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Craig Reeder
Utah State University

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A Multiple Streams Approach to Bioterrorism Policy

By

Craig Reeder

A Plan B Thesis submitted in partial fulfillment

of the requirements for the degree

Of

MASTER OF ARTS

In

Political Science

Approved:

Damon Cann Phd Major Professor	Sarah Gordon PhD Committee Member
Roberta Herzberg Phd Committee Member	

Utah State University

Logan, Utah

2012

Introduction

Bioterrorism is not a new phenomenon and the issues that surround bioterrorism are complex. This paper focuses on the history of bioterrorism, its current threat in public view, and then applying a theory in which explains how those problems became issues in government. The paper starts by examining a historical account of bioterrorism. The history serves a purpose to discuss the ongoing developments and struggles of drafting legislation for an ongoing problem.

After a discussion of bioterrorism from a historical perspective, the paper examines the current threat or state of bioterrorism. This will lead into a discussion about John Kingdon's Multiple Streams Theory and its application to bioterrorism policy. After a discussion about the theory, it will be applied to the Clinton, Bush, and Obama administrations. This application will show that bioterrorism a complex issue and legislation surrounding bioterrorism is as equally as convoluted.

History

I

Although there was only a rudimentary knowledge of what caused disease or what germs were made of at the beginning of history, that knowledge has evolved into libraries that map out the specific composition of these sometimes simple organisms or viruses that have at one time plagued this world. As science and technology advances, the uses of these organisms have changed from what was once "naturally" occurring to organisms that humans can develop in settings as varied as a suburban basement to highly technical laboratories. The problem with the development of these organisms is their wide range of potential use. Over time people have used these organisms to heal the sick by eliminating

the effectiveness of the viruses or bacteria that have taken the lives of many individuals or to make those who were once healthy suffer.

The use of these organisms during war can be traced back to the 14th and 15th centuries. During this time knowledge of how these organisms worked was limited to if the awareness that being around dead carcasses caused people to get sick, then it should stand to reason that others would be affected the same way. The carcasses of dead animals were catapulted into opponents' castles under siege. The smell and the fear of transmission of diseases would be enough to get the other side to surrender or negotiate a truce.

Black plague or bubonic plague, which was estimated to kill about 30-60 percent of Europe's population was used as a weapon during wars. Bodies that were infected were hurled over castle walls for the purpose of contaminating all those that came into contact with the disease. Individuals who already had the disease were not afraid to share it because they knew that their fate was certain. Arrowheads would be dipped into a rotting carcass or manure before they were released. This would help ensure that anyone wounded by that arrow would eventually die if they survived the initial puncture.

These ruthless tactics involving diseases, however barbaric, proved to be useful. No longer could fortified walls defend people from their enemy. Arrows, swords, and catapults were now supplemented with the additional weapons of disease, germs, and fear. These new weapons continued well into modern history with the arrival of the smallpox virus. Native American Indians were the first people in the Americas to suffer from illness caused by the virus that was estimated to kill a majority of their population.

Blankets that were covered in the disease were given to the people with hopes of infecting them to further spread the disease to their people.

II

It was not until after World War I that countries started to condemn the use of biological organisms in wartime. The Geneva Protocol was established in 1925 to prohibit the use of biological agents during wartime. However, its implementation did not stop the research and development of these deadly organisms and viruses. It was not until the Biological Weapons Convention (BWC) was enacted in 1972 that people were prohibited from developing, storing, and using any biological agent as weapons for war.

Historical records of the use of biological weapons pre-WWI shows that people used them in their most simplistic form, namely they were not scrutinized and put to their greatest potential. Today scientists can extract a virus or bacteria, clone it, and then mass-produce it. The development of modern-day genetics laboratory methods results in the fact that these organisms are no longer bound by natural evolution. Evolution and mutation of these organisms that used to take years if not centuries now can be done in little or no time, depending on the complexity of the virus or bacteria.

Modern History

Japan

I

During World War II little if no public information was circulated about biological weapons and the threats that they posed to civilization, but people spread rumors about their theoretical use. One book was published in the summer of 1944 on Japan's development of biological weapons, called *Japan's Secret Weapon,* by Barclay

Moon Newman. The author's goal was to inform the public and influence the government to make better preparation against future biological weapons attack by Japan (Jeans, 2007). Although experts in the biological weapons field essentially ignored the book, it raised suspicions about Japan's activities (Jeans, 2007).

In an article in the *New York Times (2005)*, Japan's Imperial Army's unit 731 was characterized as committing some of the second world "war's worst atrocities." These inhumane actions stemmed from the country's exploration and testing of biological weapons on prisoners of war, conducting experiments on China's mainland, and in the Soviet Republic. In Sheldon H. Harris' book *Factories of Death*, he describes the action taken by Japan to develop their biological weapons program. All of the weapons tests were on humans to evaluate their effectiveness for potential use as weapons.

According to Harris (1994), Jeans (2007), Barenblatt (2004), Cole (1997), and Guillemin (2005), Japanese scientists released insects carrying plague in different cities, poisoned wells, exposed individuals to anthrax, and tested other biological agents on humans as well. According to some estimates, the number of those who died at the hands of the Japanese biological weapons program was 580,000 (Barenblatt 2004). These individuals suffered excruciating pain as test subjects. Researchers gave individuals food and drink laced with various biological agents to determine how contamination would work, and if the agent was not effective, they would be "sacrificed" and new test subjects would be brought in (Harris 1994). Human subjects were also placed in holding cells and exposed to biological agents at various levels. If the outcome was not acceptable, higher concentrations and doses were given to ensure that the subjects' reactions would accurately reflect how the biological agents would affect an exposed population.

With compelling evidence of the effectiveness of biological weapons, Japan sought to develop functional delivery methods. Japan's mission was twofold: (1) determine methods to culture biological warfare agents; (2) determine methods to disseminate the agent (Harris, 1994). Harris (1994) and Barenblatt (2004) discuss the difficulties for Japan to develop an effective delivery method for their biological agents. The main challenge in this endeavor was to devise a method that did not destroy the agent or the carrier of the agent. Among several prototypes that were developed, some were found feasible in delivery but were not worth the cost of developing like the Mother and Daughter bomb. Japan continued its research and development until the end of the war.

By the end of World War II, after having two atomic bombs dropped on Japan, she never developed a working delivery method for her biological weapons program. While it is difficult to infer, Harris (1994) makes the argument that had the war lasted a few years longer, Japan's chances of developing a working weapon for its biological agents seems plausible. Given the fact that the country had invested substantial time and money into its biological weapons program, an effective bomb carrying an agent would have had devastating effects on the surrounding countries.

USSR

II

The Cold War not only brought about a nuclear renaissance in both the Soviet empire and the United States, it also sparked an interest in developing biological weapons. The Soviet empire recognized the potential use of biological agents, and this translated into the Soviet Republic developing the grandest bioweapons program in the world, employing 50,000 scientist and technicians at its height (Davis, 1999) and

surpassing the Americans' biological weapons program (Alibek, 1999; Shoham & Wolfson, 2004).

The goal of the Soviet program was the development and militarization of germs, which would both create a fear in the enemy and would have an incubation period that would be fast enough to disable or kill the enemy. With this mindset, Soviet scientist focused on germs that either had no vaccines or were so virulent that antivirals would not be effective because they could not be given in time. HIV was determined not to be a useful agent because the incubation time took years rather than days (Alibek, 1999). When a new vaccine was developed for any pathogen that they deemed worthy for weapons use, scientists would either abandon the project or create new strains that would be resistant to the vaccine (Alibek, 1999).

The Soviets, like many countries that invested in biological weapons, thought anthrax was a prime agent for use. The incubation period for the agent is between four and five days. During this timeframe, symptoms in those affected could range from sniffles or a runny nose to joint and body aches or signs that resemble a cold or flu. After this timeframe the lymphatic system is taken over, and bacteria starts to multiply in the blood stream. Once this process has begun, there is little to no chance to suppress the bacteria. Toxins are released into the bloodstream affecting organs and causing them to lose function. Usually the lungs of those affected by the agent start to fill with fluid, making it harder to breath until they die. Left untreated, anthrax has a 90% mortality rate.

Running at full capacity, maximum Soviet output of anthrax was estimated at five thousand tons a year by 1987 (Alibek, 1999). This grand scale of production made an accidental release imminent, and one occurred in the city of Sverdlosvsk in 1979. During

nightly maintenance at one of the factories, an air filter that was scheduled for replacement was not installed, and this oversight resulted in the accidental release of anthrax that affected individuals nearby. The estimated number of those that were killed from the accidental release ranges from sixty four (Guillmin, 2002) to 105 (Alibek 1999). Additional cases were reports between 1936 and 1968, there were 160 epizootic infections, and between 1920 and 1960 856 human cases of anthrax infection in the Sverdlovsk area demonstrating the lethality of the agent (Israelyan, 2002).

As virulent and lethal as anthrax is, it does not compare to another militarized agent in the soviet arsenal, smallpox. This virus once plagued the world, causing an unknown amount of deaths around the globe. In 1980 the World Health Organization announced that the virus had been effectively eradicated from the world. According to Alibek (1999), this brought new Soviet attention to the virus. With the world population no longer being vaccinated, the Soviets looked to smallpox as an agent that could be improved for military weapons use. This improvement included both stockpiling and creating new strains of the virus. In 1990 an aerosol form of smallpox that proved to be successful could be produced at a rate of between eighty and one hundred tons per year, although it was unknown if this strain was vaccine resistant (Alibek, 1999).

After the collapse of the Soviet Union, the fear of loose nukes not only frightened Westerners but also the fear of biological agents was ingrained into that fear too. Once a symbol of Soviet achievement, a now abandoned biological program left thousands of highly sought after scientists earning salaries as little as $100 a month (Israelyan, 2002). With some of them defecting to other countries and providing sensitive information and others fleeing the country, it is unknown where some of these scientists have settled. The

idea has been espoused that these scientists could be working for rogue groups or for foreign countries (Israelyan, 2002; Shoham & Wolfson 2004).

There was also the possibility of weapons leaking from the former Soviet Union into the hands of unscrupulous individuals. The amount of weapons grade biological agents produced, it is unknown whether all of the stockpiles are accounted for. As the Russian economy began to slump, selling secrets and biological agents was thought to be plausible.

The United States

III

The United States was slow to enter the biological weapons program in part due to the Fox Doctrine (Jeans, 2007). According to Fox (1942), "Bacterial warfare is one of the recent scare-heads that we are being served by the pseudo-scientists who contribute to the flaming pages of the Sunday annexes syndicated over the nation's press." The idea that germs and viruses could be manipulated and used as weapons was perplexing and far-reaching. Although there were new advances in biology, knowledge of methods to turn these agents into weapons was improbable. Fox (1942) indicated that germs have always existed and current technology and sanitation standards could contain rates of infection.

As much as the scientific community in the United States believed in Fox's arguments, knowledge and rumors about other countries' biological weapons programs enticed researching in the country to explore the potential effects of biological agents. Fort Detrick, located in Maryland, became the country's secret biological weapons facility where scientists would conduct biological agent testing. The Americans began

their conquest into biological research much as the Soviets did, through sending scientist to Japan, interrogating captured prisoners of war, and examining captured documents (Alibek 1999). Information from these investigations led leaders in Washington to determine that the Fox Doctrine no longer plausible; biological weapons were feasible.

In order to learn how biological agents would spread, top-secret open-air tests were conducted in different locations throughout the United States. New York was thought to be a prime target for a biological attack. The living conditions there would make an attack more successful because of its high population density. If a highly communicable disease were to be released, the risk of transmission would be high. To test this theory, an innocuous bacterium that was not present in the city was introduced to one of the subway stops. After allowing normal traffic to pass through the city's subways system, which is New York's main form of transportation, the bacterium was found at every subway stop. This evidence showed that bacteria could and would be transmitted throughout the city from the subway system alone.

Testing was not only done in New York, as both San Francisco and the Twin Cities (Minneapolis and St. Paul) were unknowingly subjugated to experimentation. An agent that would cause flu like symptoms was sprayed off of the coast of San Francisco to test an attack from the ocean. During the time of the test, doctors reported there were an increased number of individuals showing symptoms that resembled the virus. In the Twin Cities, a virus was sprayed at a specific location such as a school to test if the virus would spread to different communities. The data showed that a communicable disease would spread from one area to another.

Testing was also conducted at Greyhound stations and airports. All of the tests showed conclusively that agents would spread in different environments. To find out what would happen beyond an attack on a city, open air testing was conducted over the Midwest. A plane would release zinc cadmium sulfide particles as it flew over different states into the wind. Detectors placed in different cities throughout the East to enable scientists to monitor the distances that the particles traveled. The results were astounding, as particles were found as far as 1,200 miles away from the drop location. Although the tests were done to try and limit where the particles would travel, unexpected wind patterns blew the particles in many unwanted locations including Canada. In a Senate committee hearing in 1977, it was estimated that the Pentagon conducted 239 op air tests between 1949 and 1969 (Wilson, 1977).

After the closing of Fort Detrick, testing was relocated the Dugway Proving Grounds in Utah. Here both outdoor and indoor test were conducted. Using simulants, or agents that have been modified or reduced to being harmless, testing once again proved that use of biological agents as weapons was possible even if technically difficult.

Iraq

IV

Prior to the Gulf War there was little to no information about the Iraqi biological weapons program. Although there were prior suspicions, Westerners did not fully comprehend Iraq's biological weapons capability. It was not until Saddam Hussein's son-in-law defected and informed the West about Iraqi capability that military leaders and politicians saw the whole picture.

Iraq started its biological weapons program in 1974, even though it was a member of the Biological Weapons Convention, which prohibits the development of biological agents for weapons use (Venter, 1999; Black, 1999). The development of Iraq's biological weapons program and other weapons of mass destruction can be explained from considering the country's relationships with Iran, Israel, and Saudi Arabia (Bahgat, 2003). Throughout history, Iraq has had regional conflicts with these countries, and the development of biological weapons would give Iraq the credibility and the power it needed to successfully deter them (Bahgat, 2003; Venter, 1999; Russell, 2005; Cole, 1997).

The main reason why so little was known about Iraq's biological weapons program was because of the relatively ease of acquiring the tools necessary to establish their program. For seed stock of the organisms needed, Iraq turned to European countries and American suppliers similarly to other countries' approach (Venter, 1999). With so many different countries and suppliers to choose from, acquiring different agents was relatively easy. The laboratory equipment used to grow and mass-produce different biological agents and viruses was easy to acquire as well. Iraqis dispersed their purchases of equipment among many suppliers, making it difficult for Westerns to understand what the end result would be (Cole, 1997).

The difficulty in monitoring Iraq's biological weapons program was attributed to both the country's buying supplies from different parts of the world and also the buying of supplies that are termed dual use. Dual use items are items that could be used for legitimate needs such as producing fertilizers but which could also be used to support a biological weapons program. When allegations were made about Iraq's biological

weapons capability, representatives for the country would declare that all usage was for peaceful purposes.

At the time of the deflection of Saddam Hussein's son-in-law, Iraq declared on its own will that it had developed a biological weapons program. The country claimed that it had produced 157 aerial bombs and 25 warheads filled with botulin and anthrax, as well as several thousand liters of biological warfare agents (Seelos, 1999; Venter, 1999). Iraq also had plans and had started to develop an unmanned aircraft that could spray 2,000 liters of anthrax over a targeted geographical area (Black, 1999).

After the invasion of Kuwait, the United Nations Security Council adopted resolution 687 (1991 c). This resolution has two premises: (1) the expulsion of Iraqi forces out of Kuwait and (2) supervised dissemination of Iraqi nuclear, chemical, and biological weapons program along with their ballistic missile delivery systems (Black, 1999).

The United Nations Special Commission (UNSCOM) was in charge of conducting onsite inspections of various facilities to monitor Iraqi compliance. Teams inspecting different Iraqi facilities noted that there were no signs of a full scale biological weapons program, but there were multiple sites in which buildings and materials could be "dual use" (Black, 1999). In 1993 Iraq agreed to a requirement to declare any advancements or purchases that could potentially be used for biological weapons. During that time declarations showed that 39 tons of complex growth media was purchased, and Iraq declared that it would be used for medical disease diagnosis. While complex growth media is used for disease diagnosis, the amount of material was questionable. It was not

until 1995 that inspection teams came to realize that 17 tons of the media were unaccounted for (Black 1999).

Both Black (1999) and Seelos (1999) discuss how monitoring failed in Iraq. The problem remains with both dual use technology and underground production of biological agents. Even though UNSCOM had access to search and monitor facilities in Iraq, it failed to fully recognize and accurately evaluate Iraq's weapons production capability. Additionally the fact that facilities could potentially be dual use means that Iraq could start producing biological agents as long as it has a sample and its facilities are capable of producing them. This situation makes it hard to regulate any country that could potentially produce biological agents under the auspices of peaceful research.

1980-88 Iran-Iraq War

The Iran-Iraq war proved the utility of nonconventional weapons during a battle. Iraq invaded Iran over a border dispute without warning in 1980. During the next several years the balance of power shifted between the two countries, resulting in a stalemate. With no other available option left, Iraq resorted to its chemical weapons program to give them an advantage in the war.

According to McNaugher (1990), chemical weapons serve two purposes: (1) they can physically injure the enemy, and (2) they have psychological effects, scaring or frightening the enemy or damaging their morale. The Iranian's troops morale at the start of the war was so high that they would not hesitate to run through minefields to charge the enemy (McNaugher, 1990). After the initial use of chemical weapons in battle, Iranian moral change significantly. According to McNaugher (1990) and Cole (1997), Iranian troops were so fearful of chemical weapons that they would flee the battlefield

and go into hiding at the slightest chance of exposure. Even when troops were equipped with suits and masks that would protect them, the psychological effects of chemical weapons caused the troops to flee (Cole, 1997).

Psychological effects of chemical weapons proved to be more of a deterrent than the fear of death by the nonconventional weapon (Chubin, 1988; McNaugher, 1990; Cole, 1997). Iraq even acknowledged the fear that these weapons caused and started to employ deceitful tactics. Smoke bombs were used in battlefields instead of chemical weapons, but the sight of a cloud terrified troops so much that they fled from any sight of what appeared to be a chemical cloud (Cole 1997). There were approximately 387 chemical attacks against Iran and 60,000 survivors who lived through this experience (Farnoosh et al. 2006).

The aftermath of the war left lasting psychological distress that extended beyond the battlefield. In study by Farnoosh (2006) a randomized survey conducted in three towns that were exposed to warfare proved that those who experienced chemical attacks were more likely to experience psychological distress than those who were exposed to the war without chemical weapons use. This finding demonstrates the significance of the long-term effects of chemical weapons use.

Gulf War

Iraq's invasion of Kuwait had several significant implications. A United Nations resolution that ordered Iraq to evacuate all of its troops from Kuwait or risk having them forced out brought renewed attention to the Iraqi biological and chemical weapons program. United States officials were worried that Iraq would use these weapons to defeat allied forces. This fear was reinforced by a questionnaire which showed that

respondents were more fearful of chemical weapons than the other harms listed (Cole, 1997).

Although there was no clear evidence of Iraqi biological or chemical weapons use, (Riddle, 2003) 80,000 of the 697,000 Americans who served in the war suffered from Gulf War Syndrome (Cooper, 1997). Most of the returning servicemen complained about joint pain, fatigue, headache, and memory loss, but some had more severe symptoms (Cooper, 1997). Veterans returning from war claimed that their symptoms were the result of the exposure to biological or chemical weapons.

Two scenarios emerge from the U.S. government's reluctance to affirm that biological or chemical weapons were actually used but willing to admit that some small exposure was probable. The first scenario is that low exposure to chemical or biological weapons can cause the symptoms described above. Both Riddle (2003) and Cooper (1997) report that there is not substantial information to warrant long-term effects of low exposure to biological or chemical weapons. Because of this, the claim is that low exposure should not have long-term effects and only high exposure at an initial contact would cause long term problems.

Riddle (2003) discusses the second possibility that Gulf War Syndrome could be the result of psychological stress from the war. As Cole (1997) stated, troops were fearful of biological and chemical weapons use and they experienced false alarms about such weapons that resulted in panic and fear. The constant fear and stress resulting from the possibility of a biological or chemical weapons attack could be the culprit.

American troops were not the only ones that were fearful of Iraqi weapons capability. Israel, a long-term enemy of the country, lived in constant fear as they were in

reach of Iraqi missiles. During the Gulf War Israel knew that there was a strong possibility of a biological or chemical weapons attack. To prepare for such an attack, the government distributed gas masks and instructed its citizens on what to do in case of an attack. Drills and pamphlets were distributed throughout the country (Cole, 1997; Steinberg, 1993).

This was a very troubling time for the country, whose citizens saw 39 scud missiles land, 40,000 buildings damaged, 1,600 families displaced, and 20 deaths resulting from the attacks (Cole 1997). Normal life was suspended during this time and it was estimated that economic losses measured in the billions of dollars (Steinberg 1993). Although there were no biological or chemical weapons used, the fear that was instilled in the Israelis shows how the threat of their use can cause anxiety and fear in a country.

Iraq as a Model

Iraq's weapons program has played an important role in the international community. Not only was Iraq one of the first countries to use nonconventional weapons in war since WWI but it also heard no international condemnation, leaving it free to use them without international restraint. The advantage these weapons provided in war and their deterrent effects has resulted in continued proliferation.

Proliferation of biological weapons is an emerging threat. Among the countries that are trying to acquire biological weapons are: Egypt, Iran, Israel, Syria, North Korea, China, and Russia. Some of these countries are not friendly to the United States, and suspected of providing support to terrorist networks. What is important is how the U.S. prevents the proliferation of biological weapons and their use.

V

Importance of History

The history of biological weapons is needed to understand both the complexities of biological weapons development and their significance in the world. Major world powers have sought biological weapons because they understood their potential capabilities. This shows that biological weapons are more than just an "idea" but more importantly, they create a fear that extends beyond their borders.

This is an important factor for Kingdon's analysis. The idea of a crisis or a threat is needed to ensure that items get placed on the political agenda. If biological weapons did not pose a threat—either physical or abstract—there would be no need for bioterrorism policy. By evaluating the history of biological weapons in the context of new threats, it is possible to look at bioterrorism as actual rather than theoretical.

Kingdon

A Multiple Streams Approach to Bioterrorism Policy

I

Bioterrorism and terrorism legislation has dotted the history of the United States. While terrorism is not something that is unique to this century, and bioterrorism has been used for assassinations and other purposes throughout history, the way that government responds to these activities is something that has changed. From passing legislation and statutes, to holding committee hearings and campaigning on these issues, there is one question that begs to be asked. Why does our current legislation look the way it does today? To answer this question we will focus on the multiple streams theory developed in

John Kingdon's (2011) *Agendas, Alternatives, and Public Policies* to analyze how policy is established and what types of policy warrant more scrutiny than others.

Kingdon (2011, 1) uses the phrase "an idea whose time has come" to describe what he calls the coupling of the three streams of thought that strengthen policy passage. Kingdon argues that there are three uniquely distinct streams: problems, politics, and policies. These three streams, according to Kingdon, each play an important role as to the probability of policy passage. Unlike other forms of thought, Kingdon believes that these three distinct streams all interact, but one stream does not dictate policy passage, thus the "independent variables are not additive but are interactive" (Eller & Robinson 2010; Lindquist et al., 2010; Aherne, 2006; Travis & Zahariads, 2002).

This is different from other schools of thought that are used to describe policymaking in the United States. Elitism describes policymaking as being ruled by an elite group of individuals who ultimately determine which policies get attention and which do not. Another school of thought is pluralism, which advances the idea that power comes from multiple sources or that it is fragmented and is open to various interests groups (Lindquist et al., 2010). Kingdon's main focus is not the "structural politics surrounding [the] problem," but the agenda setting process (Lindquist et al., 2010). Thus, rather focusing on which leaders determine the agenda, the idea is that certain events force political action (Aherne, 2006).

Kingdon derived his theory from Cohen's et al. (1972) *A Garbage Can Model of Organizational Choice*. In their theory, Cohen describes what he calls "organized anarchies" in organizations' decision-making situations. According to Cohen, these organized anarchies are:

> [V]ehicles for solving well-defined problems or structures within which conflict is resolved through bargaining, they also provide sets of procedures through which participants arrive at an interpretation of what they are doing and what they have done while in the process of doing it" (Cohen et al., 1972).

Participants dump various problems and solutions in the garbage can as they are generated and, according to Cohen, "a decision is an outcome or interpretation of several relatively independent streams within an organization."

These streams are defined by Cohen as: problems, solutions, participants, and choice opportunities. When these streams interact they produce a choice or options in which can be used to solve a problem. This solution is created by chance, and there is no real control or guarantee of arriving at a specific solution, but the importance is that a solution is found even in environments that are complex. Cohen asserts that this has implications that the garbage can model does not resolve problems well. Depending on the rate of solutions and problems that are dumped into the garbage can, versus the priority to alleviate the problem, coupled with time constraints, decisions could be rushed and not thoroughly thought-out.

Kingdon brings Cohen's et al. analysis away from organizations and to the policy decision making of the United States. Kingdon chooses to focus on two parts of the policy making process (1) the setting of the agenda and (2) the specification of alternatives from which a choice is to be made. Important to Kingdon is his definition of the agenda:

> [T]he list of subjects or problems to which government officials, and people outside of government closely associated with those officials, are paying some serious attention at any given time. (Kingdon 3, 2011)

The focus for Kingdon is why the agenda is the way it is at any point in time and why it changes. Participants in setting the agenda range from Congress, to the president, bureaucrats, to the media. Thus the agenda could change due to various factors such as a change in public opinion or a change in government. To analyze how the agenda changes, Kingdon focuses on three kinds of process: problems, policies, and politics.

Problems are the first stream that Kingdon evaluates. This answers the question of why some problems receive more attention than others, Kingdon focuses on three mechanisms: indicators, focusing events, and feedback. Indicators are used to signal that there is some change in the state of the current system. This is done through routine monitoring by both governmental and nongovernmental agencies. Once there is an indication of change, "people believe the change is symbolic of something larger" (Kingdon 93, 2012). This means that they often get exaggerated. Although indicators show that there is change, this does not automatically warrant speculation. Sometimes a focusing event or crisis is needed to heighten awareness of the problem. Feedback allows the government or agency to monitor effectiveness of existing policy. If the problem is not fixed, government will eventually hear about it.

There is one important aspect that needs to be differentiated here. Not all conditions are problems. "Conditions only become problems when we believe that we should do something about them" (Kingdon 109, 2011). This does not mean that all problems have specific solutions or that all problems are going to have a solution. Due to

limitations, some problems will not be evaluated or assigned solutions and some problems will fade or no longer be designated problems in the future. It is necessary to get others to agree with you that there is a problem in order for that problem to make it onto the agenda.

The second stream is the policy stream. This stream addresses how policy is formed and what its basic components are. Policies can be derived from various groups: researchers, congressional staffers, people in planning, academics, interests groups, and others. This is where the spectrum of possibilities is generated. These ideas float around in what Kingdon calls the "primeval soup" or for Cohen the garbage can. Here, ideas are tested against each other, papers circulated, hearings held, legislation drafted, and various other activities carried out. As these ideas float around in the soup, some mutate into new grander ideas, some become prominent and others fade, and some have less appeal until there is a short list of ideas that are feasible. Although the items listed on the short list may not reflect the broader consensus, these are items that will find themselves being placed on the agenda.

The last stream is termed the politics stream. This stream is highly independent from the other streams, and factors such as change in national mood, elections, change of administration and a myriad other factors contribute to this stream. The goal of this stream is to evaluate what the current national mood is and determine what changes occur in the national mood. Evaluation of the national mood is used to determine how important issues are. From this, participants in policymaking either find others who agree with them or understand those who are organized against them. Sweeping changes within the politics steam bring prominence or demise of certain items on the agenda.

It is when these three streams come together at critical points in time that the chances of adopting a specific solution increases. This is what Kingdon terms a policy window:

> The policy window is an opportunity for advocates of proposals to push their pet solutions, or to push attention to their special problems… advocates lie in wait in and around government with their solutions at hand, waiting for problems to float by to which they can attach their solutions, waiting for a development in the political steam they can use to their advantage. (Kingdon 135, 2011)

The opportunity for individuals to attach their solutions to a problem can be limited, planned, or haphazard. Windows may open at any given time, but they may close just as easily. This reality enables individuals to seize the opportunity to attach their solution to any given problem. The volatility of the different streams, most importantly the politics stream, along with the timeframe of the policy window, forces policy entrepreneurs to act.

Policy entrepreneurs are individuals who are willing to invest time, energy, reputation, or money to promote a position for some future gain (Kingdon 179, 2011). These entrepreneurs try and couple the three streams together to help ensure that their item gets on the agenda. They perform certain tasks such as waiting for a window to open or softening up the system to become more sympathetic to a specific problem and its attached solution.

Study II

There are a few things that we can assume from the history of bioterrorism: (1) that it has existed for a long period of time, (2) that terrorist acts have and will continue to be committed both at home and abroad, (3) more biological agents are being militarized, (4) that there is a perceived threat from biological agents, and (5) that actions need to be taken to decrease the threat of bioterrorism. To further analyze the effects of bioterrorism on the United States policy, I will apply Kingdon's multiple streams theory to actions and legislation proposed and passed during both the Clinton and Bush administrations. By looking at the three streams Kingdon proposes—problems, policy, and politics—we will effectively discuss the difference between the two administrations in the wake of the increased bioterrorist threat. To look at the future of bioterrorism policy, I will examine the steps that the current Obama administration is taking to secure the country.

Because bioterrorism has a very long history, it is safe to say that bioterrorism policy or sometimes labeled counterterrorism policy have coexisted. Because both Clinton and Bush administrations had to deal with the bioterrorist threat, we can assume that there should be a relatively small difference between the two administrations approaches. Although the Clinton administration came eight years prior to the Bush administration, the amount of timed that passed will not be enough to justify the claim that new technology would cause a unique threat that did not exist during the Clinton administration. If there is any warrant to make that claim, the fact that counterintelligence also increases with time means that the Bush administration had better intelligence, thus ultimately checking any new advances in the technology used for bioterrorism. While no two points in time will be exactly the same, but my focus will be on problems, policy,

and politics instead of the hodgepodge of the speed with which technology increases over time.

During both of these administrations there were terrorist attacks both at home and abroad. While the weapons that were used differed, they both resulted in deaths and injury to the American people and to the American morale. The severity of the attacks may have been different, but they both affeced the American general public and government. I will not try to argue that these attacks were of the same magnitude, nor do I want to reduce the significance of the impact of each attack. What I want to analyze is the mood surrounding these tragic events both in the public and in politics.

Agents have been militarized and will continue to be militarized, giving rise to the bioterrorist threat. The agents that are being militarized can and have changed with time as evident from new technology, vaccines, problems weaponizing an agent, cost in development, and other factors. Because of these changes, the bioterrorist threat at any point in time may not be the same as another, but what remains constant is the threat of some agent being deployed to cause harm to any individual or country.

The Clinton administration was aware of the growing threat of biological agents, and faced a dilemma that was neither new nor unique. Although the threats may change, it was never eradicated from the mindset of the general public or from the government's awareness. Although there may be no signs of an imminent threat at any point in time, the fear of bioterrorism lurks in the background, and there are always reminders that the threat exists.

Doing nothing about bioterrorism was not and never will be an option that a successful administration will employ. With the growing threat of bioterrorism, the need

to counter and adapt to them is essential. The way the administration handles these threats are what this paper tries to examine. What I hope to find is that because of the three different streams along with policy windows, both administrations' reactions to bioterrorism differ. Beyond the differences the necessity and the desire to attach solutions to problems has led to a kind of thinking that has decreased the effectiveness of specific policy.

Limitations

III

As with any study, there are limitations to the analysis conducted. I chose to examine recent administrations because they share similar threats, technology should be relatively the same, and the timeframe is similar.

With that being said, there are no two points in history that are the same. Thus, testing will always have limitations when comparing two different periods of time.

It is difficult to grasp the full picture of bioterrorism policy. This is because a lot of policy work is done in the background. What I try to focus on is the relationship with events that bring bioterrorism into the public sphere. The secrecy of bioterrorism policy exists, but when the public becomes part of the discourse, politicians must engage in drafting bioterrorism policy that is responsive to what the public desires.

I will start by examining the bioterrorist threat and its implications for current decision makers to act. Then I will look at the Clinton, Bush, and Obama administrations and the unique problems that each administration faced, the policies they implemented, the political issues surrounding the issues, along with the availability of policy windows that allowed policy passage.

Bioterrorism: The Current Threat

IV

Countering bioterrorism is a complex issue that requires multiple facets for it to succeed. It is a general consensus that the easiest way to counter the threat is to prevent it before it happens (Donohue, 2008; Banks et al., 2008), but prevention is not always an option. This is because bioterrorist threats come in a variety of forms from poisoning crops to full-scale attacks. With less than perfect intelligence, prevention must include policies directing how to respond to a bioterrorist event.

Bioterrorism has been an ongoing issue throughout the history, but recently the threat has only become more serious. Paradoxically, the development of bioterrorism has become more simple as more complex principles and technology become available. The problem is that this knowledge of how to manipulate genes is relatively easy to attain. Because this information has the potential to be used to develop new practices that would lead to breakthroughs in disease prevention or in pharmaceuticals, it can be attained from readily accessible sources like the internet, universities, or texts.

The attainability of biological weapons comes from the ready access to this knowledge and also the relative ease of development. Although it has been argued that a nuclear bomb could be made out of items that are attainable to anyone, finding highly enriched uranium could prove a very difficult if not impossible task. This is not the case with biological weapons. Agents that have been weaponized are the same agents that can be found freely in nature. It is not a coincidence scientists whom Japan sent to Africa to help with the Ebola virus brought back samples, or that Russian scientists collected

different strains of rare forms of anthrax found naturally occurring in different parts of the country.

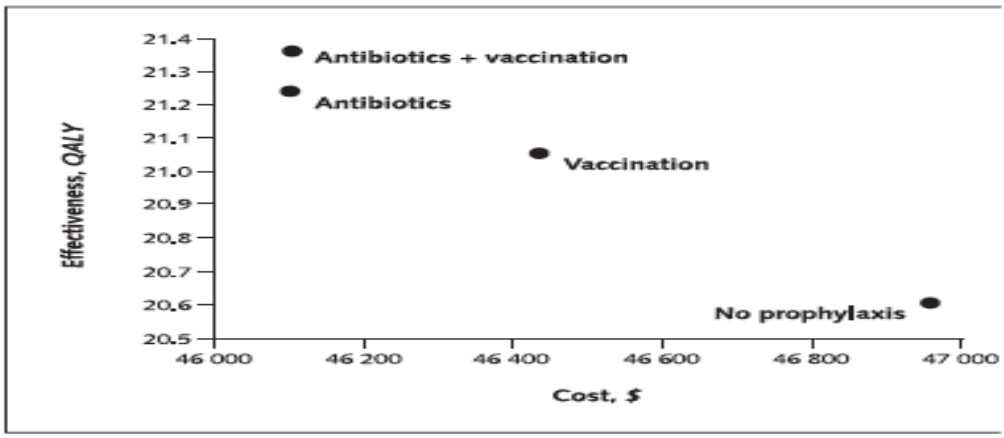
The equipment that is necessary to develop these weapons can be attained from preexisting sources such as university laboratories, pharmaceutical companies, or fertilizer plants. If there is a lack of infrastructure, buying technology to develop a biological weapons program is possible as proven by Iraq. Although there has been some regulation and some oversight regarding the purchasing of items that could potentially be used in a biological weapons program, no regulation is foolproof. The problem is further complicated with technology that is dual use. These items produce an ambiguity in which the ends are unknown and speculation is ever-present.

As both state and nonstate actors try and acquire biological weapons, the threat of bioterrorism increases. Although the Biological Weapons Convention and the Geneva Protocol have tried to limit the proliferation of weapons, they have had only moderate success. There have been suspicions that Egypt, Iran, Israel, Syria, North Korea, China, and Russia are still developing biological weapons programs. Nonstate actors pose an authentic threat as well. With a history of terrorist groups trying to acquire and use biological agents, it is only certain that more groups will choose this route in the future. But why are biological weapons highly sought after?

Biological weapons have been termed the "poor man's bomb." This is because the cost of developing biological weapons is cheap when compared to the potential impact of these weapons. According to Venter (1999), for as little as a singe dollar, biological weapons could cause numerous casualties per square kilometer an extremely low price compared to $2,000 for conventional weapons to cause similar damage. With this being

said, there are different probabilities and outcomes for theoretical attacks. According to a World Health Organization report, a release of 50 kg of *B. anthracis* in a city of 5 million would result in 250,000 deaths. Another report from the U.S. Congressional Office of Technology Assessment estimated that the release of 100 kg of *B. anthracis* in Washington, D.C. would result between 130,000 and 3 million deaths (Fowler, 2005). Not only would a bioterrorist attack result in deaths, there would be financial costs associated to exposure as well. Fowler (2005) estimates the cost of 100,000 people exposed to *B. anthracis* to be $26 billion. The cost of an attack depends on strategies used to protect individuals.

Figure 2. **Cost-effectiveness of prophylactic vaccination and antibiotic strategies after a *Bacillus anthracis* bioterror attack.**



QALY = quality-adjusted life-year.

It is hard to estimate with perfect accuracy the impact of a biological attack. This is because biological agents are susceptible to things like wind, temperature, means of delivery, agent used, virulence, exposure, etc. With the variability of different agents, the probability of a successful attack changes. The National Institutes of Health, Centers for Disease Control, and The National Institute of Allergy and Infectious Diseases has

categorized dangerous pathogens in three different groups. Agents that are in group A pose more of threat due to virulence, ease of dissemination, mortality rate, and requirement of special medical attention. The agents in the two other groups are not as severe as agents in group A, but still pose a significant threat. The list of potential agents that pose a risk is extensive.

National Institutes of Health
National Institute of Allergy and Infectious Diseases (NIAID)
Category A, B, and C Priority Pathogens

Category A	Category B	Category C
• Bacillus anthracis (anthrax) • Clostridium botulinum toxin (botulism) • Yersinia pestis (plague) • Variola major (smallpox) and other related pox viruses • Francisella tularensis (tularemia) • Viral hemorrhagic fevers • Arenaviruses • LCM, Junin virus, Machupo virus, Guanarito virus • Lassa Fever • Bunyaviruses • Hantaviruses • Rift Valley Fever • Flaviruses • Dengue • Filoviruses • Ebola • Marburg	• Burkholderia pseudomallei • Coxiella burnetii (Q Fever) • Brucella species (brucellosis) • Burkholderia mallei (glanders) • Chlamydia psittaci (Psittacosis) • Ricin toxin (from Ricinus communis) • Epsilon toxin of Clostridium perfringens • Staphylococcus enterotoxin B • Typhus fever (Rickettsia prowazekii) • Food and waterborne pathogens • Bacteria • Diarrheagenic E. coli • Pathogenic Vibrios • Shigella species • Salmonella • Listeria monocytogenes • Campylobacter jejuni • Yersinia enterocolitica) • Viruses (Caliciviruses, Hepatitis A) • Protozoa • Cryptosporidium parvum • Cyclospora cayatanensis • Giardia lamblia • Entamoeba histolytica • Toxoplasma • Microsporidia • Additional viral encephalitides • West Nile virus • LaCrosse • California encephalitis • VEE • EEE • WEE • Japanese Encephalitis virus • Kyasanur Forest virus	Emerging infectious disease threats such as Nipah virus and additional hantaviruses. *NIAID priority areas:* • Tickborne hemorrhagic fever viruses • Crimean-Congo hemorrhagic fever virus • Tickborne encephalitis viruses • Yellow fever • Multi-drug resistant TB • Influenza • Other Rickettsias • Rabies • Prions • Chikungunya virus • Severe acute respiratory syndrome associated coronavirus (SARS-CoV)

The list of potential bioterrorism agents was compiled from both CDC and NIH/NIAID websites.

Although there has been significant research into vaccines and antivirals, the risk of these agents being genetically modified makes them a continued danger. When agents become drug resistant, the money and time that was invested into research amounts to nothing. This makes the issue with biological agents more complex. It is not possible to

ignore the issue. Technology advances and not acting means that old technology is as good as new technology. This means that any measure to reduce the biological threat can decrease the effectiveness of an attack by securing new technology to reduce the likelihood of a successful attack.

Even though there has never been a large-scale biological attack, which does not rule out the possibility of one. As different groups try to seek biological agents, they make an investment into acquiring them. This mindset implies that they plan to use the agent, which they perceive to have the highest possibility of success. Naturally they want to get the biggest impact for their work. It is possible an attack can happen at any time; there is a possibility of a large-scale attack that would send repercussions throughout the country and the world. Applying the probability of an attack does not work, adversaries do not plan their attacks on probability, what really is important is achieving their own objectives (Moxley, 2010).

An important aspect of evaluating bioterrorism is the probability of an attack. Along with examining the probability of an attack, it is necessary to examine the probability of a successful attack and which agent will be used. When evaluating probability, it is necessary to analyze data thoroughly but this is a problem with bioterrorism because the data does not exist (Zilinskas, 2004). This means that if there are more attacks then there will be more data, but if bioterrorism remains space then the data will lead to substantial results.

A new type of terrorism adds to the problem. In the past terrorists have achieved their objecitives from relatively small-scale attacks and with the use of conventional weapons. According to Nelan (1995), the number of terrorist attacks has decreased from

666 in 1987, to only 321 in 1994. Although the number has decreased, there has been an increase in the average degree of violence in an attack (Tucker, 1996). This is because terrorists are no longer discriminating between civilians and military personnel. The increase use of high power explosives and biological weapons cannot discriminate against the innocent. This means that new populations that have not historically been a target will be subjected to future attacks.

We have now entered the era in which a biological weapons attack is no longer just a meager threat. The question has been changed from whether a biological weapons attack is possible to when and where this attack will happen.

The Clinton Administration

IV

Problems

As described, bioterrorism has the ability to kill vast numbers of individuals with decreased costs, this was not something new to the Clinton Administration. In 1984 the Rajneeshee cult located in Oregon spread salmonella in various salad bars, poisoning 751 individuals. Although no one died, some individuals were severally injured. The Biological Weapons Convention was signed in 1972, banning the use and storage of biological agents long before the Clinton administration. The ban was in response to the knowledge of how threating biological agents could be. Suffice to say, the threat of biological weapons use lingered in the United States after biological weapons testing at Fort Detrick.

The idea of bioterrorism was first be espoused during the administration of George H.W. Bush. During this time advances in genomics and molecular biology gave

rise to ideas of the potential for biological agents to be used as weapons. Scientists and think tanks published information about different scenarios in which a biological weapons attack occurred. The findings indicated it was theoretically possible for agents to have devastating effects. Although the administration had knowledge of the issue, there were no policies established by the George H.W. Bush administration to address the growing threat of biological weapons. In part this was due to the lingering cold war mentality, in which enemies were perceived as state actors and not sub-nationalities or loose terrorist networks.

The World Trade Center bombing in 1993 proved to be an enigma for the Clinton administration. Terrorism prior to the attack was viewed as a nuisance. The terrorists' goal was to capture media attention for their cause, not to cause mass casualties. The bombing took the administration by surprise because it was the first foreign terrorist attack on American soil. The culprits of the attack remained unknown at the time of the bombing, and their motive was a mystery, but the bombing shed light on terrorist groups' trying to cause mass casualties.

Congressman Gerald B. H. Solomon (R-NY) expressed implications from the World Trade Center bombings to congress. He quoted a story in which the smell of decaying flesh was rising from the debris of the bombings and that "there are barbarians at the gate, barbarians whose cowardice, whose insidiousness, and disrespect for human life knows no bounds" (1993). He discussed the fall of the Soviet Union and that there are new terrorist networks that were now uncontrolled by the former government, but their hatred towards the West remains intact.

Although there were no bioterrorist attacks in the United States during the Clinton administration, biological agents were used by the Japanese cult group Aum Shinrikyo. Founded in the 1980's, Aum Shinrikyo developed a following of 50,000 members throughout the world and a net worth of $1 billion. Included in the cult's following were 20 scientists with access to laboratories for producing chemical or biological weapons (Wright, 2007). The cult did not gain worldwide recognition until after their planned attack in the Tokyo subway using the nerve agent Sarin. The attack killed 12 people, and thousands became ill from the toxic release. After further investigation into the group, it was discovered that they had developed other biological agents, both anthrax and ebola cultures were found in their possession. There was also evidence of other attacks carried out by the Aum Shinrikyo followers. The group released anthrax spores into the air around a government complex and used nerve agents in the city of Matsumot, killing 7 people and injuring others (Wright, 2007).

Terrorism was a highly debated issue in the United States' government. Senator DeConcini (D-AZ) echoed James Wooley, the Direct of Central Intelligence, that "yes we have slain a large dragon, but we live now in a jungle filled with a bewildering variety of poisonous snakes" (DeConcini, 2003). The threat of terrorism was a reality that Americans had to face. He argued that Americans now face terrorist groups that now have the ability to hold a nation hostage from a single act of terrorism (DeConcini, 2003).

The Oklahoma City attack was another reminder that terrorism can happen anywhere. On April 19, 1995 Timothy McVeigh parked his rented truck filled with explosives in front of the Alfred P. Murrah Federal Building only to detonate it minutes later. That day would mark the deadliest terrorist attacks on American soil, killing 168

and injuring more than 680 others. This attack brought attention to what was happening in the United States and the recognition that Americans could be terrorists and Americans were susceptible to terrorist attacks. This was not the only frightening event that occurred during the Clinton administration. Larry Wayne Harris, a member of a neo-Nazi group, was almost able to secure the plague bacteria from a private company. If he had not harassed the operator, he would have received his shipment. Media coverage of these events shed light on the potential of terrorism in the United States.

The World Trade Center bombing, Aum Shinrikyo attacks, and the domestic terrorism attacks were reminders of the current trend of terrorism by rogue groups. What use to be state sponsored terrorism, was now being committed by groups not associated with any government. With individuals like Osama Bin Laden gaining prominence in different parts of the world, most notably from the Afghani-Russian war, individuals and groups were starting to be viewed with suspicion. This increase in suspicion made the government more fearful of these groups and also gave rise to the need to closely monitor them.

Douglas Waller (1993) examined the threat of rogue groups and terrorism. In his remarks, he explained that the United States is susceptible to future attacks and that the proliferation of regional and ethnic conflicts establishes more extreme points of view. With growing animosity between warring factions, it is inevitable that these groups will be the "new terrorism." These groups do not share any particular ideology but a "hatred for a particular enemy."

Communication between different governmental agencies was lacking. Different objectives and an unwillingness to share information was common practice for competing

agencies. Two different agencies that were used to track, prevent, and gather information about terrorism were most notably the Federal Bureau of Investigation (FBI) and the Central Intelligence Agency CIA. These two agencies had dominance in two different spheres. The FBI was in charge of domestic issues, while the CIA was more involved with international affairs. With both agencies wanting to protect their own self interests such as power, prestige, funding, and expanding the size of their institution, there were protocols in place to prevent the dissemination of information between the two groups.

All of these problems set the stage for the Clinton Administration to formulate policies. As with Kindgon's theory, policy entrepreneurs wait for problems to arise so that they can attach their solutions to any given problem. So while some of the problems that occurred during the administration were not acts of bioterrorism, they nevertheless allowed the administration to attach anti-bioterrorism and antiterrorism policies to specific problems.

Policy

Although there was a threat of terrorism and bioterrorism, it was never eminent because there had never been a large-scale attack or any crisis that warranted prompt action. Even with the growing threat of non-state actors and the knowledge surrounding terrorism becoming more substantial the administration was still hard-pressed to deal with the issue. Additionally, Clinton's expertise was not related to foreign policy. Much of his foreign policy was based on that of his predecessor George H.W. Bush.

With the terrorist attacks on American soil and the bioterrorist attack in Japan, president Clinton had to convince the government that there was an increased threat from bioterrorism from both state and non-state actors. In order to do this, Clinton started to

make connections between different terrorist groups of people and to associate them with terrorism. He would make statements connecting terrorism to rogue nations and such nations to weapons of mass destruction. By associating these groups, the fear of weapons of mass destruction sparked public interest in the subject.

At this time Clinton was not the only member of government worried about biological weapons. Senators Dick Lugar (R-IN) and Sam Nunn (D-GA) were interested in protecting Russia's nuclear arsenal. Initial concerns about unguarded nuclear weapons in Russia soon expanded to biological weapons security. The two senators expressed fears that foreign nations or terrorist groups unfriendly to the United States would seek these weapons to use against them. This situation led to a goal to enter into agreements with Russia to help protect and safeguard their weapons sockpiles.

There was also an increased interest in protecting the U.S. growing outside of government as well. According to Roberts (1996), there was a new type of terrorism being developed. In what was once labeled "traditional terrorism," actions were motivated by political objectives, and terrorist carefully executed their plans to avoid severe repercussions. This new type of terrorism may have political goals, but the actors are not worried about how they achieve their ends. Their objective is to be heard, and they do not discriminate between military and civilians. This was proven by the Aum Shinrikyo attacks that showed no restrain in using biological and chemical weapons. Roberts surmises that this new attitude opened the door for biological and chemical weapons use.

Biological weapons use brought about two different thought processes. There were those who believed that if a biological attack could happen, then it would; others

believed that if a biological attack did not happen, then it would not. During this time the current mindset was that terrorist groups were not seeking the mass casualties that a biological attack would cause. The events of Aum Shinrikyo were ruled to be actions of a cult group which were distinct from terrorist leanings, and their failed attempt discredited actual biological weapons use.

In 1997 a group of scientists and researchers known as the Jason Group who gather to address the problems of national interests reported on biological weapons. Their discovery was that along with significant developments in biomedical science, it has a "dark side." New technologies that were available made it entirely possible to develop a new class of biological agents, and "they pose extraordinary challenges for detection, mitigation, and remediation" (Drell, 1999).

During his presidency Clinton proposed various pieces of legislation to counter the growing terrorist and biological weapons threat. Starting with the Omnibus Counterterrorism Bill of 1995, this piece of legislation would create federal jurisdiction over acts of international terrorism to deter it. The bill passed in 1996 as the Anti-Terrorism and Effective Death Penalty Act. This new bill incorporated provisions that were excluded from the original bill. One of the provisions was the use of wiretapping. This provision would give government agencies more access to wiretapping by requiring telephone companies to install receptors as they transition their services to new digital technology.

Clinton also passed a variety of Presidential Decision Directives. In 1995, he would pass PDD-39, U.S. Policy on Counterterrorism. This directive would establish that the United States would respond appropriately to any terrorist attack. The directive also

threatened that any terrorist attack would not go unnoticed. The purpose of this directive would be to reduce the threat of terrorism and to respond effectively to any terrorist threat and attack, it also linked terrorism and weapons of mass destruction. Along with PDD-39, the president also issued PDD-62 and PDD-63. These directives would strengthen agencies' power to respond to terrorist attacks. They also created a system in which federal agencies would cooperate and share information.

In 2007 Clinton also passed an omnibus spending bill, HR3610 Omnibus FY97 Appropriations bill with a vote of 370-37. This was in response to the use of a bomb during the Summer Olympics Games in Atlanta. This bill would appropriate $591.75 billion to various government agencies. It would increase funding for counterterrorism measures and provide $100 million for defense against the use of weapons of mass destruction.

The Clinton administration entered into a new area of terrorism. Because there has never been any terrorist attack against the United States by rogue groups, the administration had to create a consensus in both the government and with the people that terrorism was an issue. In order to do this, the president made a variety of speeches concerning terrorist and their potential to use biological agents. As with the passage of any policy, papers would be distributed and hearings would be held to discuss the issue. This would create a dialogue in which members could test ideas against each other that would end up determining policy.

Politics

The 1994 midterm elections proved to be a grave obstacle for the Clinton administration. Running on the party platform named Contract with America, the

Republicans won a majority of the House for the first time in forty years. As part of the contract, republicans made several promises to voters if they gained a majority in the House. Although the contract was made up of several promises, one of the most debated was balancing the national budget.

The budget debate permeated counterterrorist efforts. While the president was actively trying to increase the security for the country, Republicans in the House and Senate were sitting idly. The Republicans criticized the Clinton administration for making promises with flagrant disregard for who is paying the bill. Although the Republicans tried to ignore the request of the Whitehouse, events like the bombing in Atlanta forced them to action. With the need to safeguard votes in the next election cycle, the Republicans had no choice but to give in on the president's request.

The reason why Republicans were reluctant to increase spending on counterterrorism programs was associated with the perceived threat. Because the threat to use biological weapons was perceived to be small or even nonexistent, the need to appropriate funds was not compelling. The dominant attitude was that terrorists would never use biological weapons nor that large-scale attacks would happen.

When looking at statistics, it is easy to see why the government would overlook the threat of terrorism. Terrorists' attacks in the 1980's and 1990's have resulted in 666 deaths. Comparing this to the number of deaths in various wars, the numbers are very modest. The numbers of deaths from the Korean War was 33,651. The biggest single incident of terrorism resulting in the most casualties was 241 lives lost in a bombing on a U.S. Marine barracks in Beirut in 1983 (Hook & Spanier, 2010).

Republicans were also reluctant to increase funding because they were worried that the government agencies were wasting money. A study conducted by the Government Accountability Office found it impossible to keep track of funding that agencies were appropriated for counterterrorism. Not only that, but the GAO also reported that due to the lack of a credible threat, the amount of money that was being appropriated was not financially sound when compared to the risk of a terrorist attack.

Legislation was also difficult to pass in the Republican controlled Congress. Clinton's anti-terrorist legislation was stripped of its provisions to increase wiretapping when it was first purposed. Republican leaders argued that it went too far in curbing Americans' privacy. The initial legislation also lacked any provisions specific to bioterrorism.

The Clinton administration had to work hard to convince Republicans that there was a terrorist threat and that it was credible. It had to also work hard to connect biological weapons with terrorist and rogue nations. Although this was a difficult task, it took several key members to convince others that there was a threat and that it was significant.

Senators Nunn and Lugar played a role in contributing to acknowledgment of the terrorist threat. Their work helping to secure Russian weapons stockpiles led them to become interested in securing the United States against an attack from biological weapons as well. They had difficulties in securing funds for increased protection for the country. A study that they conducted made them realized that the United States was susceptible to a terrorist attack (Wright, 2007).

Richard Clarke also played an important role as the counterterrorism czar. He would help lead the effort to connect bioterrorism with terrorist factions. He would also be one of the first to admit that bioterrorism was a credible threat and that the United States needed to secure itself. He would speak at conferences to expose the threats of bioterrorism and would be a leader in promoting the president's agenda.

The Clinton administration had several hurdles that it needed to cross to gain traction for its bioterrorism policy. Clinton and Clarke had to map out the threat of bioterrorism and prove that it was credible. The midterm elections proved to be a difficulty for the president working with a House that was controlled by the Republicans. The terrorist attacks would be useful for the president to help him build a consensus for setting the agenda.

Open Windows

Several events must work together to help get items on the political agenda and to help ensure that they become legislation. The first is that the policies need to survive the primeval soup. This means that a proposed solution needs to be the best and survive competition with other solutions. The second is that there needs to be a consensus that there is a problem that, in fact, needs to be remedied. And lastly, there needs to be an open policy window to make sure that the policy is passed.

The terrorist attacks were the essential catalyst needed for the Clinton administration to pass bioterrorism policy. As we discussed before, bioterrorism was present before the administration, but there were never any public events that caused policies to be passed. The terrorist attack allowed a window to be open by showing that the threat of bioterrorism is real.

Elections also played an important part in helping the Clinton administration's bioterrorism policy. With the attacks on the United States and a fear of losing seats in an upcoming election, the Republicans had to give into the president's request for funding his bioterrorism policies even if they disagreed. By not approving the legislation, they would appear to be weak on terrorism and in safeguarding the country.

As with all windows, the timing is limited when passing legislation. When the administration tried to pass legislation before the terrorist attacks, their arguments fell on deaf ears. Only in the aftermath of an actual attack could they pass their legislation. It would have been difficult for the Clinton administration to wait long after the attacks for them to be able to pass legislation. This is because the attacks would be out of peoples' minds and the threat less credible.

The administration had a hard time passing legislation because of two problems: (1) there were no bioterrorist attacks against the United States, and (2) there were no large-scale bioterrorist attacks. Although the legislation passed was to prevent future terrorist and bioterrorist attacks, we will see that the policies enacted during the Clinton administration failed to prevent both.

Kingdon

When evaluating the Clinton administration, it is important to understand the goals of the administration and what they accomplished. Clinton sought to protect Americans from future terrorists attacks while also recognizing that there was a bioterrorist threat. Evaluating the policies that were passed after several terrorist attacks, there was no evidence of any bioterrorism specific policies. The plots by the cult group Aum were not significant enough to warrant changes to existing policy.

What emerged in response to the World Trade Center bombing and the Oklahoma City bombing was antiterrorism legislation that was controversial. The House drafted the Comprehensive Antiterrorism Act of 1995 while the Senate worked quickly on the Comprehensive Terrorism Prevention Act of 1995. Both of these were an answer to President Clinton's call for a "swift, certain and severe" blow against domestic terrorism (Sileo, 1995).

A year after debating the Acts, Congress passed the Effective Death Penalty and Antiterrorism Act of 1996, which struck a number of the troublesome provisions from the earlier bill (Kupperman, 1996). The bill passed 91-8-1 in the United States Senate, 293-133-7 in the House of Representatives.

The terrorist's bombs in Atlanta also produced similar results. Facing another terrorism threat within the country, the House voted 370-37-26 to pass the Omnibus Consolidated Appropriations Act in 1997. Section 8128 of the bill specified funding for protection against weapons of mass destruction.

On June 27, 1996 the House introduced the Defense Against Weapons of Mass Destruction Act. The bill would outline steps necessary to secure the country against biological, chemical, and nuclear attacks. The bill was not passed and referred to committee.

Counterterrorism bills were enacted but specific bioterrorism policies were not enacted. Kingdon would say that the need for bioterrorism policy was not compelling enough to warrant a significant change to bioterrorism policy. There was a threat, but that threat did not create an open window where bioterrorism policy could be enacted.

The Bush Administration

VI

Problems

The Bush Administration would experience the worst attacks in American History on September 11, 2001. Unexpected by both government and passengers, two planes would crash into the World Trade Center causing the deaths of 2,763 individuals, including the hijackers of the plane. Crashes of another two planes destined for Washington, D.C. would result in an additional 233 deaths. The results of these attacks would be a sobering recognition that the United States was no longer protected by vast oceans, and that large-scale attack on the mainland is now possible.

The attacks were also an awakening to the erroneous mindset that terrorists would not try anything large-scale. The idea of a new type of terrorism had emerged from 9/11. Terrorist groups were no longer afraid to target civilians, nor were they afraid of the consequences of their actions. This shed new light on the potential effects of what terrorism will look like in the future.

After 9/11 a biological agent was used for the first time against the United States and resulted in casualties. A week after the terrorist attacks, letters containing anthrax spores were mailed to various individuals and government agencies. The letters caused the deaths of five individuals and infected seventeen others. The monetary impact was also substantial, as its cost was estimated at over a $1 billion for cleanup alone.

President Bush proclaimed that there were several rogue states that were threats to the United States. He labeled these countries as the axis of evil. These were countries that were known to be supportive of terrorist and helping them acquire weapons of mass

destruction. The countries that were labeled the "axis of evil" were Iraq, Iran, and North Korea, all of which were suspected of maintaining a biological weapons programs.

The continued threat of Saddam Hussein posed a problem to the United States. Belief that he had biological, chemical, and nuclear weapons and an association with al-Qaeda made him a suspect to helping terrorist groups acquire biological weapons. Although Iraq had claimed to dismantle their biological weapons program, and UNSCOM inspectors were unable to find evidence of biological weapons or production, the fear of Iraqi weapons of mass destruction led the government to invade the country.

One of the masterminds behind 9/11, Osama Bin Laden, was always on the mind of the Bush administration. The belief that he wanted to acquire biological weapons made him a continued threat that would shape future bioterrorism policy in the United States. With increased intelligence, the threat of a biological attack became more probable.

Beyond Bin Laden, Al-Qaeda posed a threat to Americans around the world. With threats of killing mass numbers of Americas and having the resources to develop biological weapons, they reminded Americans that bioterrorism by rogue groups is possible.

Policy

During the Bush administration the threat of bioterrorism increased. This was due to the 9/11 attacks and the anthrax letters. The September attacks proved useful for Bush's agenda. No longer would anyone question the capabilities of terrorist groups; terrorists were now seen as an issue that directly affected innocent civilians. The anthrax mailings reminded the country of the lingering threat of biological weapons. Although

the number of individuals that would be directly affected was small, nevertheless it made individuals feel as if they were not protected.

After the September 11 attacks on the world trade center and Washington D.C., the Bush administration outlined their stance on terrorism and countries that are harboring terrorists. Protecting Americans' national security would be the top priority for the country. The president echoed the idea that the greater the threat, the greater is the risk of inaction. In response to the growing threat of weapons of mass destruction, the government would use all forces necessary, including preemptive force, to secure its borders. This was known as the Bush Doctrine and would be the framework of the Bush's administration foreign policy.

Fear of bioterrorism the Bush administration would pass the Bioterrorism and Preparedness Act. This legislation was made up of four parts to help secure the country against bioterrorism. Part one would organize and create a response plan for hospitals. In the event of a biological attack, the number of those exposed would overwhelm a hospital. To add to the number of exposed rushing to the hospitals, there would be individuals who were not exposed to a biological attack but who were so frightened that they were exposed that they would rush to hospitals demanding treatment. This part of the act also called for the stockpiling of vaccines that could be distributed to hospitals in a timely manner. The second part of the legislation set up a registration program for those handling highly virulent biological agents. This would require individuals to get clearance when ordering agent cultures or to work in laboratories with these agents. The threat of bioterrorism did not only come from rouge nations or terrorist groups but form the food supply as well. With growing numbers of cases of mad cow disease and bird flu,

it was necessary to protect American food supply. The third part of the legislation would increase inspections for food and drug safety. The last part of the legislation would protect the national water supplies by adding some amendments to the Safe Drinking Water Act.

The Patriot Act would be another piece of legislation used to protect Americans against terrorist and bioterrorist attacks. The main feature of this act would be to decrease personal liberties by increasing wiretapping of phones and collection of data about American citizens. With much less justification required of law enforcement agencies to perform various searches. The act increased regulation of financial transactions of foreign entities and those that are associated with terrorist networks. Immigration control agencies had increased authority to retain and deport individuals. The act also defined actions committed by Americans considered to be terrorist activities.

To further protect the country against a biological weapons attack, the Bush administration proposed passing the Project Bioshield Act. This act would set aside $5 billion for stockpiling and purchasing of various vaccines. Because there was not a market for some of the vaccines, this would create an incentive for pharmaceutical companies to invest in vaccines that would be used in a bioterrorist attack. The Department of Homeland Security would propose a threat assessment on the potential effects of a biological agent. Once that threat assessment was complete, if it warranted a vaccine to be developed, then a contract would be given to a company to produce and develop that specific vaccine.

Pharmaceutical companies were worried about liability issues with new vaccines that were being developed. They wanted the government to protect them from any

lawsuit, which would result from the vaccine use. The argument was that the development of drugs is a complex process, and the testing required to ensure that they have do not have dangerous side affects is difficult to determine when testing on humans is not available. Various organizations also argued that the government was failing to provide the incentive necessary for companies to develop various vaccines. Bioshield II was proposed to remedy these problems.

Politics

In the wake of the September 11th terrorist attacks, Bush's approval rating skyrocketed. The amount of political capital that he gained would be enough to push his agenda uninterrupted both in Congress and in public opinion. During this time there was little to no opposition to any legislation he proposed. The Patriot Act passed with a vote of 98-1 in the Senate and 367-66 in the House. Congress also voted to give the president emergency war powers allowing him to invade Iraq.

Under the pretense that Saddam Hussein was developing biological, chemical, and nuclear weapons, Bush authorized the use of force to remove him from power. Despite lack of credible evidence, the invasion started on March 30, 2003 with a small coalition of countries. At the beginning of the war the Bush administration saw an increase in approval rating. Bush's rating would steadily decrease until the capture of Saddam Hussein and then it saw a small increase. After the capture and as the war lingered on, Bush would find his approval rating sinking well below that of other unpopular presidents.

During the 2006 vote to renew the Patriot act, 89 Senators and 280 House members voted in favor of the act. In the House 124 Democrats would vote against the

renewal of the act. The Bush administration would not have the same power it did post 9/11. Bush would have interruptions with the Courts. The courts would reaffirm the idea that the president did not have a blank check in which he was able to do anything he wanted. By ruling that his legislation to ban writs of *habeas corpus* to enemy combatants was unconstitutional, the courts set back his counterterrorism agenda.

Open Window

The Bush administration's window of opportunity was created by the events of 9/11 and the anthrax mailings. Unlike the attacks during the Clinton administration, 9/11 was on a different and larger scale, creating more opportunity for Bush to pass his policies. The surge of approval left no chance for anyone to object to the president's wishes. He was able to pass measures without taking a breath that Clinton had to fight for.

The window for Bush did not always remain open. After the decline of his approval rating, the president had a hard time passing his bioterrorism legislation as evident by the failure of second phase of Bioshield II.

Kingdon

The terrorists' attacks were on a different scale for the Bush administration. These attacks had repercussions that extended beyond the United States borders. The severity of these attacks along with a change in administration created a significant change for bioterrorism legislation.

The Bush made bioterrorism policy a priority from the outset of his administration. On June 12, 2002 the president said, "Bioterrorism is a real threat to our country. It's a threat to every nation that loves freedom. Terrorist groups seek biological

weapons; we know some rogue states already have them.... It's important that we confront these real threats to our country and prepare for future emergencies." This was a substantial change from the Clinton administration. The Bush administration made combating bioterrorism a priority to its agenda and established outlines on how to achieve these objectives.

The first biological weapon attack against Americans led to fear, paranoia, and panic. After the event, people no longer felt safe because anyone was a target. This fear was echoed by the presidency when they espoused fears of Iraqi biological weapons. Focusing on biological weapons and their destructive force, the Bush administration was able to shift counterterrorism legislation to specifically bioterrorism legislation.

On June 12, 2002 President Bush signed the Bioterrorism Preparedness and Response Act. The bill passed the House with a vote of 425-1-8 showing strong bipartisan support. The Patriot Act, voted 357-66-9 showed strong support in the house. Along with these bills, Bush's main project to secure the country against biological attack was Project Bioshield.

The bill passed in the House with a vote of 414-2-17. This project would fund the development and stockpiling of vaccines to protect against biological agents. The project after implementation was not very effective and led to the second phase of Bioshield. This new bill proposed in 2007 would not survive committee and stall in the house. The renewal of the Patriot Act in 2006 did not pass with the same support as the original bill. The renewal passed with a 280-138-14 vote in the house and different improvements of the act proposed in 2011 remain stalled in the house.

The attacks that occurred during the Bush administration gave the president the ability to shift the agenda to bioterrorism. Kingdon would say that the crisis from the events allowed the president to shift the focus to bioterrorism. The Bush administration also used focusing groups to express the need for bioterrorism policy to further increase a mentality of "biofright."

Analysis

VII

The September 11th attacks gave the Bush administration the policy window that was not available to the Clinton administration. The attacks along with the anthrax letters gave more credibility to the bioterrorist threat than did the events of Aum Shinrikyo, World Trade Center bombing, and the Oklahoma City bombing.

Although it was argued that the potential threat of a biological attack was there, and that a new type of terrorism made no discrimination between civilian and military targets, this reality was essentially ignored. Just like the Bush administration, the Clinton administration could not gain any traction for bioterrorism policy until an attack occured. The Aum Shinrikyo threat allowed Clinton to pass his Anti-Terrorism legislation, which increased funding for bioterrorism defense, the same way that the 9/11 attacks did for Bush.

Bush was also able to capitalize on the attacks more than Clinton. Clinton faced opposition to his legislation that tried to secure the country. Republicans argued that they would not give Clinton some of the provisions, such as the increase use of wiretapping, but were willing to give the Bush administration anything he wanted.

The Bush administration is an example of where the three streams line up to allow policy passage. We now had a credible threat, policy alternatives to deal with that growing threat, and the political capital to take action on the threat. Clinton lacked a credible threat and the political support that the Bush administration enjoyed.

As complex as bioterrorism policy is, the history of the legislation shows that action tend to be taken after an attack. Once the threat lingers, the policy window closes, and bioterrorism funding is put on the back burner. This is evident with the Bush administration's Project Bioshield. Bioshield I was passed overwhelmingly in the house with a vote of 414 to 2. As the threat lingered and Bioshield II was proposed, the bill died in the senate and no vote was ever taken.

After the 9/11 attacks there was an increase interest in bioterrorism specific problems. During the Clinton administration, policy was oriented towards terrorism in general. Although Clinton was capable of passing more generic antiterrorism policy, bioterrorism remained largely ignored.

The need for bioterrorism policy ebbs and flows. With the increased threats of terrorism and more importantly bioterrorism, we must ask ourselves how much protection do we need and what options are available. According to Kingdon's multiple streams theory, we must wait until a new window opens for there to be a substantial change in policy.

Kingdon

Kingdon would argue that the differences between the severity and biological agents used, allowed the Bush administration to reshape bioterrorism policy within the country. The severity of the events gave the Bush administration the ability to pass

legislation with wider margins than the Clinton administration. As we have discussed, there were both terrorist attacks during both administrations and the difference between the two were the result of severity.

Another factor that plays into the problem is the degree in which both administrations tried to establish their agenda. The Clinton administration was weak on foreign policy while the Bush administration sought bioterrorism policy at the outset. This allowed the Bush administration to place more emphasis on bioterrorism while the Clinton administration emphasis was on response to attacks.

Where do we go now?

I

Bioterrorism policy is a complex issue and combating it is even more so. Although we have witnessed both a large-scale terrorist attack and a small-scale biological attack, we have yet to witness a large-scale biological attack. This creates a problem for the future of bioterrorism policy. Although antiterrorism policy is inevitable and has tangible effects on bioterrorism, it does not secure the resources needed to safeguard populations from biological agents. This means that the lack of focusing on bioterrorism specific policy could be disastrous.

This creates a problem when bioterrorism is not perceived as a credible threat. It is argued that bioterrorism on a grand scale will not happen. This is because Aum Shinrikyo with all of its resources failed, Iraq did not use its biological agents, and the anthrax letter attacks where a limited example. If all of these scenarios failed to result in a large-scale attack, then there must be some technical problem that prevents biological agents from being used as a weapon of mass destruction.

The Obama Administration

II

The Obama administration is moving away from the Bush administration's perception of funding bioterrorism specific policies. Rather than focusing on bioterrorism, the new administration is funding programs that focus on health and security. According to Obama, this would better prepare the country in the event of an outbreak of an infectious disease or bioterrorist weapon. Similarly to many of his other policies, he looks to international cooperation to solve problems that would affect the globe.

Obama has stripped the Bioshield program of more than $600 million to further advance research and preparation for infectious disease outbreaks. This money would limit the amount of vaccines that is stored at the national strategic stockpiles and, as argued by some, hurt the country's defense against future bioterrorist attacks.

In a report by an independent commission, the Obama administration was given a failing grade for its bioterrorism policy. The report mentioned that it was troubled by the government's lack of providing vaccines to help mitigate a future attack and that the government is doing little to prevent any future attack. The report also mentioned that there was evidence of different groups seeking biological agents.

We must ask ourselves if the window is open for future bioterrorism legislation. As the U.S. has experienced the worst recession since the Depression and is still experiencing alarmingly high unemployment, will bioterrorism policy be at the forefront, or will it take another crisis to get it on the agenda.

Kingdon's analysis is used to describe major shifts in policy and is not used to describe pragmatic action. The Obama administration views naturally occurring infectious disease as the primary threat to the United States. Bioterrorism still has programs from the Bush administration, but Obama has cut them. This signifies a change in leadership and policy. Obama chose to fund infectious disease from money that was allocated for bioterrorism meaning a change in the priority of bioterrorism research.

Kingdon would argue that the executive branch has a significant impact on the agenda setting process. The executive has exclusive powers and privileges, has staff that works in various government agencies, and members of the same party in congress. All of these resources help the executive to shape the agenda.

Work Cited:

Ahearne, J. (2006). Public Intellectuals Within a "Multiple Streams" Model of the Cultural Policy Process Notes from a French Perspective. *International Journal of Cultural Policy*, Vol 12, No. 1.

Alibek, K., & Handelman, S. (1999). *Biohazard, the chilling true story of the largest covert biological weapons program in the world, told from the inside by the man who ran it*. New York: Random House.

Bahgat, G. (2007). THE PROLIFERATION OF WEAPONS OF MASS DESTRUCTION: EGYPT. *Arab Studies Quarterly*, *29*(2), 1-15.

Banks, W. C., Nevers, R. D., & Wallerstein, M. B. (2009). *Combating terrorism, strategies and approaches*. Washington, D.C.: CQ Press.

Barenblatt, D. (2005). *A plague upon humanity: the hidden history of japan's biological warfare program*. New York: HarperCollins.

Black, S. (1999). UNSCOM and the Iraqi biological weapons program: Implications for arm control. *Politics & The Life Sciences*, *18*(1), 62.

Chubin, S. (1989). The Last Phase of the Iran: Iraq War: From Stalemate to Ceasefire. *Third World Quarterly* , Vol. 11, No. 2 (Apr., 1989), pp. 1-14.

Cohen, M. D., March, J. G., & Olsen, J. P. (1972). A Garbage Can Model of Organizational Choice. Administrative Science Quarterly, 17(1), 1-25.

Cole, A. L. (1997). *The eleventh plague: the politics of biological and chemical warfare*. New York: W.H. Freeman.

Cooper, M. H. (1997). Chemical and biological weapons. *CQ Researcher*, *7*(4), 75.

Davis, C. J. (1999). Nuclear Blindness: An Overview of the Biological Weapons Programs of the Former Soviet Union and Iraq. *Emerging Infectious Diseases*, *5*(4), 509-512.

DeConcini, D. (1994). U.S. Response to Terrorists. *Congressional Record Senate June 15, 1993.* http://thomas.loc.gov

Donohue, K. L. (2008). *The cost of counterterrorism: power, politics, and liberty*. Cambridge: Cambridge University Press.

Drell, S. D., Sofaer, A. D., & Wilson, G. D. (1999). *The new terror: facing the threat of biological and chemical weapons*. Stanford: Hoover Institution Press.

Fowler, R. A., Sanders, G. D., Bravata, D. M., Noun, B., Gastwirth, J. M., Peterson, D., & ... Owens, D. K. (2005). Cost-Effectiveness of Defending against Bioterrorism: A Comparison of Vaccination and Antibiotic Prophylaxis against Anthrax. Annals Of Internal Medicine, 142(8), 601-W-123.

Fox, L. A. (1942). Bacterial Warfare. *The Scientific Monthly*, Vol. 55, No. 1 (Jul., 1942), pp. 5-18.

Guillemin, G. (2002) The 1979 Anthrax Epidemic in the USSR: Applied Science and Political Controversy. *Proceedings of the American Philosophical Society*, Vol. 146, No. 1 (Mar., 2002), pp. 18-36.

Guillemin, J. (2005). *Biological weapons, from the invention of state-sponsored programs to contemporary bioterrorism*. New York: Columbia Univ Pr.

Harris, H. S. (1995). *Factories of death: Japanese biological warfare 1932-45 and the american cover-up*. London: Routledge.

Hashemian, F., Khoshnood, K., Desai, M. M., Falahati, F., Kasl, S., & Southwick, S. (2006). Anxiety, Depression, and Posttraumatic Stress in Iranian Survivors of Chemical Warfare. *JAMA: Journal Of The American Medical Association*, *296*(5), 560-566.

Hook, S. W., & Spanier, J. (2010). *American foreign policy since world war ii*. (18th ed.). Washington DC: Cq Pr.

Israelyan, V. (2002). Fighting Anthrax: A Cold Warrior's Confession. *Washington Quarterly*, *25*(2), 17-29. doi:10.1162/01636600252820108

Jeans, R. B. Jr. (2007). Alarm in Washington: A Wartime "Exposé" of Japan's Biological Warfare Program. *The Journal of Military History* , Vol. 71, No. 2 (Apr., 2007), pp. 411-439.

Jonathan, T. B. (1996). Chemical/Biological Terrorism: Coping with a New Threat. *Politics and the Life Sciences* , Vol. 15, No. 2 (Sep., 1996), pp. 167-183.

Kingdon, J. W. (2011). *Agendas, alternatives, and public policies*. (Updated 2nd ed. ed.). New York: Longman Pub Group.

Kupperman, R. (1996). Tough Measures for Terrorism. *The Washington Times.* May 4, 1996.

Liu, X., Lindquist, E., Vedlitz, A., & Vincent, K. (2010). Understanding Local Policymaking: Policy Elites' Perceptions of Local Agenda Setting and Alternative

Policy Selection. *Policy Studies Journal*, *38*(1), 69-91. doi:10.1111/j.1541-0072.2009.00345.x

McNaugher, T. L. (1990). Ballistic Missiles and Chemical Weapons: The Legacy of the Iran-Iraq War *International Security* , Vol. 15, No. 2 (Autumn, 1990), pp. 5-34.

Nelan, B.W. (1995). The price of Fanaticism. *Time*(April 3):38-40.

New York Times. (1995). The Crimes of Unit 731(March 18)

Parnell, G. S., Smith, C. M., & Moxley, F. I. (2010). Intelligent Adversary Risk Analysis: A Bioterrorism Risk Management Model. Risk Analysis: An International Journal, 30(1), 32-48. doi:10.1111/j.1539-6924.2009.01319.x

Roberts, B. (1997). *Terrorism with chemical and biological weapons: calibrating risks and responses*. Alexandria: Chemical and Biological Arms Control Institute.

Robinson, S. E., & Eller, W. S. (2010). Participation in Policy Streams: Testing the Separation of Problems and Solutions in Subnational Policy Systems. *Policy Studies Journal*, *38*(2), 199-216. doi:10.1111/j.1541-0072.2010.00358.x

Riddle, J. R., Brown, M., Smith, T., Ritchie, E., Brix, K., & Romano, J. (2003). Chemical Warfare and the Gulf War: A Review of the Impact on Gulf Veterans' Health. *Military Medicine*, *168*(8), 606-613

Russell, R. L. (2005). Iraq's Chemical Weapons Legacy: What Others Might Learn from Saddam. *Middle East Journal* , Vol. 59, No. 2, Changing Geopolitics (Spring, 2005), pp. 187-208.

Seelos, C. (1999). Lessons from Iraq on bioweapons. *Nature*, *398*(6724), 187.

Shoham, D., & Wolfson, Z. (2004). The Russian Biological Weapons Program: Vanished or Disappeared?. *Critical Reviews In Microbiology*, *30*(4), 241.

Sileo, C C. (1995). The High Price of Antiterrorism. *Insight on the News.* December 18, 1995.

Solomon, G. B. H. (1993). Domestic Antiterrorism Act of 1993. *Congressional Record House of Representatives.* March 04, 1993. www.thomas.loc.gov

Steinberg, G. M. (1993). Israeli Responses to the Threat of Chemical Warfare. *Armed Forces & Society (0095327X)*, *20*(1), 85-101.

Travis, R., & Zahariadis, N. (2002). A Multiple Streams Model of U.S. Foreign Aid Policy. Policy Studies Journal, 30(4), 495.

Tucker, B. J. (1996). Chemical/Biological Terrorism: Coping with a New Threat *Politics and the Life Sciences* , Vol. 15, No. 2, pp. 167-183.

Venter, A. J. (1999). New-Era Threat: Iraq's Biological Weapons. Middle East Policy, 6(4), 104.

Wallar, D. (1993). Terrorism. *Congressional Record Extension of Records*. June 29, 2003. www.thomas.loc.gov

Wilson, G. C. (1977). Army Conducted 239 Secret, Open-Air Germ Warfare Tests; Amy Conducted Outdoor Germ Warfare Tests

Wright, S. (2006). Terrorists and biological weapons Forging the linkage in the Clinton Administration. Politics & The Life Sciences, 25(1/2), 57-115.

Zilinskas, R. A., Hope, B., & North, D. (2004). A Discussion of Findings and Their Possible Implications from a Workshop on Bioterrorism Threat Assessment and Risk Management. Risk Analysis: An International Journal, 24(4), 901-908. doi:10.1111/j.0272-4332.2004.00488.x