

Bioterrorism: The New Threat to Watch and How Is The United States Strategy Holding?

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Abstract

Global response to terrorist actions has being on the up-scale since the September 11, 2001 when the World Trade buildings, military symbol of strength; the Pentagon build were attacked and the failed third airplane, downed, by the courage of some passengers' action against the terrorists. Despite the global reactionary measures, the activities of especially Islamic terrorist groups, have continued with significant changes in their *modus operandi* with increased appetite for the acquisition and possible employment of not only chemical, nuclear but biological agents to cause terror. This article just intend to provide an insight into the United States strategy to this threat and mitigate it if not prevent it. The question is, how prepared is the U.S. for a major bioterrorism attack?

Keywords: *Terrorism; Bioterrorism; Human Bioagent terrorist; New Threat*

Introduction

Today, every major country has a documentation of a terroristic incident linked directly to one of the many factions of either the Islamic terrorist or other terrorist groups as designated by the U.S. or United Nation. Some of these groups are Abu Nidal Organization (ANO), Aum Shinrikyo (AUM), Basque Fatherland and Liberty (ETA), HAMAS, Hizballah, Kurdistan Workers Party (PKK) (Kongra-Gel), Liberation Tigers of Tamil Eelam (LTTE), National Liberation Army (ELN), Palestine Liberation Front (PLF), Palestinian Islamic Jihad (PIJ) etc 1997, the al-Qa'ida (AQ), Islamic Movement of Uzbekistan (IMU), Real Irish Republican Army (RIRA), Al-Aqsa Martyrs Brigade (AAMB), al-Qaida in the Islamic Maghreb (AQIM), Jemaah Islamiya (JI), Ansar al-Islam (AAI), Libyan Islamic Fighting Group (LIFG), Islamic State of Iraq and the Levant (formerly al-Qa'ida in Iraq), al-Shabaab, al-Qa'ida in the Arabian Peninsula (AQAP), Tehrik-e Taliban Pakistan (TTP), Haqqani Network (HQN), Boko Haram, Ansar al-Shari'a in Tunisia (also in Damah, and in Benghazi), al-Nusrah Front, Mujahidin Shura Council in the Environs of Jerusalem (MSC), etc [1].

In the Past, the world was used to the reading about plane hijacks, sporadic sabotages of mostly government infrastructures, the use explosives-bombs or small arms attacks, employed by terroristic groups to gain public and government attention for their course or beliefs. However, towards the twentieth century, the use of Improvised Explosive Devices (IED) exponentially exploded into an ingenious development of the IEDs from trashes like used bottles, or soft drink cans for road sides explosives to PBIED (person borne IEDs), SVBIED or VBIED, (suicide vehicle borne IED or vehicle borne IED) [2,3]. Now intelligence reports are indicating terrorist groups' quest for biological agents so as cause terror in the U.S, and globally [4-6]. Reports also are in existence as to how these groups have now moved into the surgical implantation of IEDs in willing members and also the development of what is called "plastic explosives" so as to invade detections with commonly employed search devices by law enforcement [7-12].

So what is terrorism and how feasible is a bioterrorism threat in the U.S. home land? The definition for terrorism remains a continuous fluid and dynamic issue of debate among agencies. From the U.S. National Counterterrorism Center Reports of 2005 [13], there is a quote

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“Determination of what constitutes an incident of terrorism, however, is sometimes based on incomplete information and may be open to interpretation. The perpetrator’s specific motivation, whether political or otherwise, is not always clear, nor is the perpetrator’s identity always evident. Moreover, additional information may become available over time, affecting the accuracy of initial judgments about incidents. Users of this database should therefore recognize that expert opinions may differ on whether a particular incident constitutes terrorism or some other form of political violence”. [13] (p5).

Terrorism is defined in numerous ways by different agencies, governments and individuals. The Department of Defense (DoD) dictionary [14] defined terrorism as “The unlawful use of violence or threat of violence to instill fear and coerce governments or societies” (p 368). The common denominator however among the various definitions, is that, this act is meant to create public fear, and generate publicity for the terrorist (s) course.

Bioterrorism

Bioterrorism (BT), simply means, an act done by terrorist to create fear and panic in a community employing a microbiological agent (bioagent) as a means to cause terror. Ashford., *et al.* [15], defined BT as an “intentional use of microorganisms or toxins derived from living organisms to cause death or disease in human, animals, plants on which we depend on” (p 515). Microorganism like many of those employed as bio-weapons, are ubiquitous-widely found in nature, and many could be intentionally genetically modified to increase their capability to inflict serve damage or diseases [16].

The list of microorganisms and their toxins identified to be candidate for BT continues to expand with the discovery of newer agents either occurring naturally or via human manipulation via laboratory genetic synthesis. The Center for Disease Control and Prevention (CDC), an agency or center with the responsibility for responding to emerging pathogenic threats in the U.S. has developed a list on a classification system for biological agents or bioagents (BA) that can be view from their website.

Brief History of Bioterrorism (BT)

Global

The use of biological agent (BA), which could be a microorganism or product of a microorganism (like toxin) in biological warfare is ancient, dating back to the 4th or 6th centuries BC, when warriors substituted ancient war tools for BA. A fungus *Claviceps purpurea*, with the mycotoxins, inside the rye ergot, was reported to have being employed by the Assyrians to poison the wells of their enemies. The Greeks were reported to employ a purgative with cardiac glycoside effects to poison the water supply when they attack the city of Krissa [17-19]. Advance delivery of BA commenced in the 14th century, when catapults were used to deliver cadavers of people that died of a plagues (*Yersinia pestis*), like during the siege of Kaffa, by the Tarta army in 1346 and the Russians against the Swedish city of Reval in 1710. To out play the French, during the French and Indian Wars, Sir Jeffery Amherst, sent his soldiers blankets and handkerchiefs from smallpox stricken dead soldiers and selling these to the Native Americans allied with the French troops. Similar technique was employed by Francisco Pizarro in his campaign against the natives in today’s’ Peru country on the 16th century [16,17,19].

In the US

The first known BT in the U.S. was reported to be the 1984 Salad bar contamination by a “Bagwan Shree Rajneesh” religious cult group in Oregon with Salmonella. In 1996, a *Shigella dysenteriae type 2 agent* was employed to contaminate muffins and donuts in Dallas Texas. In Washington, D.C and Los Angeles anthrax hoaxes were reported in 1997 and 1998 respectively, with an actual release of the most widely remembered, 2001 October postal mail anthrax incident [6,19]. While the above reported documented cases of BT in the U.S. are facts, one must also add that, prior to these incidences, about 18 cases of anthrax were reported in the U.S. from 1900 to 1978, though not attributed to terrorism but to goat hair mill or goatskin, wool or tannery workers action [20]. Dr. Fishbein, in his article on “Anthrax, then and Now” published on the MedicineNet.com web site, reported the documentation of the first case (of what is now known as) anthrax associated death of a 32 year old artistic weaver in 1976. This California case is exhaustively described in the journal *Human Pathology* 9 594-597, September 1978 issue [21].

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Tucker JB (22) reported that of 415 incidents in the public domain, excluding those in the classified domain, involving chemical, biological, radiological or nuclear material (CBRN), 151 were terrorist events and 33 of which involved the use of biological agents, between 1960-1998. Other bioterrorist events of this period as reported by Tucker (1999) are the 1970 "Weather Underground" revolutionary group attack on federal buildings; The 1972 college ecoterrorist group "R.I.S.E" employing eight microbial pathogens including typhoid fever, diphtheria, dysentery and meningitis; the 1980 "Red Army Fraction" group, a Marxist revolutionary ideological group; the 1984 deliberate contamination of salad bars by a "Rajneeshee Cult" with Salmonella bacterium; 1991, a ricin threat by the "Minnesota Patriots Council" for personal revenge, while in 1998, one Larry Wayne Harris was arrested when he talked about obtaining and deploying anthrax to achieve a "white supremacist goal. Dudley (2010) reported that between 1990 and 2000, a total of 1,368 cases of tularemia, one of the recognized disease caused by a bioagent *Francisella tularensis* (a biological agent) in the U.S.

Post 9-11-2001

After the incident of 9-11- 2001 and the following consequences, literature is abound with documentation, so are newspapers and news reporters, or cable news, about the anthrax mail scare. Dembek, Pavlin, and Kortepeter [23] documentation, reported, October 4th 2001, a 63 year old man in Florida was exposed to anthrax while on "outdoor activity," and more five cases were reported, in fact, a total of 11 inhalational cases of anthrax and 11 cases of cutaneous anthrax and five deaths were reported that year. Most significant was the confirmed receipt of a letter containing anthrax spores in the office of the then Senate Majority Leader, Tom Daschle on October 15, 2001, and that the Hart Senate Office Building in Washington DC was subsequently locked down.

March 2002, in Texas, the 12th cutaneous anthrax case was reported detected and linked to mails in a Texas laboratory. In 2003, total of nine Ricin bio threats were reported [23], with the discovery of the ricin toxin in a South Carolina postal facility in October 2003. In, 2004, February 3, the Dirksen Senate Office Building in Washington, DC was reported to have Ricin, discovered in the office of Senator Bill Frist. Only some few months back, in the months of April 2013, letters positive for ricin was reported sent to Senator Roger Wicker [24], similar letters were reported sent to the President of the United States, President Obama and then Mayor of the City of New York, Mr. Bloomberg [25].

U.S. Government Policies to address BT

U.S. Acknowledgement of BT as a threat

After 9/11, *The 9/11 Commission Full Report* [26], acknowledged BT as a national threat, a possibility more real than ever. President George W. Bush was quoted to have said in February 2004, "Armed with a single vial of biological agent small groups of fanatics, or failing states, could gain the power to threaten great nations, threaten the world peace. American, and the entire civilized world, will face this threat for decades to come. We must confront the danger with open eyes and unbending purpose" [27] (p1). The Congress in 2002 passed the *Public Health Security and Bioterrorism Preparedness and Response Act of 2002* [28], to address BT.

This federal government acceptance of this threat, led to the establishment of the National Biodefense Analysis and Countermeasures Center (NBACC) by the Department of Homeland Security (DHS), and many sub-centers [29], to be a "national resource to understand the scientific basis of the risks posed by biological threats...their use in bioterrorism or biocrime events" (p1). Congress increased funding for the NIAIDs following 9/11 to conduct research related to biodefense and emerging infectious disease [30]. To address the lack of medical countermeasures against some of the agents employed for biowarfare, congress increased funding with directive to the Department of Human and health Services (HHS), to increase research in this area with the National Institute of Health (NIH) and the Biomedical Advance Research and Development Authority (BARDA) [31].

The response by the government was quick and agencies sprouted, geared to developing strategies to effectively respond to any bioterrorism (BT) on homeland USA. Like the nation, the military also reacted, modifying past protocols and responses to the any BT in lines with the nations' baseline of surveillance, deterrence, decontamination, destruction and medical intervention. The military is also involved in research and other classified missions, generally most responses can be classified as an "after -the release of the bioagent

(BA)-effect” response, especially taking a cue from the nation’s response to the anthrax attack in many cities immediately after the 9/11 incident. Federal government increased funding to “support many other measures, aimed at supporting preparedness for and response to terrorism, infectious disease outbreak and other public health threats and emergencies” [32] (p1). The country’s overall terrorism epidemiologic and surveillance capacity also increased [32] in response to the BT. The military recognition of this threat is elucidated in their multiservice doctrine for Chemical, Biological, Radiological, and Nuclear (CBRN) operation updated in 2011, manual [33].

Current counter BT measures: National Strategy

Combating Bioterrorism: Strategy. To combat BT, the federal government developed a national strategy, known as the National Strategy to Combat Weapon of Mass Destruction (NS-CWMD) articulated or built under a 3-pillar of Counter proliferation, nonproliferation and consequence management baseline [34-36], involving or in collaboration with many agencies the Departments of Defense (DoD), Agriculture (DoA), Commerce (DoC), Health and Human Services (HHS), Homeland Security (DHS), States (DoS), the Environmental Protection Agency (EPA) and National Science Foundation (NSF).

Reason, for this multi departmental approach towards combating BT, is based on the fact that BT involved the use of biological agents that would have every aspect of these groups of disciplines to develop, transport, disseminate, intervene or treat. Following the presidential directive in terms of funding research for biodefense, either for civil or military, and it will either full into two groups; funding for direct biodefense program or non-biodefense programs and since it will be impossible to access any documents for military defense program, this paper will be reviewing articles available for civil biodefense budget. This NS-CWMD articulates a proactive and comprehensive strategy built upon the three pillars of nonproliferation, counter proliferation, and consequence management [35,36] and thus the nation’s baseline strategy.

The Department of Defense (DoD) in line with the 2002 national strategy to combat weapon of mass destruction (CWMD) directive of the president, had the responsibility, and focus to shifted, and expand the planning, preparation and execution activities in support of the CWMD mission. The National Military Strategy to Combat Weapons of Mass Destruction [34] provides the military and other agencies supporting, the needed guidance to successfully execute the U.S. military WMD nonproliferation, counter proliferation, and consequence-management missions in accordance with the presidential directive on NS-CWMD. As expected, the military approach on executing the three pillars of CWMD will be uniquely different from those employed by other civilian agencies in order to combat biological terroristic incident. Reason being, unlike explosive or nuclear attacks, the consequences of a biological incident is not usually always immediate, there is what is known as the incubation period; time needed for the bacteria to colonized and cause visible signs of infection (that is, the time between infection and the time symptom is noticed). How would these 3-pillars be translated into achievable objectives, actionable steps by the civil society or by the military?

The 3-Pillar for combating BT

1. Counter proliferation: Here, the U.S. strategy employ the military and appropriate civilian agencies to prevent the proliferation of biological agents that could be used by terrorist against the U.S. or her allies and this is achieved via interdiction, deterrence, active defenses, passive defense etc. [34,36].
2. Nonproliferation: Basically, this is usually a diplomatic initiated approach that could be bilateral or multilateral with the sole goal of nonproliferation of biological agents among nations with such capabilities, so as to stop the dissemination or distribution of these agents to those without the capability.
3. WMD Consequences management: Here, the strategy is to respond to the attack, while both the civilian and military might respond to post - BT attack with the necessary medically available intervention, the military takes it a step further; they-the military- must respond in such a way that the terrorist or terrorists or enemies responsible are brought to the point, that they are unable to repeat similar attack again [34].

Note, there is also what is termed as strategic enablers in the national strategic directives and they include, intelligence, partnership capacity, and strategic communication support, without these, the three pillars will be unachievable or impossible. To bring this complex government strategy to a simpler, and understanding perspective, the below headings are the general common routine response to biological scare or incident as a nation.

- a. **Biological Surveillance:** Here, agencies are supposed to be proactive in ways as to combat or prevent by conducting an early detection of the release of any biological agent that are suspected to be one of the classified “bioagent”. Instruments are placed at strategic places to collect samples that are later analyzed and if positive for deadly agent, necessary responses are taken. After the Anthrax-laden letter cases post 9-11 that led to the death of five individuals, the federal government set up the “BioWatch” program in 2003 that led to the deployment of BioWatch filters outdoors to collect samples and this program is still on till date [37-40].
- b. **Stockpile of vaccines/medicines:** The 2001 post anthrax scare saw shortage of “Cipro” antibiotics and subsequent government directives especially to the Center of Disease Control (CDC) for increase in pharmaceutical and medical research especially in the area of vaccines development [28]. This strategy is meant to ensure there is enough of medical vaccines and medications on reserves, to respond should there be a BT incident.

The Military

In other to fulfill their missions in accordance with the directives of the president, the U.S military operates numerous bases in foreign countries, some in areas where the nation is actively engage with the enemies, with desire to do the nation, allies and citizens harm. Like in the civilian sector, the military also has civilian biodefense program like the Medical Biological Defense program; the Army National Guard WMD Civil Support Team; Biological Threat Reduction programs located in the Defense Threat Reduction Agency (DTRA); and the biological Warfare Defense Program, located in the Defense Advanced Research Projects Agency (DARPA). All programs involves in various forms of research geared towards direct and indirect biodefense. Since post 9/11, the DoD have being receiving federal funds to execute biodefense programs to assist in combating BT [41-43].

According to Jean [44], “the Defense Department has embarked on a multi-hundred-million dollar effort to protect troops from bioterrorism. It is a strategy focusing on containing potential outbreaks in areas of the world where pathogens are known to exist” (p 28). The main question is how effective are these changes, modifications and strategies in deterring or preventing a person from transporting a BA (either as an intentional incubator or as parcel) to a building, airplane or a military combat post? Are these security measures effective like those body scanners or body searchers, at the boarders, airports, combat entry control points (ECPs) or buildings to prevent or deter the transportation of explosives? How effective are the strategies and policies in accomplishing the mission of deterrence, detection, destruction or responding to bioterrorism.

Questions

Many writers have questioned decades of post 9-11 strategies and policies after these various strategies and policies have been made and implemented, if we as a nation are ready or prepared for a major bioterrorist attack? Hylton [44] article “How Ready Are We for Bioterrorism?” is the question still being asked in many circles even today. Major General Philip Russell, Retired, was reported to have testified before the U.S Congress House Armed Services Committee Panel in October 11, 2013, where he inferred that “the U.S. does not fully understand the threat of biological warfare and is ill-prepared to deal with an attack” [45].

Sullivan [46], reported that a congressionally mandated panel report released in January of 2010, said that “the United States isn’t prepares for a biological terrorist attack”. The commission in question is the “Commission on the Prevention of Weapons of Mass Destruction Proliferation” [47]. This report quoted the chairman of the commission, former Senator Bob Graham as saying “Each of the last three administrations has been slow to recognize and respond to biothreat. But we no longer have the luxury of a slow learning curve,

when we know al-Qaida is interested in bioweapons” [46,47] (p6). Also, Sullivan [46] quoted the commission’s executive director retired Air Force Col. Randy Larsen as saying “no one in the Obama administration has taken the lead for protecting the country against bioterrorism”.....and “Especially troubling is the lack of priority given to the development of medical countermeasures –the vaccines and medicine that would be required to mitigate the consequences of an attack.”

Dudley [48], article on tularemia demonstrated once again some of the limitations on the nation’s preparedness in combating BT incident. The article demonstrated the lack of knowledge about the clinical characteristics of this infectious disease caused by one of the known bioagent, *Francisella tularensis* by some health care providers, who returned many cases (patients) home without appropriate treatment. This thus raised the question as to the ability of the nations’ first responders’ to accurately identify and report cases of BT for quick response at the medical institutional level when citizens report with illness. If care providers are less informed about the symptoms of some of the bioagents employed for BT, then, there is a problem with the systems in terms of health systems response.

An “F” (no action was taken) grade was given to the country by the government congressional panel [47] on the question of the nation’s capabilities to respond a biological attack capable of inflicting mass casualties. This 2010 report documented that the “U.S. lack the capability to rapidly recognize, respond, and recover from a biological attack” [47] (p6) and declared this “a significant failure.” The panel also noted the country had “no national plan to coordinate” a joint federal, state and local response should there be a BT attack, years after 9-11, one of the major lapses of “The 9-11 Commission” findings.

Current Phenomena

At this time in human advancement, came a novel form of delivery explosive device termed suicide bombers-with explosive. It is either in the form of a human body strapped with IEDs (PBIED) or IEDs loaded in a vehicle (VBIED) or SVBIED. Also, as observed in combat, sometimes the IEDs are strapped to animals or dead bodies. Of late, terrorist groups have now reverted into the surgical implantation IED into the human body to form a “body bomb” or in military parlance, referred to as “surgically implanted improvised explosive device” or SIIED (10, paragraph 5). Mackay [11] and Burleigh [7] reported the surgically insertion of bomb inside human body/abdomen by terrorists, while Haque [9] and Joshi [8] reported the surgical implant of a bomb/IED inside the body of corpse.

It is a fact that, pathogens or BAs can be transported normally by humans or animals called carriers. A carrier is a host living with an agent without developing a disease condition, and thus becomes a viable source for dispersing the pathogens to another susceptible host. If it is possible to have PBIEDs, and to have natural human carriers of pathogens, it is only plausible to infer, it is possible to have humans intentionally incubating BA with suicidal intention for terror; this writer choose to call them “Human-borne bioagent” (HB-BA) suicide terrorists. Terrorists can also, following some vulnerability with global current metal or personal body search procedures (specific for explosive), purposely carry a BA in a culture media in a potable innocuous container. A culture is a medium (abiotic or biotic) for propagating (growing) microorganisms.

Galamas [6], in his article term this group of people (carrying infectious BA purely on them for harm) as suicide bioterrorists, who are less bothered about the need for bio-secure facilities to produce and weaponize BA. He further stated, “...in bioterrorism, the suicide bioterrorist can simultaneously be the untraceable transport and dissemination mechanism of the weapon. Suicide bioterrorism provides more advantage to al-Qaida’s operatives” (p.85) [49].

Despite the numerous facts that; (a) bio-weapons can be relatively produce easily in small scale using laboratory equipment [6,50,51] by any graduate student in microbiology, molecular biology or biochemistry; (b) the existence of commercially available biomaterials for weaponization, and easy of acquisition/isolation of BA from nature; and (c) terrorist do not follow the rules in terms of shipping infectious disease [6,51], many still question the rational of governments funding and preparedness for BT [31], and the reality of a bio-warfare or BT [6].

Professor F Galamas rightly concluded that, "Bioterrorism has become a major security concern. Part of this concern relies in the improvement and new discoveries in biotechnologies that allow the performance enhancement of biological weapons, from improvements in their environmental resilience to enhancements in their lethality rate" (6, p. 89). Galamas also conclude that, "The al Qaeda leadership has clearly indicated and demonstrated its intention to kill a large number of people using biological weapons" (6 p. 85). Similar threats are on record, by terrorist against the USA.

Conclusion

At this time, most POE entry searching procedures introduced by the U.S. government at the height of the EVD crisis are being dismantled [52]. Could this be a return to past TTPs until another importation of new bioagent? It is already documented that, terrorist groups desire to obtain bioagents with the sole intent to do harm to America and other Western countries. The first U.S. EVD case was not a terrorist attack, as he went for medical intervention, an action a terrorist would not take. It was also widely reported how the health workers misdiagnosed his infection and he was released back into the population. During this period, the citizens were told the nation was well prepared.

Despite the nations' counter bioterrorism strategies, the questions still remains, can the country be able to handle a multiple bio-terrorist attack? Recent Ebola cases in the country, seems to raise more questions on vulnerabilities and how will the system holdup if there were multi prone bio-attacks occurring simultaneously? Do we need more budget allocation for BT, policy change or political mind re-set, so as to at least improve mitigation? In this new era, biosecurity is now raised to the status of national security.

Bibliography

1. US Department of State (DoS). "Foreign Terrorist Organizations: Bureau of Counterterrorism".
2. JEEP Handbook. "Joint Entry Control Point & Escalation of Force Procedures" (JEEP) (2009): 90-01-018.
3. Joint Forward Operations Base (JFOB). "Survivability and Protective Construction Handbook". 5th Edition (2009): FOUO.
4. Middle East Media Research Institute (MEMRI). "Jihadi Chatter Online, Including on Social Media, About Using Ebola, Poisons As Weapon Against the U.S. and the West". *Special Dispatch* No 5854 (2014).
5. Lynch DM. "The Cost of Amnesty: They Come to America II. (2013). Film Distributed by TV36 OLLC
6. Galamas F. Profile Bioterrorism: Present and Potential Threats. *Comparative Strategy* 30 (2011): 70-93.
7. Burleigh M. "Nightmare of Terrorist with bombs surgically implanted inside the body". *Daily Mail Online* (2013).
8. Joshi S. "Belly Bomb recovered from soldier's body". *The Hindu* (2013).
9. aqae S. "Maoists plant IED inside jawan's body: 2.5kg bomb found in constable's corpse". *Mail Online India* (2013).
10. Klaidman D. "Al Qaeda's Body Bombs: Al-Asiri's Next Threat". *News week* (2012).
11. Mackay D. "Al Qaeda plots to implant bombs in fanatics to beat body scanners". *Mirror* (2011).
12. Kimery A. "The Threat of Body Bombs and Surgical Implants". *Homeland Security Today* (2009).
13. National Counterterrorism Center (NCTC). Country Reports on Terrorism 2005, *Statistical Annex* (2006).
14. Department of Defense dictionary. Department of Defense Dictionary of Military & Associated Terms. (2011).
15. Ashford DA., et al. "Planning against Biological Terrorism: Lessons from Outbreak Investigations". *Emerging Infectious Disease* 9.5 (2003): 515-519.
16. Kostadinov R and Galabova A. "Bioterrorism, History and Threat Assessment". In Tonev S., et al. (editors) "Medical Management of Chemical and Biological Casualties". *Journal of Medical Chemical, Biological and Radiological Defense* 8 (2010): 295-303.
17. Arizona Department of Health Service (ADHS) Bureau of Emergency Preparedness & Response: History of Biowarfare and Bioterrorism (2005).
18. Lim DV., et al. "Current and developing Technologies for Monitoring Agents of Bioterrorism and Biowarfare". *Clinical Microbiology Review* 18.4 (2005): 583-607.
19. Phillips MB. "Bioterrorism: A Brief History. In Focus on Bioterrorism 2005". *Northeast Florida Medicine* 56.1 (2005): 32-35.

20. Inglesby TV, *et al.* "Anthrax as a Biological Weapon: Medical and Public Health Management". *Journal of American Medical Association* 281.18 (1999): 1735-1963.
21. Fishbein MC. "Antrax, Then and Now". (2007).
22. Tucker JB. "Historical Trends Related to Bioterrorism An Empirical Analysis". *Emerging Infectious Disease* 5.4 (1999): 498-504.
23. Dembek ZF, *et al.* "Epidemiology of Biowarfare and Bioterrorism". Chapter 3 In Dembek, ZF (senior editor) *Textbook of Military Medicine: Medical Aspects of Biological Warfare* (2007): Published by the Office of the Surgeon General, U.S. Army. A TMM Publications, Borden Institute, Walter Reed Army Medical Center, Washington, DC.
24. Bresnahan J and Gibson G. "Letter sent to Roger Wicker tests positive for ricin". *POLITICO* (2013).
25. Maglio T. "Walking Dead," "Vampires Diaries" Actress Arrested in Obama-Bloomberg Ricin Case. *WRAP*. (2013).
26. The 9/11 Commission Report. Final Report of the National Commission on Terrorist Attacks Upon the United States. (2004).
27. Department of Homeland Security. Department of Homeland Security Bioterrorism Risk Assessment: A Call for Change. (2008).
28. Public Law 107-188. "Public Health Security and Bioterrorism Preparedness and Response Act of 2002".
29. Department of Homeland Security. National Biodefense Analysis and Countermeasure Center. (2011).
30. National Institute of Allergy & Infectious Disease. "Biodefense and Emerging Infectious Disease: Questions and Answers; NIAID Research on biodefense and emerging infectious Disease". 2001 to 2011. (2011).
31. Congress Research Service (CRS). Gottron F and Shea DA. (edited) Federal Efforts to Address the Threat of Bioterrorism: Selected Issues and Options for Congress. (2011).
32. Morbidity and Mortality Weekly Reports (MMWR). Brief Report: Terrorism and Emergency Preparedness in State and Territorial Public Health Departments-United States (2004): *Morbidity & Mortality Weekly Reports* 54.18 (2005): 459-460.
33. Field Manual. Multiservice Doctrine for Chemical, Biological, Radiological, and Nuclear Operations. (2011).
34. National Military Strategy to Combat Weapons of Mass Destruction. (2006).
35. Bush GW. Statement on the National Strategy to Combat Weapons of Mass Destruction. (2002).
36. National Security Presidential Directives-NSPDs-17, NSPD-17/HSPD 4 National Strategy to Combat Weapons of Mass Destruction. (2002).
37. Chapa L. "The State of Bioterrorism Surveillance. Security Management". (2013): 37-42.
38. White House. National Strategy for Biosurveillance. (2012).
39. White House. Fact Sheet on the National Strategy for Biosurveillance. (2012a).
40. Field Manual. Multiservice Tactics, Techniques, and Procedures for Biological Surveillance. (2004).
41. Franco C and Sell KT. "Federal Agency Biodefense Funding". *FY2010-FY2011 Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*. 8.2 (2010):129-150.
42. Franco C and Sell KT. "Federal Agency Biodefense Funding". *FY2012-FY2013 Biosecurity and Bioterrorism: Biodefense Strategy Practice, and Science*. 10.2 (2012): 162-181.
43. Jean GV. "US Strategy to Combat Bioterrorism Takes Global View". *National Defense* (2011): 28-30.
44. Hylton WS. "How Ready Are We for Bioterrorism?" *The New York Times* (2011).
45. Kime P. "Experts: Serious talks needed about biowarfare". *Marine Corps Times* (2013):10.
46. Sullivan E. "Panel: US not ready for bioterrorist attack". (2013).
47. Prevention of WMD Proliferation and Terrorism Report Card (PWMD) (2010).
48. Dudley JP. "Tularemia: A case Study in Medical Surveillance and Bioterrorism Preparedness". *Journal of Medical Chemical, Biological and Radiological Defense* 8. (2010): 17.
49. Alakpa GE. "Perceptions of Military Personnel: Assessment of the Department of Defense's Counter Bioterrorism Measures at the Tactical Level for the Enhancement of Civil Security Leadership, Management, and Policy". (2015) Doctoral of Science Dissertation, New Jersey City University, NJ. USA. 186.
50. Bakanidze L, *et al.* "Biosafety and biosecurity as essential pillars of international health security and cross-cutting elements of biological non-proliferation". *Bio Med Central Public Health* 10.Suppl1 (2010): 1-8.

51. Ristanovic E and Jevtic M. "Dual-Use Goods in the Production of Biological Weapons". In Tonev S., *et al.* "Medical Management of Chemical and Biological Casualties". *Journal of Medical Chemical, Biological and Radiological Defense* 8 (2010): 304-309.
52. Center for Disease Control and Prevention (CDC). "Enhanced Airport Entry Screening To End for Travelers from Mali to the United States" (2015).

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