquid form that were sealed in glass bottles and glass jars," as well as "numerous documents describing the creation of explosives, chemical weapons, and other weapons involving biological material and radiological agents," "documents detailing United States military assets" personal papers including "descriptions of various landmarks in the United States, including in New York City." and "handwritten notes that referred to a 'mass casualty attack'" and that listed various locations in the United States, including Plum Island, the Empire State Building, the Statue of Liberty, Wall Street, and the Brooklyn Bridge." ²⁴¹⁴ The government's sentencing submission for the case also holds that her "thumb drive contained documents [...] including: [...] discussions of the construction of chemical and biological weapons." ²⁴¹⁵ The prosecution argued that Aafia Siddiqui's "conduct was the very definition of a federal crime of terrorism." ²⁴¹⁶ The media reported to the effect that she was a "suspected al-Qaeda operative;" Saddiqui and her family deny this allegation, and her trial did not involve an assessment of this accusation. ^{2417,2418,2419,2420,2421} Since then, the Taliban, the Tehrik-i-Taliban Pakistan, Al Qaeda, and most recently ISIL have offered (some on multiple occasions) to trade Saddiqui against hostages. ^{2422,2423,2424,2425,2426,2427} |

²⁴¹⁴ Plum Island is the site of the Plum Island Animal Disease Center, although the prosecution did not elaborate on the alleged targets.
United States District Court Southern District of New York, United States of America v. Aafia Siddiqui (defendant), "Sealed Complaint: Violations of 18 U.S.C. §§ 111, 1114, p. 1-3, <http://www.justice.gov/archive/opa/pt/2008/August/siddiqui-aafia-complaint.pdf>. Accessed June 30, 2015.

²⁴¹⁵ United States District Court Southern District of New York, United States of America v. Aafia Siddiqui (defendant), "Government's Sentencing Submission," Attorney for the United States of America: Preet Bharara, United States Attorney for the Southern District of New York, Assistant United States Attorneys of Counsel, Christopher L. LaVigne, David M. Rody, Jenna M. Dabbs, Case 1:08-cr-00826-RMB, Document 250, Filed August 29, 2010.
http://web.archive.org/web/20120314163620/http://www.nefafoundation.org/miscellaneous/US_v_Siddiqui_usgsentmemo.pdf. Accessed June 30, 2015.

²⁴¹⁶ Ibid.

²⁴¹⁷ "Dr. Aafia to boycott trial," *The Nation*, November 21, 2009, <http://nation.com.pk/Politics/21-Nov-2009/Dr-Aafia-to-boycott-trial>. Accessed June 30, 2015.

²⁴¹⁸ Benjamin Weiser, "Indictment Hints of Plan to Attack Landmarks," *The New York Times*, September 2, 2008, http://www.nytimes.com/2008/09/03/nyregion/03indict.html?_r=1&.

²⁴¹⁹ Petra Bartosiewicz, "Al-Qaeda Woman? Putting Aafia Siddiqui on Trial," *Time*, January 18, 2010, <http://content.time.com/time/nation/article/0,8599,1954598,00.html>.

²⁴²⁰ Juliane von Mittelstaedt, "America's Most Wanted: 'The Most Dangerous Woman in the World,'" *Spiegel Online*, November 27, 2008, <http://www.spiegel.de/international/world/america-s-most-wanted-the-most-dangerous-woman-in-the-world-a-593195-druck.html>.

²⁴²¹ "Federal jury convicts Pakistani woman of attempted murder of US personnel," *Jurist*, February 4, 2010, <http://jurist.org/paperchase/2010/02/federal-jury-convicts-pakistani-woman.php>.

²⁴²² Mushtaq Yusufzai, "Taliban to execute US soldier if Aafia not released," *The News*, February 5, 2010, http://www.webcitation.org/query?url=http%3A%2F%2Fwww.thenews.com.pk%2Ftop_story_detail.asp%3Fid%3D27072.

²⁴²³ Bill Roggio, "Zawahiri claims al Qaeda is holding US citizen hostage," *Long War Journal Threat Matrix*, December 1, 2011, https://web.archive.org/web/20150103043251/http://www.longwarjournal.org/threat-matrix/archives/2011/12/zawahiri_claims_al_qaeda_holdi.php.

²⁴²⁴ "Taliban confirm they have Swiss hostages," *Agence France Presse*, July 29, 2011, retrieved at *The Express Tribune*: <http://tribune.com.pk/story/220022/tehrick-i-taliban-say-they-have-swiss-hostages/>.

| Table 16.3. Chronology of terrorist and extremist events tied to biological warfare (BW) | | |
|--|---|---|
| Date of event (most recent to oldest) | Group | Description of event |
| 2008 | East Turkistan Islamic Movement | The Chinese government alleges that Emeti Yakuf, an alleged terrorist connected to the East Turkistan Islamic Movement, threatened to use biological and chemical weapons to disrupt the 2008 Olympics held in China, and that he trained group members on making poisons. ²⁴²⁸ This individual was reportedly killed in a 2012 U.S. drone strike in Pakistan. ²⁴²⁹ |
| June 27, 2006 | Al-Aqsa Martyrs Brigade | The group issues a statement claiming that they possess chemical and biological weapons, in an attempt to deter Israeli military action. ²⁴³⁰ This claim is regarded as spurious. ²⁴³¹ |
| April 4, 2003 | Ansar al-Islam (AAI) | MSNBC reporters state that their initial field tests for botulinum and ricin toxins came up positive at a site in Iraq used by the group, but that no <i>B. anthracis</i> was detected; then-Secretary of State Colin Powell had previously said the camp held a poison laboratory. ²⁴³² However, in retrospect, the site does not appear to have produced toxins. The site is not mentioned in the report of the Iraq Survey Group. ²⁴³³ |
| August 2003 | Jemaah Islamiyah | Arrest of Riduan Isamuddin, the director of operations for Jemaah Islamiyah who organized for Yazid Sufaat's transfer to AQ. ^{2434,2435} |
| June 2002 | Revolutionary Armed Forces of Colombia (FARC) | A defused FARC gas cylinder bomb reportedly had feces mixed with shrapnel in order to cause sepsis upon injury. ²⁴³⁶ |

²⁴²⁵ Nima Elbagir, Ingrid Formanek, "Malian troops take key town; humanitarian crisis grows," *CNN*, January 21, 2013, <http://www.cnn.com/2013/01/21/world/africa/mali-unrest/>.

²⁴²⁶ Jan Lopatka, ed. Alison Williams, "Video of kidnapped Czechs demands release of jailed Pakistani," *Reuters*, June 26, 2013, <http://www.reuters.com/article/2013/06/26/us-pakistan-czech-kidnapping-idUSBRE95P0XJ20130626>.

²⁴²⁷ James Fielding, Marco Giannangeli, "British Aid Worker Executed By Taliban," *Daily Express*, October 10, 2013, <http://web.archive.org/web/20101015002351/http://www.dailyexpress.co.uk/posts/view/204533/British-aid-worker-executed-by-Taliban>.

²⁴²⁸ "'Eastern Turkistan' terrorists identified," *China Daily*, October 21, 2008, http://www.chinadaily.com.cn/china/2008-10/21/content_7126503.htm.

²⁴²⁹ Declan Walsh, Eric Schmitt, "Militant Leader Believed Dead in Pakistan Drone Strike," *The New York Times*, August 24, 2012, http://www.nytimes.com/2012/08/25/world/asia/us-drone-strikes-kill-18-in-pakistan.html?_r=1.

²⁴³⁰ "Al-Aqsa Martyrs Brigade in Palestine Claims to Have Developed Chemical and Biological Weapons and Threatens Their Use in Israel," *SITE Monitoring Service Enterprise*, June 27, 2006, <https://ent.siteintelgroup.com/Jihadist-News/6-27-06-al-aqsa-martyrs-in-palestine-creates-wmd.html>.

²⁴³¹ Michael Moodie, Markus Binder, "Jihadists and Chemical Weapons," *Jihadists and Weapons of Mass Destruction*, eds. Gary Ackerman, Jeremy Tamsett (Boca Raton: CRC Press, 2009), p. 143.

²⁴³² Preston Mendenhall, "Positive test for terror toxins in Iraq," *MSNBC.com*, April 4, 2003, http://www.nbcnews.com/id/3070394/ns/world_news/t/positive-test-terror-toxins-iraq/#.VXdWckbrJ-A.

²⁴³³ Milton Leitenberg, *Assessing the Biological Weapons and Bioterrorism Threat*, Strategic Studies Institute monograph, December 2005, p. 26-27, <http://www.strategicstudiesinstitute.army.mil/pdffiles/pub639.pdf>.

²⁴³⁴ Joel Roberts, "Thailand PM: Hambali Was Plotting," *CBS News*, August 17, 2003, <http://www.cbsnews.com/news/thailand-pm-hambali-was-plotting/>.

²⁴³⁵ Rolf Mowatt-Larssen, "Al Qaeda Weapons of Mass Destruction Threat: Hype or Reality?" Paper, Harvard Kennedy School Belfer Center for Science and International Affairs, January 2010, p. 28, http://belfercenter.ksg.harvard.edu/publication/19852/al_qaeda_weapons_of_mass_destruction_threat.html.

²⁴³⁶ Mariano C. Bartolome, Maria Jose Espona, "Chemical and Biological Terrorism in Latin America: The Revolutionary Armed Forces of Colombia," *The ASA Newsletter* 03-5, no. 98 (October 31, 2003), <http://www.asanltr.com/newsletter/03-5/articles/035c.htm>.

| Table 16.3. Chronology of terrorist and extremist events tied to biological warfare (BW) | | |
|--|---|---|
| Date of event (most recent to oldest) | Group | Description of event |
| December 2001 | Al Qaeda (AQ Central); Jemaah Islamiyah | Rauf Ahmed is detained in Pakistan, and Yazid Sufaat is arrested in Malaysia. ^{2437,2438} Pakistan subsequently cuts off FBI access to Rauf Ahmed in 2003; the latter is now free. ²⁴³⁹ |
| 2001 | Jemaah Islamiyah | Yazid Sufaat flees Afghanistan for Bogor, Indonesia, to escape from the October 2001 U.S. intervention. ²⁴⁴⁰ He reportedly seeks to set up a new BW program in-country upon arrival, but fails to recruit a microbiologist at an Indonesian institute. ^{2441,2442,2443} |
| September and October 2001 | [Amerithrax case] | “At least five envelopes containing significant quantities of <i>Bacillus anthracis</i> ” were mailed to U.S. targets. ²⁴⁴⁴ The attacks killed five and sickened seventeen other individuals. ²⁴⁴⁵ FBI concluded that Bruce E. Ivins, a researcher at USAMRIID (U.S.A.) had sent the letters. ²⁴⁴⁶ |
| 1999-2001 | Al Qaeda (AQ Central); Jemaah Islamiyah | Zawahiri launches a BW program in 1999, and hires Rauf Ahmed. ^{2447,2448} Ahmed establishes a covert laboratory in Afghanistan. ²⁴⁴⁹ By 2000, Zawahiri recruits Yazid Sufaat. ²⁴⁵⁰ U.S. outing of the Taliban disrupts the plan and the laboratory is discovered. ^{2451,2452} |
| 1998 to May 2000 | “Palestinian Group” | A Palestinian group (unknown) was reportedly caught in a counterfeiting scheme whereby expired eggs contaminated with salmonella were stamped with counterfeit stamps and sold. ²⁴⁵³ Israeli news reporting on their capture in May 2000 implied that this was deliberately done to sicken Israelis. ²⁴⁵⁴ |

²⁴³⁷ Joby Warrick, “Suspect and A Setback in Al-Qaeda Anthrax Case,” *The Washington Post*, October 31, 2006, <http://www.washingtonpost.com/wp-dyn/content/article/2006/10/30/AR2006103001250.html>.

²⁴³⁸ Maria Ressa, “Reports: Al Qaeda operative sought anthrax,” *CNN*, October 10, 2003, <http://edition.cnn.com/2003/WORLD/asiapcf/southeast/10/10/alqaeda.anthrax/>.

²⁴³⁹ Joby Warrick, “Suspect and a Setback in Al-Qaeda Anthrax Case.”

²⁴⁴⁰ Judith Miller, “U.S. Has New Concerns About Anthrax Readiness,” *The New York Times*, December 28, 2003, <http://www.nytimes.com/2003/12/28/us/us-has-new-concerns-about-anthrax-readiness.html>.

²⁴⁴¹ *Ibid.*

²⁴⁴² Maria Ressa, “Reports: Al Qaeda operative sought anthrax;”

²⁴⁴³ René Pita, Rohan Gunaratna, “Revisiting Al-Qa’ida’s Anthrax Program,”

²⁴⁴⁴ The United States Department of Justice, “Amerithrax Investigative Summary, Released Pursuant to the Freedom of Information Act,” February 19, 2010, p. 1, <http://www.justice.gov/archive/amerithrax/docs/amx-investigative-summary.pdf>.

²⁴⁴⁵ *Ibid.*

²⁴⁴⁶ *Ibid.*

²⁴⁴⁷ Alan Cullison, “Inside Al-Qaeda’s Hard Drive,” *The Atlantic*, September 2004, <http://www.theatlantic.com/magazine/archive/2004/09/inside-al-qaeda-s-hard-drive/303428/>.

²⁴⁴⁸ Rolf Mowatt-Larssen, “Al Qaeda Weapons of Mass Destruction Threat: Hype or Reality?”

²⁴⁴⁹ *Ibid.*

²⁴⁵⁰ René Pita, Rohan Gunaratna, “Revisiting Al-Qa’ida’s Anthrax Program,” *CTC Sentinel* Vol. 2 Issue 5, May 2009, <https://www.ctc.usma.edu/posts/revisiting-al-qaida%E2%80%99s-anthrax-program>.

²⁴⁵¹ *Ibid.*

²⁴⁵² Rolf Mowatt-Larssen, “How to Get Terrorists to Talk,” *The National Interest*, February 18, 2015, p.2, <http://nationalinterest.org/feature/how-get-terrorists-talk-12270?page=2>.

²⁴⁵³ Jason Pate, Gavin Cameron, “Covert Biological Weapons Attacks against Agricultural Targets: Assessing the Impact against U.S. Agriculture,” BCSIA Discussion Paper 2001-9, ESDP Discussion Paper ESDP-2001-05, John F. Kennedy School of Government, Harvard University, August 2001, p.8, http://belfercenter.ksg.harvard.edu/files/covert_biological_weapons_attacks_against_agricultural_targets.pdf.

²⁴⁵⁴ *Ibid.*

| Table 16.3. Chronology of terrorist and extremist events tied to biological warfare (BW) | | |
|--|--|---|
| Date of event (most recent to oldest) | Group | Description of event |
| February 1999 | Chechen group under Salman Raduyev | One Russian newspaper claimed that Salman Raduyev, a prominent Chechen leader, had threatened to steal biological weapons from ex-Soviet biological warfare laboratories unless the government released two captured women. ²⁴⁵⁵ This report could not be verified. ²⁴⁵⁶ |
| June 1998 | “Republic of Texas” | Two members of the group sent emails threatening to use biological agents against federal officials; no biological agents were uncovered at the time of their arrest. ²⁴⁵⁷ |
| April 1998 | Palestinian Islamic Jihad | A Jordanian newspaper cites a leading figure in the organization as having discussed the possibility of using BW. ²⁴⁵⁸ This remains unconfirmed. |
| March 6, 1998 | National Liberation Army (ELN) | The ELN detonate an explosive device reportedly spiked with fecal matter to cause sepsis upon injury. ²⁴⁵⁹ |
| 1997 | Counter Holocaust Lobbyists of Hillel | Agar and <i>B. cereus</i> in a petri dish apparently labelled “anthracis” [SIC] and “Yersinia” was sent to a Jewish organization in Washington. ²⁴⁶⁰ Whether this was an anthrax hoax or the group thought the package contained <i>B. anthracis</i> is not known; the package contained a hate letter that further misidentified the petri dish as containing a “chemical warfare” agent. ²⁴⁶¹ |
| 1996 | “Justice Department” [animal rights radical group] | A group calling itself the “Justice Department” mails razors to fur retailers in Canada in 1996 which they claim are covered with HIV-infected blood; whether they really did so is not known. ²⁴⁶² |
| March 15, 1995 | Aum Shinrikyo | The group ineffectually attempts to disperse botulinum toxin from three sprayer-suitcases in the Kasumigaseki metro station (Japan). ²⁴⁶³ |
| November 4, 1994 | Aum Shinrikyo | The group fails in an assassination attempt involving botulinum toxin mixed with juice. ²⁴⁶⁴ |

²⁴⁵⁵ W. Seth Carus, *Bioterrorism and Biocrimes: The Illicit Use of Biological Agents Since 1900*, Working Paper (Washington: Center for Counterproliferation Research, National Defense University, February 2001 Revision), p. 107.

²⁴⁵⁶ Ibid.

For instance, the Russian think-tank PIR Center does not include this incident in their list of North Caucasus CBRN threat events. PIR Center, “WMD Terrorism Originated in North Caucasus: Again on the Agenda?” *PIR Center Report*, April 26, 2013, <http://www.pircenter.org/en/articles/1312-wmd-terrorism-originated-in-north-caucasus-again-on-the-agenda>.

²⁴⁵⁷ W. Seth Carus, *Bioterrorism and Biocrimes: The Illicit Use of Biological Agents Since 1900*, p. 108-109, p. 186.

²⁴⁵⁸ Ibid.

²⁴⁵⁹ Mariano C. Bartolome, Maria Jose Espona, “Chemical and Biological Terrorism in Latin America: The Revolutionary Armed Forces of Colombia.”

²⁴⁶⁰ W. Seth Carus, *Bioterrorism and Biocrimes: The Illicit Use of Biological Agents Since 1900*, p. 110-111; The B’nai B’rith International Jewish Monthly, Volume 111, (1996), p. 67, <https://books.google.com/books?id=V--3AAAAIAAJ&q=anthracis+Yersinia+Counter+Holocaust+Lobbyists+of+Hillel&dq=anthracis+Yersinia+Counter+Holocaust+Lobbyists+of+Hillel&hl=en&sa=X&ved=0CC8Q6AEwA2oVChMI98TMwLKLxgIVOEaMCh0gNAC0>.

²⁴⁶¹ W. Seth Carus, *Bioterrorism and Biocrimes: The Illicit Use of Biological Agents Since 1900*, p. 111.

²⁴⁶² Ibid.

²⁴⁶³ Richard Danzig, Marc Sageman, Terrance Leighton, Lloyd Hough, Hidemi Yuki, Rui Kotani, Zachary M. Hosford, “Aum Shinrikyo: Insights into how terrorists develop biological and chemical weapons, second edition,” Center for a New American Security, December 2012, p. 21, http://www.cnas.org/files/documents/publications/CNAS_AumShinrikyo_SecondEdition_English.pdf.

²⁴⁶⁴ Ibid.

| Table 16.3. Chronology of terrorist and extremist events tied to biological warfare (BW) | | |
|--|---|---|
| Date of event (most recent to oldest) | Group | Description of event |
| 1993 | Animal Liberation Front (ALF) [animal rights radical group] | A spokesman for the Animal Liberation Front (ALF) claims that bombs planted in the U.K. by members of the collective had been purposefully tainted with HIV, but authorities dismiss this account. ²⁴⁶⁵ |
| November 18, 1993 | Aum Shinrikyo | The group disperses 20 liters of botulinum toxin slurry from a car sprayer in a failed assassination attempt. ²⁴⁶⁶ |
| 1993 | Aum Shinrikyo | Following failed attacks with the liquid product, the group sets up a (crude) dry production line for <i>B. anthracis</i> . ²⁴⁶⁷ |
| July-August 1993 | Aum Shinrikyo | The group produces some 10 to 20 tons of slurry containing <i>B. anthracis</i> (perhaps not pathogenic), which are then ineffectually released from spray trucks in some 10 to 20 attacks. ²⁴⁶⁸ |
| May-June 1993 | Aum Shinrikyo | The group produces roughly 20 tons of slurry containing <i>B. anthracis</i> (perhaps not pathogenic), and ineffectually sprays the product from the roof of one of its facilities. ²⁴⁶⁹ |
| 1992 | Aum Shinrikyo | The group sets up a (crude) liquid production line for <i>B. anthracis</i> . ²⁴⁷⁰ |
| March-July 1990 | Aum Shinrikyo | The group produces several hundred tons of slurry as part of their botulinum toxin production program. ²⁴⁷¹ They disseminate this material in 20 to 40 different attempted attacks in this time period, all without success. ²⁴⁷² |
| Spring 1990 | Aum Shinrikyo | Seiichi Endo, the leader of the group's BW program, harvests <i>C. botulinum</i> from soil in Japan. ²⁴⁷³ |
| September 1984 | Rajneeshees | <i>S. typhimurium</i> is used to contaminate at least 10 restaurant salad bars in The Dalles, Oregon (U.S.A.), causing at least 751 people to fall ill. ^{2474,2475,2476} |

²⁴⁶⁵ W. Seth Carus, *Bioterrorism and Biocrimes: The Illicit Use of Biological Agents Since 1900*, p. 76.

²⁴⁶⁶ Richard Danzig et al., "Aum Shinrikyo: Insights into how terrorists develop biological and chemical weapons, second edition,"

²⁴⁶⁷ Ibid.

²⁴⁶⁸ Ibid.

²⁴⁶⁹ Ibid.

²⁴⁷⁰ Ibid.

²⁴⁷¹ Richard Danzig et al., "Aum Shinrikyo: Insights into how terrorists develop biological and chemical weapons, second edition," *Center for a New American Security*, December 2012, p. 20, http://www.cnas.org/files/documents/publications/CNAS_AumShinrikyo_SecondEdition_English.pdf.

²⁴⁷² Ibid.

²⁴⁷³ Richard Danzig et al., "Aum Shinrikyo: Insights into how terrorists develop biological and chemical weapons, second edition," *Center for a New American Security*, December 2012, p. 18-20, http://www.cnas.org/files/documents/publications/CNAS_AumShinrikyo_SecondEdition_English.pdf.

²⁴⁷⁴ Thomas J. et al (1997), "A Large Community Outbreak of Salmonellosis Caused by Intentional Contamination of Restaurant Salad Bars," *Journal of the American Medical Association* 278, no. 5, http://www.cdc.gov/phlp/docs/forensic_epidemiology/Additional%20Materials/Articles/Torok%20et%20al.pdf;

²⁴⁷⁵ W. Seth Carus, "The Rajneeshees (1984)," *Toxic Terror: Assessing Terrorist Use of Chemical and Biological Weapons*, ed. Jonathan Tucker (Cambridge: The MIT Press, 2001), p. 115;

²⁴⁷⁶ W. Seth Carus, "Rajneeshees," *Encyclopedia of Bioterrorism Defense, 2nd Edition*, eds. Rebecca Katz, Raymond A. Zilinskas (Hoboken: John Wiley & Sons, 2011), p. 383-384.

| Table 16.3. Chronology of terrorist and extremist events tied to biological warfare (BW) | | |
|--|----------------------------------|--|
| Date of event (most recent to oldest) | Group | Description of event |
| August 29, 1984 | Rajneeshees | Two Wasco County commissioners were given water deliberately tainted with <i>S. typhimurium</i> by Rajneeshees; both fell ill. ²⁴⁷⁷ |
| Early 1984 | Rajneeshees | Reports, based on admissions made by Rajneesh members, of other cult BW attacks prior to August 1984. ²⁴⁷⁸ These are unconfirmed because none of the attacks were successful and because there may have been a desire to exaggerate wrongdoings by one of the chief organizers (Puja), who was hated. ²⁴⁷⁹ |
| October 14, 1981 | Dark Harvest [eco-radical group] | In an apparent follow-on to the October 10, 1981 incident described below, British police received an anonymous tip that led them to a metal box allegedly containing <i>B. anthracis</i> . ²⁴⁸⁰ However, unlike in the October 10 incident, the soil did not contain <i>B. anthracis</i> . ²⁴⁸¹ |
| October 10, 1981 | Dark Harvest [eco-radical group] | The eco-radical group “Dark Harvest” took <i>B. anthracis</i> -contaminated soil from Gruinard Island (a then-contaminated British military WWII site used to test <i>B. anthracis</i> bombs) and spread it on the grounds of Porton Down in 1981 (Britain’s main biodefense and chemical warfare defense establishment, and previously the center orchestrating Britain’s biological weapons program). ²⁴⁸² The soil did contain <i>B. anthracis</i> . ²⁴⁸³ |
| 1980s | Tamil “militants” | A single unconfirmed account of Tamil “militants” threatening biological warfare. ²⁴⁸⁴ |
| October 1980 | Red Army Faction | The German-based, now-defunct, Red Army Faction (RAF) reportedly maintained a botulinum toxin laboratory in Paris, France until it was uncovered in October 1980. ²⁴⁸⁵ A recent review of this case has cast doubt on parts of the underlying story, however, and German authorities apparently remain convinced that “no evidence whatsoever [exists] that members of the ‘RAF’ had planned or prepared an attack using biological agents.” ^{2486,2487} |

²⁴⁷⁷ W. Seth Carus, “Rajneeshees,” p. 534.

²⁴⁷⁸ *Ibid.*, p. 534-535.

²⁴⁷⁹ W. Seth Carus, *Bioterrorism and Biocrimes: The Illicit Use of Biological Agents Since 1900*, p. 534.

²⁴⁸⁰ *Ibid.*

²⁴⁸¹ *Ibid.*

²⁴⁸² W. Seth Carus, *Bioterrorism and Biocrimes: The Illicit Use of Biological Agents Since 1900*, p. 58.

²⁴⁸³ *Ibid.*

²⁴⁸⁴ *Ibid.*

²⁴⁸⁵ W. Seth Carus, *Bioterrorism and Biocrimes: The Illicit Use of Biological Agents Since 1900*, p. 156-157.

²⁴⁸⁶ *Ibid.*

²⁴⁸⁷ The review in question is:

Terence Taylor, Tim Trevan, “The Red Army Faction (1980),” *Toxic Terror: Assessing Terrorist Use of Chemical and Biological Weapons*, ed. Jonathan B. Tucker (Cambridge: MIT Press, 2000),

| Date of event (most recent to oldest) | Group | Description of event |
|--|--|--|
| February 1975 | POLISARIO; Basque Fatherland and Liberty (ETA) | One unconfirmed report of a February 1975 offer by a group called POLISARIO to coordinate poisoning of water supplies. ²⁴⁸⁸ Even if POLISARIO did make such a threatening offer, no evidence exists that POLISARIO sought a BW capability. ^{2489,2490} |
| January 18, 1972 | R.I.S.E. | Arrest of two R.I.S.E. founders for having reportedly planned to contaminate Chicago's municipal water system with <i>Salmonella typhi</i> (causative agent of typhoid fever). ²⁴⁹¹ |

16.9 Designated Foreign Terrorist Organizations and Biological Weapons

| Designated Foreign Terrorist Organizations²⁴⁹² | Publicly threatened BW? | Historically had a BW program?²⁴⁹³ | BW efforts believed ongoing? | Notes |
|--|--------------------------------|--|-------------------------------------|---|
| Abu Nidal Organization (ANO) | NO | NO | | |
| Abu Sayyaf Group (ASG) | NO | NO | | A single news report that police captured publicly-available reading material on biological and chemical warfare during the capture of six suspected group members. ²⁴⁹⁴ Whether the group members were members of ASG or JI is unclear. |
| Aum Shinrikyo (AUM) | NO | YES | NO | Attempted production of BW agent; launched failed BW attacks. See the detailed entry below. Leadership and BW-program members captured. |
| Basque Fatherland and Liberty (ETA) | NO | NO | | One unconfirmed report of a February 1975 offer by a group called Polisario to coordinate poisoning of water supplies. ²⁴⁹⁵ |

²⁴⁸⁸ W. Seth Carus, *Bioterrorism and Biocrimes: The Illicit Use of Biological Agents Since 1900*, p. 121.

²⁴⁸⁹ POLISARIO stands for "Frente Popular para la Liberacion de Saquia el-Hamra y Rio de Oro," and is a group that seeks to overthrow Moroccan control of Western Sahara and create an independent state for Sahrawi tribes based on Islamic culture.

²⁴⁹⁰ Gail H. Nelson, "POLISARIO," *Encyclopedia of Bioterrorism Defense, 2nd Edition*, eds. Rebecca Katz, Raymond A. Zilinskas (Hoboken: John Wiley & Sons, 2011), p. 510-512.

²⁴⁹¹ W. Seth Carus, "RISE: A Case Study," *Encyclopedia of Bioterrorism Defense, 2nd Edition*, eds. Rebecca Katz, Raymond A. Zilinskas (Hoboken: John Wiley & Sons, 2011), p. 542.

²⁴⁹² U.S. Department of State, "Foreign Terrorist Organizations," <<http://www.state.gov/j/ct/rls/other/des/123085.htm>>.

²⁴⁹³ Where a "BW program" is defined as a military program for the production of a biological pathogen.

²⁴⁹⁴ Christian Enemark, *Disease and Security: Natural plagues and biological weapons in East Asia* (Abingdon: Routledge, 2007), p. 106.

²⁴⁹⁵ W. Seth Carus, *Bioterrorism and Biocrimes: The Illicit Use of Biological Agents Since 1900*, Working Paper (Washington: Center for Counterproliferation Research, National Defense University, February 2001 Revision), p. 121.

| Table 16.4. Currently designated Foreign Terrorist Organizations and BW | | | | |
|--|--------------------------------|---|---|--|
| Designated Foreign Terrorist Organizations²⁴⁹² | Publicly threatened BW? | Historically had a BW program?²⁴⁹³ | BW efforts believed ongoing? | Notes |
| Gama'a al-Islamiyya (Islamic Group) (IG) | NO | NO | | |
| Hamas | NO | NO | | Reported interest in chemical poisons. ²⁴⁹⁶ |
| Harakat ul-Mujahidin (HUM) | NO | NO | | |
| Hizballah | NO | NO | | |
| Kahane Chai (Kach) | NO | NO | | |
| Kurdistan Workers Party (PKK) (Kongra-Gel) | NO | NO | | A single unconfirmed Turkish newspaper report of Cobra poison smuggling for profit. ²⁴⁹⁷ |
| Liberation Tigers of Tamil Eelam (LTTE) | Unconfirmed | NO | NO | A single unconfirmed account of Tamil "militants" threatening biological warfare in the 1980s. ²⁴⁹⁸ Report of LTTE use of chlorine for chemical warfare. ²⁴⁹⁹ Group has been defeated. |
| National Liberation Army (ELN) | NO | NO, albeit reported war use of biological material | Unknown if continuing war use of biological material | Reports that ELN used feces to spike explosive devices to cause sepsis, in what appears to be a modern take on the Viet Cong punji stick technique. ²⁵⁰⁰ |
| Palestine Liberation Front (PLF) | NO | NO | | |
| Palestinian Islamic Jihad (PIJ) | NO | NO | | A single unconfirmed April 1998 Jordanian newspaper report citing a leading figure in the organization as having discussed the possibility of using BW. ²⁵⁰¹ |
| Popular Front for the Liberation of Palestine (PFLP) | NO | NO | | |
| PFLP-General Command (PFLP-GC) | NO | NO | | |

²⁴⁹⁶ Ibid.

²⁴⁹⁷ Ibid.

²⁴⁹⁸ Ibid.

²⁴⁹⁹ James J. F. Forest, Sammy Salama, "Jihadist Tactics and Targeting," *Jihadists and Weapons of Mass Destruction*, eds. Gary Ackerman, Jeremy Tamsett (Boca Raton: CRC Press, 2009), p. 80.

²⁵⁰⁰ Mariano C. Bartolome, Maria Jose Espona, "Chemical and Biological Terrorism in Latin America: The Revolutionary Armed Forces of Colombia," *The ASA Newsletter* 03-5, no. 98 (October 31, 2003), <http://www.asanltr.com/newsletter/03-5/articles/035c.htm>.

²⁵⁰¹ W. Seth Carus, *Bioterrorism and Biocrimes: The Illicit Use of Biological Agents Since 1900*, p. 109, 186.

| Table 16.4. Currently designated Foreign Terrorist Organizations and BW | | | | |
|--|--------------------------------|---|---|---|
| Designated Foreign Terrorist Organizations²⁴⁹² | Publicly threatened BW? | Historically had a BW program?²⁴⁹³ | BW efforts believed ongoing? | Notes |
| Revolutionary Armed Forces of Colombia (FARC) | NO | NO, albeit reported war use of biological material | Continued war use of biological material | Reports that FARC used feces to spike explosive devices to cause sepsis, in what appears to be a modern take on the Viet Cong punji stick technique. ^{2502,2503,2504} |
| Revolutionary Organization 17 November (17N) | NO | NO | | |
| Revolutionary People's Liberation Party/Front (DHKP/C) | NO | NO | | |
| Shining Path (SL) | NO | NO | | |
| al-Qa'ida (AQ) | YES | YES | YES | Attempted production of BW agent, with unknown results. See detailed entry below. Efforts believed to be ongoing. |
| al-Qaida in the Islamic Maghreb (AQIM) | YES (by proxy with AQ) | YES | YES | By proxy with AQ (central); highly contested news reports of a BW training camp accident in 2009. ^{2505,2506,2507} |
| al-Qa'ida in the Arabian Peninsula (AQAP) | YES (by proxy with AQ) | Unknown | | Possibly by proxy with AQ (central). No information formally ties this group with AQ's BW program. The group reportedly considered contaminating U.S. food with ricin and cyanide, although no open source indications suggest the group selected this tactic for operationalization. ²⁵⁰⁸ |

²⁵⁰² Mariano C. Bartolome, Maria Jose Espona, "Chemical and Biological Terrorism in Latin America: The Revolutionary Armed Forces of Colombia".

²⁵⁰³ Pablo Esteban Parra Gallego, "IEDs: A Major Threat for a Struggling Society," *The Journal of ERW and Mine Action* 13, no. 3 (Winter 2009), <http://www.jmu.edu/cisr/journal/13.3/specialreport/gallego/gallego.shtml>

²⁵⁰⁴ "Army destroys minefield in southwest Colombia," *Colombia Reports*, May 17, 2012, <http://colombiareports.com/minefield-and-explosives-found-in-southwest-colombia/>.

²⁵⁰⁵ For a critical review of these accounts, see: René Pita, Rohan Gunaratna, Philip Henika, "Al Qaeda in the Islamic Maghreb (AQIM) and the Alleged Production of the Etiological Agent of Plague," *ASA Newsletter* 131 (April 2009): p. 1, 21-22, <http://www.asanltr.com/newsletter/09-2/articles/092a.pdf>.

²⁵⁰⁶ For the accounts themselves, see: Eli Lake, "Al Qaeda bungles arms experiment," *The Washington Times*, January 19, 2009, <http://www.washingtontimes.com/news/2009/jan/19/al-qaeda-bungles-arms-experiment/>

²⁵⁰⁷ Olivier Guitta, "Al-Qaeda in the Islamic Maghreb: A Threat for the West," *Defence Against Terrorism Review* 3, no. 1 (Spring 2010): p. 57-58, http://www.coedat.nato.int/publication/datr/volume5/03-Al-Qaeda_in_the_Islamic_Maghreb_A_Threat_for_the_West.pdf.

²⁵⁰⁸ Mike M. Ahlers, Brian Todd, "Al Qaeda group contemplated poisoning food in U.S., officials say," December 22, 2010, <http://www.cnn.com/2010/US/12/21/al.qaeda.poison.plot/>.

| Table 16.4. Currently designated Foreign Terrorist Organizations and BW | | | | |
|--|----------------------------------|---|-------------------------------------|---|
| Designated Foreign Terrorist Organizations²⁴⁹² | Publicly threatened BW? | Historically had a BW program?²⁴⁹³ | BW efforts believed ongoing? | Notes |
| Islamic Movement of Uzbekistan (IMU) | NO | NO | | |
| Real Irish Republican Army (RIRA) | NO | NO | | |
| Jaish-e-Mohammed (JEM) | NO | NO | | |
| Lashkar-e Tayyiba (LeT) | NO | NO | | |
| Al-Aqsa Martyrs Brigade (AAMB) | YES | NO | | The group claimed to possess chemical and biological weapons in 2006 in an attempt to deter Israeli military action. ²⁵⁰⁹ This claim is regarded as spurious. ²⁵¹⁰ |
| Asbat al-Ansar (AAA) | NO | NO | | |
| Communist Party of the Philippines/New People's Army (CPP/NPA) | NO | NO, albeit reported war use of biological material | | Recent Philippines military claim that NPA used feces to spike explosive devices to cause sepsis; see FARC and ELN entries. ²⁵¹¹ The NPA denies this. |
| Jemaah Islamiya (JI) | YES (By proxy with AQ) | YES | NO | Attempted production of BW, mostly as part of Al Qaeda's program, with unknown results. See detailed entry. Group membership, including leadership and individuals involved in the BW program, decimated. |
| Lashkar i Jhangvi (LJ) | NO | NO | | Pakistani police reportedly uncovered chemical laboratories belonging to the group. ²⁵¹² |

²⁵⁰⁹ Michael Moodie, Markus Binder, "Jihadists and Chemical Weapons," *Jihadists and Weapons of Mass Destruction*, eds. Gary Ackerman, Jeremy Tamsett (Boca Raton: CRC Press, 2009), p. 143.

²⁵¹⁰ Ibid.

²⁵¹¹ "Philippine Army finds human feces, snake venom in wounded soldiers' wounds," *Nindanao Examiner*, September 4, 2013, <http://mindanaoexaminer.com/philippine-army-finds-human-feces-snake-venom-in-wounded-soldiers-wounds/>.

²⁵¹² National Consortium for the Study of Terrorism and Responses to Terrorism (START), "Terrorist Organization Profiles: Lashkar-e-Jhangvi," http://www.start.umd.edu/tops/terrorist_organization_profile.asp?id=65.

Table 16.4. Currently designated Foreign Terrorist Organizations and BW

| Designated Foreign Terrorist Organizations²⁴⁹² | Publicly threatened BW? | Historically had a BW program?²⁴⁹³ | BW efforts believed ongoing? | Notes |
|--|--------------------------------|--|-------------------------------------|--|
| Ansar al-Islam (AAI) | NO | Unsubstantiated reports of interest in toxins | NO | Initial reports held that the group had a poison laboratory in Iraq that manufactured botulinum and ricin toxin. ²⁵¹³ However, in retrospect, the site does not appear to have produced toxins. The site is not mentioned in the report of the Iraq Survey Group. ²⁵¹⁴ |
| Continuity Irish Republican Army (CIRA) | NO | NO | | |
| Libyan Islamic Fighting Group (LIFG) | NO | NO | | |

²⁵¹³ Preston Mendenhall, "Positive test for terror toxins in Iraq," *MSNBC.com*, April 4, 2003, http://www.nbcnews.com/id/3070394/ns/world_news/t/positive-test-terror-toxins-iraq/#.VXdWckbrJ-A.

²⁵¹⁴ Milton Leitenberg, *Assessing the Biological Weapons and Bioterrorism Threat*, Strategic Studies Institute monograph, December 2005, p. 26-27, <http://www.strategicstudiesinstitute.army.mil/pdffiles/pub639.pdf>.

| Table 16.4. Currently designated Foreign Terrorist Organizations and BW | | | | |
|--|--------------------------------|--|-------------------------------------|---|
| Designated Foreign Terrorist Organizations²⁴⁹² | Publicly threatened BW? | Historically had a BW program?²⁴⁹³ | BW efforts believed ongoing? | Notes |
| Islamic State of Iraq and the Levant (formerly al-Qa'ida in Iraq) | NO | Unknown | | Emerging group with enormous resources. Reports of chemical munitions use (chlorine, phosphine, and mustard). ^{2515,2516,2517,2518,2519} One individual member had a laptop with over 35,000 files dedicated to Jihad, a few of which discussed BW. ²⁵²⁰ Concern over alleged looting of biological laboratories in Syria. ²⁵²¹ In 2014, DHS secretary Jeh Johnson stated that his service had “seen no specific credible intelligence that ISIS is attempting to use any sort of disease or virus to attack our homeland.” ²⁵²² |
| Islamic Jihad Union (IJU) | NO | NO | | |
| Harakat ul-Jihad-i-Islami/Bangladesh (HUJI-B) | NO | NO | | |
| al-Shabaab | NO | NO | | |
| Revolutionary Struggle (RS) | NO | NO | | |
| Kata'ib Hizballah (KH) | NO | NO | | |
| Harakat ul-Jihad-i-Islami (HUJI) | NO | NO | | |

²⁵¹⁵ Tom Coghlan, Catherine Philp, Ammar Shamary, “Jihadists unleash chemical weapons in battle for Tikrit,” *The Times*, March 14, 2015, <<http://www.thetimes.co.uk/tto/news/world/middleeast/article4381521.ece>>.

²⁵¹⁶ “Chlorine bomb attacks by jihadists are growing threat to the UK, warns chemical warfare expert,” *The Independent*, May 25, 2015, <http://www.independent.co.uk/news/uk/home-news/chlorine-bomb-attacks-by-jihadists-are-growing-threat-to-the-uk-warns-chemical-warfare-expert-10274947.html>.

²⁵¹⁷ Phosphine, chemical formula PH₃, is used as a fumigant, but is toxic if inhaled. Ibid; also see: Sajila Saseendran, “Ministry mulls banning ‘killer’ pesticide,” *Khaleej Times*, September 2, 2014, <http://www.khaleejtimes.com/article/20140901/ARTICLE/309019899/1002>.

²⁵¹⁸ Nabih Bulos, “Islamic State confirmed to have used mustard gas against Kurds in Syria,” *The Telegraph*, August 15, 2015, <http://www.telegraph.co.uk/news/worldnews/middleeast/syria/11805235/Islamic-State-confirmed-to-have-used-mustard-gas-against-Kurds-in-Syria.html>.

²⁵¹⁹ Paul Blake, “US official: ‘IS making and using chemical weapons in Iraq and Syria’,” *BBC News*, September 11, 2015, <http://www.bbc.com/news/world-us-canada-34211838>.

²⁵²⁰ Harald Doornbos, Jenan Moussa, “Found: The Islamic State’s Terror Laptop of Doom,” *Foreign Policy*, August 28, 2014, <http://foreignpolicy.com/2014/08/28/found-the-islamic-states-terror-laptop-of-doom/>.

²⁵²¹ Ari Soffer, “Experts Warn of Al Qaeda Biological Weapons Threat,” *Israel National News*, October 16, 2013, <http://www.israelnationalnews.com/News/News.aspx/172897#.VXddiUbrJ-A>.

²⁵²² “Use of Ebola virus as bioterror weapon highly unlikely: Experts,” *Homeland Security News Wire*, November 11, 2014, <http://www.homelandsecuritynewswire.com/dr20141111-use-of-ebola-virus-as-bioterror-weapon-highly-unlikely-experts>.

| Table 16.4. Currently designated Foreign Terrorist Organizations and BW | | | | |
|--|--------------------------------|--|-------------------------------------|---|
| Designated Foreign Terrorist Organizations²⁴⁹² | Publicly threatened BW? | Historically had a BW program?²⁴⁹³ | BW efforts believed ongoing? | Notes |
| Tehrik-e Taliban Pakistan (TTP) | NO | NO | | |
| Jundallah | NO | NO | | |
| Army of Islam (AOI) | NO | NO | | |
| Indian Mujahedeen (IM) | YES | NO | | A 2010 email claiming to be from “Indian Mujahedeen (Assam)” threatened biological warfare unless its demands were met. ²⁵²³ |
| Jemaah Anshorut Tauhid (JAT) | NO | NO | | Splinter group from Jemaah Islamiyah. |
| Abdallah Azzam Brigades (AAB) | NO | NO | | |
| Haqqani Network (HQN) | | | | |
| Ansar al-Dine (AAD) | NO | NO | | |
| Boko Haram | NO | NO | | |
| Ansaru | NO | NO | | |
| al-Mulathamun Battalion | NO | NO | | |
| Ansar al-Shari’a in Benghazi | NO | NO | | |
| Ansar al-Shari’a in Darnah | NO | NO | | |
| Ansar al-Shari’a in Tunisia | NO | NO | | |
| Ansar Bayt al-Maqdis | NO | NO | | |
| al-Nusrah Front | Unknown | Unknown | | Emerging group. Concern over alleged looting of biological laboratories in Syria. ²⁵²⁴ |
| Mujahidin Shura Council in the Environs of Jerusalem (MSC) | NO | NO | | |

²⁵²³ “Extremists Warn of Biological Strike in India,” *Nuclear Threat Initiative Global Security Newswire*, October 4, 2010, <http://www.nti.org/gsn/article/extremists-warn-of-biological-strike-in-india/>.

²⁵²⁴ Ari Soffer, “Experts Warn of Al Qaeda Biological Weapons Threat.”