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The Threat of Domestic Bioterrorism: Fact or Fiction

Stacy Langston

Introduction

There are many ways in which to prepare for disasters. Knowing who to look for and what to expect as an outcome assists in disaster planning and the response of the agencies involved. This can be applied to the response of different agencies in the case of bioterrorism. Understanding how a terrorist group can conduct an attack and knowing the target provides hindsight and methods to prevent or respond to certain situations. Using What If? Analysis it is possible to design a scenario and present recommendations that can be implemented to mitigate and respond to such attacks¹.

What If? Analysis

The Houston Chronicle on March 26, 2014 reported 23 “mysterious” infant deaths from three separate hospitals. Hospital officials when contacted stated that mother and infant had no adverse symptoms prior to release from the hospital. Hospital officials stated that in more than half the cases, the mother and infant had been previously released shortly after giving birth. Mothers returned to the hospital with the infants within two to three days after release reporting symptoms of fever reaching 101°F, vomiting, and diarrhea. Infants were admitted into the Neonatal Intensive Care Unit (NICU) where shortly after, death resulted in all cases. Others cases showed that infants were just released from NICU, having been admitted for premature birth, and returned to their mothers for release from the hospital. These cases resulted in return to the hospital with in one to three days later. The same response was initiated with infants being admitted to NICU and death followed shortly. The mothers in all cases were unaffected. Hospital staffs at each facility have not yet determined the cause of the deaths but have stated they are investigating.

On March 27 the same hospitals where increases in infant deaths were reported released a statement to the Houston Chronicle and local news stations. Hospital officials reported an increase in deaths in patients receiving post-operation care, and patients receiving care for terminal illnesses. In each of these cases, a report was given of high fever around 102°F, nausea, bloody diarrhea, and vomiting. Patients were already receiving antibiotics for each of their respective conditions. Hospital officials stated they were looking into the cause of the deaths, but no conclusions could be given at the time.

Later that day on local news station the lead anchor made a comment of a possible new hospital acquired infection. The news anchor used the words “new superbug” that was able to resist the antibiotics that patients were receiving in the hospital. This sparked wide spread speculation on the Internet on social media forums. Comments were being left on social media sites scrutinizing the three hospitals where the infant deaths were first reported and criticism of hospital leaders to correctly identify the cause of death.

¹ Richards J Heuer Jr., and Randolph H Pherson. *Structured Analytic Techniques For Intelligence Analysis*. (Washington, D.C.: CQ Press , 2011), 231-234

At the time, representatives from each hospital where the deaths were occurring agreed to meet to discuss the possible causes of death. Acting board members from each hospital in the areas of malpractice, public relations, and epidemiology discussed the possible causes of deaths in each patient. The representatives from the hospitals realized that most patients from the post-operations (post – op) had been released one to two days prior to infants and returned with similar symptoms. In each case when the patient returned death resulted in 24 – 48 hours. Persons that were in contact with the deceased did not show the same symptoms and a communicable disease was ruled out as a possible cause of death. Each verified that samples of blood had been sent for testing and agree to contact other hospitals to investigate similar cases. In total for all three hospitals, a report of twenty-six infant deaths, twelve post-op patient deaths, and sixteen terminally ill patient deaths was recorded. This brought the total of deaths to fifty-four persons by unknown causes. An attempt to contact patients who were released from the hospital following post-op care was agreed to take place the following day for all three hospitals.

The decision to contact the Health Authority (HA) and the Houston Department of Health and Human Services (HDHHS) to coordinate contacting patients was made during this meeting. Results from the laboratory reports and autopsies would be given to the HDHHS to determine the correct response and provide health risk communication services if needed. Investigation of patient history and emergency contacts was conducted by the HDHHS in an attempt to determine the source of the infections that led to deaths of fifty-four patients. The Mayor was contacted to inform him of the situation to avoid surprises if he was watching the news.

On March 28, members of the HDHHS attempted to contact previous patients who were released after post – op care from the three hospitals and also other hospitals in the region. From those who were able to be contacted there were a total of eight patients who experienced similar symptoms to those described; however, symptoms were mild and seemed to subside after two to three days. Three other patients reported no symptoms and two patients were reported dead who did experience the same symptoms; however, they did not seek medical attention. No patients from other hospitals were experiencing the same symptoms and causes of death. Results from the laboratory were inconclusive, and further testing was being conducted. Autopsy results were not yet received from infant or post – op patients.

At 9:08 A.M. on March 28, two local news stations received letters addressed from local schools in the area. Upon opening the letters addressed to the stations, a white powdery substance was released from the envelopes. The FBI was immediately contacted following the incident. The contents of the first letter state:

I HAVE THE ANTHRAX
YOU NEED TO TAKE PENICILLIN
BE PREPARED TO DIE
DEATH TO IMMIGRANTS
DEATH TO THE INFERIOR RACE

The contents of the second letter state:

YOU WILL DIE
TAKE YOUR MEDICATION
THOSE WHO DON'T DESERVE WILL DIE
DEATH TO IMMIGRANTS
DEATH TO THE INFERIOR RACE

While the FBI was contacted by the local news stations regarding the suspicious envelopes, personnel from the hospital who had previously called in sick were showing up to the hospital with symptoms of fever above 101°F, muscle aches, sore throat, and breathing problems. They are prescribed broad spectrum antibiotics and sent home. The affected staffs who are reporting symptoms do not match symptoms in the cases that resulted in death from unknown causes. No connection is made to anthrax since only the FBI is aware of the anthrax letters that were sent to the news stations.

Laboratory results from post – op patients and infants showed an organism that is non – motile, a gram – positive rod, and when grown on sheep blood agar presents as flat ground glass non hemolytic colonies. Samples of the blood from patients were then sent to the local Laboratory Response Network (LRN) for further testing to determine the organism. Suspicions began to form of a possible anthrax attack on the hospitals; however, this was not reported to any media outlets for fear of creating panic in the city of Houston.

Autopsy reports of infants and post – op patients showed hemorrhagic ulcers in the ileum and cecum of the gastrointestinal tract (GI) and are determined to be the site of entry for the organism. Lesions along the GI tract in the jejunum, duodenum, and esophagus are reported in infants and post – op patients. Upon further examination under the microscope, ulcers show extensive acute hemorrhage, edema, and necrosis. Samples from lymphatic vessels were sent to the local LRN for further testing following the previous findings in the local laboratories of the hospitals. In some of the infants and post – op patients, there were pleural effusions and edema and hemorrhage of mediastinal lymph nodes. Samples were gathered from the lymph nodes and sent to the LRN for further testing. Autopsy results from the terminally ill patients were given further investigation to eliminate their illness as a possible cause of death. However, results from these patients showed similar findings to those obtained in infants and post – op patients.

The FBI and local law enforcement are contacted about the incident at the hospitals and given the details of the laboratory findings and the patient information. The investigation conducted by the HDHHS determined that the only hospitals that were affected by this incident were the three hospitals where the “mysterious” deaths were first reported. This together with the letters sent to the local news stations leads to the possibility of a bioterrorist attack.

Knowing the possible agent in the letters, the FBI conducted a field anthrax test on the letters, and it appears negative. Samples were being tested at the LRN. One lab worker comments that the white powdery substance has the consistency of baby powder and smells like it too. Upon further testing, his statements are true. However, testing continued to determine if there were any traces of residue mixed in with the baby powder.

FBI began to investigate the connection between the letters and the hospital incidents. The letters seemed to be referring to an attack against different ethnicities notably “immigrants” and the “inferior race”. The FBI investigated the deaths that occurred at the hospital and discovered a link to the letters. In all of the deaths, the individuals were of a minority ethnicity. Not one case was anything but an ethnicity that is a minority. However, with this new information, the FBI requested that hospitals be tested with field kits to determine if anthrax was released in hospitals or outside hospitals.

At this time, a leak from the media about the letters was sent to the local news stations. The incident was not being reported on national news stations and informs the public that there was “anthrax sent to local news stations in Houston, Texas that appear to have the same style of writing as the letters that were first mailed 2001” the news anchor then gives a synopsis of the 2001 anthrax letters case that occurred over ten years previous. As a response to this statement, social media forums are flooding news station sites with comments about a possibility of the FBI not having solved the case and the perpetrator is still at large and now attacking Houston.

Local news stations in Houston commented on the letters and report that field tests provided a negative for anthrax. News anchors attempt to dispel the false information about the comments surrounding the FBI not having “caught” the right individual that mailed the letters in 2001. A special report was given on the hospitals status of the causes of deaths that were first reported on March 26. Information about anthrax being the cause is not yet released so as not to spread fear to the public of the situation if it is not anthrax. Local news anchors stated that until further information is given to them regarding the situation individuals should not be afraid to attend hospitals. Those affected were infants and individuals who were immuno – compromised who could have suffered some other complication.

During this statement, FBI personnel conducted anthrax field tests at each of the hospitals reported. The field tests showed positive for traces of anthrax in newborn nurseries, NICU, patients’ rooms from the post – op patients and terminally ill patients. Other areas were tested for traces of anthrax in the hospital to determine the scope of contamination. The FBI requested a team to enter each hospital to gather evidence in the rooms with anthrax testing positive and send any samples to the CDC.

The Health Authority (HA) was contacted by the FBI to determine the situation. HA officials determine that since anthrax is not communicable patients from the hospital can be sent to other hospitals to continue their treatment. The order to evacuate hospitals was given immediately, and patients were sent to facilities that could care for patients need. Hospitals in the surrounding area that had not been contaminated are preparing to receive patients that were coming in. HA officials order that individuals in hospitals that were contaminated need to receive antibiotics, specifically ciproflaxin for those that were in the areas that tested positive for anthrax.

Family members of those who were treated in the hospitals with anthrax contamination were notified by hospital staff and HDHHS personnel. Family members are notified of the hospitals where the patients were taken to and to remain calm; patients would be receiving antibiotics and continue to be monitored for symptoms similar to those in previous patients.

The Mayor is contacted at this time and made aware of the situation and appointed a Public Information Officer (PIO). Officials from HA and HDHHS believed there were enough antibiotics to give to all those in the affected area and determined there was no need to reach out for sources from surrounding areas. The HA contacted the Catastrophic Medical Operations Center (CMOC) to assist with medical resources if need be. For the time, the HA determined that the National Incident Management System (NIMS) needed to be used to coordinate the situation effectively and keep communications open between the agencies involved. The Incident Commander (IC) contacted the PIO to provide a message to the public to make them aware of the situation. The Office of Emergency Management (OEM) begins oversight of the situation for public information. FBI has informed all agencies involved that they will be treating this situation as an act of terrorism and will act accordingly.

At this time, the PIO prepared a statement to provide to the public. The broadcast was given locally, and information about the broadcast is given to national news media outlets. The PIO stated:

“Please pay close attention. This is an urgent health message from the Houston Department of Health and Human Services. Spores that cause anthrax disease have been verified in the deaths of 56 persons from three separate hospitals. At this time, we do not know the extent or the source site for the release of anthrax. We are investigating currently to determine where the deceased individuals came into contact with the spores. Currently local law enforcement, the FBI and HDHHS are working together to determine the cause. Updated announcements will be made as soon as these officials know more. Anthrax disease is not communicable so it cannot be transferred from person to person. There is no need to worry about contracting anthrax if you have not been in any of the three hospitals where the incidents occurred. Based on what we know, if you were in any of the three hospitals from March 19 until recently, specifically in the newborn nursery, post – op wing, or wound care and are experiencing symptoms of abdominal pain, nausea, diarrhea, vomiting, please seek medical attention. Anthrax is treatable with antibiotics. It is important that you follow instructions of health officials so you can protect yourself, your family and your community and stay informed.”

Laboratory results coupled with the autopsies indicated that the deaths were due to *Bacillus anthracis* bacterial infection of the gastrointestinal tract. This indicated that, at some point in time, the deceased consumed a substance that was contaminated with anthrax spores.

On March 29, a letter was sent to the local FBI office. The letter is addressed to the FBI spokesperson that recently appeared in a news cast, and the return address is from a local school in the area. The letter was sent to the LRN, and preliminary tests showed there were no anthrax spores in the letter or in the white powder that is released when opened. The white powder is thought to be baby powder like the previous letters. The contents of the letter state:

YOU ARE WRONG
TAKE YOUR PENICILLIN
MORE WILL COME
DEATH TO IMMIGRANTS

DEATH TO THE INFERIOR RACE

FBI personnel believe that the two incidents are now related. The FBI asked news anchors in the local area to broadcast if anyone has seen any suspicious activity at the hospitals or if they noticed any other suspicious behavior.

Staff personnel from the hospital that had previously called in sick are now showing up at the available hospitals with symptoms that are similar to the flu. Hospital nurses feared the symptoms were a result of anthrax due to inhalation. The staff personnel are asked to remain in the hospital to receive treatment and allow the FBI to take their statements. Staff personnel were from the floors that contained the newborn nursery, NICU, and post – op patients. Each staff member recalled a nurse always attending the infants and believes it was the infants that had died. Some staff members stated this nurse had conversed with a Certified Nurses Aid (CNA) that was seen cleaning the rooms of some of the patients who had died. She was also seen standing on a chair and messing with the vents in areas of the hospital with a can of compressed air.

While the FBI attempted to locate the nurse and CAN, they noticed the amount of persons in the emergency room coughing and complaining of chest pains. A nurse is stopped to ask if the increase of patients is due to individuals who believe they are infected with anthrax or if these individuals are sick. The nurse is unsure since she just started her shift and attempts to find a nurse or staff personnel who have been working. One of the persons who appeared to be ill was approached by the FBI and asked where they had been the past two weeks. The individual stated that they had only been to school and to a concert event that just played at one of the venues in Houston. When questioned further the FBI agent find out the concert took place on March 24th and 25th. The FBI agent noted that the performer at the venue was of an ethnic minority.

Clinics and pharmacies started to notice an increase in the amount of persons who entered showing symptoms similar to a cold or the flu. Pharmacy/drug stores were selling an increased amount of over the counter medication for cold symptoms. In one clinic, two patients passed out from fever in the waiting room and died within a matter of hours afterwards. Blood samples from the two individuals were sent to the LRN to determine if anthrax was the cause of death.

FBI personnel notified the HDHHS and OEM of a possible aerosol attack of anthrax on an entertainment venue. One of the staff persons from HDHHS asked the question that was on everyone's mind; why wasn't it picked up by the BioWatch sensors? There were no answers to the question, but the FBI felt the only thing they could do was work on getting as many people to a hospital for treatment. HDHHS contacted the Department of State Health Services (DSHS) to coordinate with the Governor's Division of Emergency Management (GDEM) to request Strategic National Stockpile (SNS) materials if there was indeed a release of anthrax at the entertainment venue.

FBI personnel conducted a search of the entertainment venue and determined with preliminary field test kits that there were anthrax spores in the area. The Mayor was notified of the situation and asked to approve a media message that the PIO could release to the public with an update of events. The entertainment venue was then evacuated of staff currently working.

Hospitals that had not been shut down were becoming overcrowded in the emergency room (ER) with patients complaining of chest pains and difficulty breathing along with fatigue and headaches. It became chaos in the ER and some of the patients were becoming violent in fear of being infected with anthrax. Patients started to show signs of anxiety, and anger. Patients requested that they receive the anthrax vaccine and medication immediately without being seen by a doctor.

During this time in Austin and San Antonio, patients were showing up in ER waiting rooms with symptoms similar to the flu. One patient already died while waiting to be seen by a doctor in San Antonio and three more have died in Austin hospitals. For fear that their hospitals had also been attacked with anthrax, the lab immediately tests for anthrax. Causes for the four deaths are unknown, but staffs at the hospital believe it to be anthrax.

The PIO in Houston gave a statement that was being broadcasted over national news channels regarding the incident that was taking place in Houston and to give an update regarding information of the entertainment venue:

“So far we have discovered that there may have been another release of anthrax at an entertainment venue in downtown Houston. This was an event that took place on March 24th and 25th this past week. We ask all who have attended this event to please seek medical attention if you are experiencing any of the following symptoms: fever above 100°F, coughing, shortness of breath, headache, muscle ache, fatigue, and chest pain. We ask that everybody remain calm and remember that anthrax is not a communicable disease if you did not attend the concert that took place on March 24th and 25th at this entertainment venue in downtown Houston then there is no need to worry. Please follow the instruction of your local health departments and we will get assistance to you as soon as we can. When we learn more information, we will let you know.”

The FBI investigated the entertainment venue and located what appeared to be crudely crafted bombs attached to the rafters of the entertainment venue roof. The bombs seem to be attached to cloth bags that have been torn open likely due to the explosion. There appeared to be six bags in total three on each side of the roof. Preliminary field tests showed the bags to be contaminated with anthrax. The cloth bags and bomb devices were sent to LRN to identify that anthrax spores were in the cloth bags.

Social media sites are flooded with comments from all over the U.S. criticizing the FBI for leaving out information regarding the letters that were sent to the media stations. The forums state that the FBI is trying to cover up that they did not “catch” the correct perpetrator during the 2001 anthrax letters. An immense distrust spread across the Internet in regards to the FBI. The protocol that was originally called into question during the investigation is being brought forth once again. Comments were being left stating that it took the FBI seven years to accuse and attempt to bring to trial the suspect, but he was never convicted due to his untimely death.

Another press conference was held to refute the claims that the letters were mailed by the same individual as in 2001. FBI experts explained that the letters have a similar style to the original

anthrax letters mailed out; however, there were no anthrax spores inside the letters, and the letters contents differ from those originally mailed in 2001. The level of sophistication in regards to the code that was believed to be in the letters from 2001 were lacking in the letters that were sent to the news stations. FBI experts believed the letters to be a hoax but were investigating the matter and believed the two incidents were somehow connected. The goals of the attacks differed from those in 2001.

DSHS contacted the CDC to request SNS assistance with antibiotics and anthrax vaccines for those infected in the cities of Austin, Houston, and San Antonio. The majority of individuals infected appeared to be in the Houston area and deaths increased in the hospitals treating the patients. Personnel from the hospitals that were originally the site of anthrax releases started to die. Two doctors who worked in pediatrics and one doctor who was a surgeon died. Nurses from the hospitals have become ill and appeared to be close to death, but the hospitals were limited on space and were running out of antibiotics.

On March 30, push packs arrive from CDC, from undisclosed locations, to Austin, Houston, and San Antonio. Texas Inventory Management System (TIMS) setup points of distribution (POD) in each city. Death counts are 102 in Austin, 5,652 in Houston, and 72 in San Antonio. FBI and hospital officials were expecting more deaths in Houston due to the capacity of the entertainment venue being 18,043 and most persons were believed to reside in Houston who attended the event. The event was held for two days with both days being sold out which led to potential of 36,086 deaths.

FBI officials were notified that another letter had been sent to a local new station. The letter was dropped off at the reception desk and not sent through the mail system. The letter was sent to LRN for testing. Preliminary tests identify anthrax spores outside the envelope. The contents of the letter state:

YOU LOSE YOUR TOO LATE
YOU THOUGHT YOU HAD ME
TAKE MORE MEDICATION
THIS IS THE END
IMMIGRATION REFORM SHOULD NOT HAPPEN
DEATH TO IMMIGRANTS
DEATH TO THE INFERIOR RACE

Results from LRN showed that the anthrax spores from hospitals and the entertainment venue were from the *B. anthracis* Ames strain. There appeared to be no nanoparticle silica or bentonite around the capsules. There were contaminants mixed in with the spores and may be the reason the death count is not as high as expected for the amount of persons who were potentially exposed during the concert.

Another press conference was setup by the PIO to notify the public of the string of letters that had been sent to local media stations and the local FBI field office. The conference was also used to direct individuals to the locations of distribution sites to receive a ten-day pill pack and be informed of the need to take antibiotics for up sixty days.

Social media networks were being populated with comments on individuals not wanting to take the antibiotics that were being distributed. Distrust ran wild from comments posted on the social media sites. Rumors of the attack being conducted by the same individual as the 2001 attacks were still being discussed. A fear of hospitals started, and there were comments being posted that the antibiotics were contaminated with anthrax spores. Rumors were being spread on the Internet that hospitals initially attacked started with contamination of antibiotics. Public distrust of the government grew out of control. There was also criticism of why the BioWatch sensors did not pick up on the biological agent when it had been activated for tularemia in previous years.

The PIO gave a special news report to address the rumors that started over the Internet that were keeping individuals from receiving antibiotics from the designated areas:

“Please pay close attention. The FBI has concluded that the hospitals attacks were conducted by two staff members at each hospital. It is believed that nurses who has access to the newborn nursery and the NICU were contaminating infants’ formula with spores of anthrax that resulted in death by gastrointestinal anthrax. One staff member used a can of compressed air to disperse anthrax spores from a container into ventilation shafts and in rooms of post-op and terminally ill patients. This terrorist group is more than 10 members large and used jobs in the locations affected to disperse the anthrax. We ask that persons who notice suspicious activity from employees, please report them to the FBI. We believe these individuals worked through a temporary employment agency to enter the hospitals and on a local security crew for the event at the entertainment venue. This group is ethnically motivated, so please report any suspicious behavior in regards to ethnic discrimination that seems out of the ordinary.

We ask that all individuals understand that dispersal of antibiotics is to assist in limiting the amount of deaths of persons potentially infected with anthrax. If you were at the entertainment venue on March 24th and 25th, please report to the nearest distribution center to receive antibiotics. Once we have more information we will give another update.”

In the aftermath of the event, the FBI continued to investigate to determine the individuals responsible for the attacks. So far they had identified two of the nurses who were implicated in the attacks. These two nurses had died from inhalation anthrax. The CNAs who were reported to have been the individuals to release anthrax in an aerosol form, in the hospital, have yet to be identified. The FBI had determined that the entertainment venue security was infiltrated by a member of the domestic terrorist group, and that was how they were able to move freely inside the building and setup the timed bombs (Black Cats) that released anthrax from their containers.

Public distrust for government agencies increased due to the nature of the letters and fear perpetrated through social media. The reported deaths in each city after four days were 123 in Austin, 11,786 in Houston, and 89 in San Antonio, a total of 11,998. The amount did not reflect surrounding areas such as College Station, Huntsville, and Corpus Christi where individuals might have traveled to see the two day event at the entertainment venue. Distribution of antibiotics continued, and persons in the area of Houston have now become fearful of hospitals.

The incident ended and no other letters were received, and no other releases of anthrax were reported.

A public survey was given some months after the incident in Houston. Public distrust of government agencies had increased. More than half of those surveyed have no faith in the BioWatch sensor system and believe governments spending in those programs are useless. The survey also uncovered that at least 2,000 persons who died due to anthrax did not seek medical attention for fear of hospitals and interacting with government agencies.

Conclusion

This scenario also provides a valuable learning experience. Emergency management exercises can utilize this scenario during a table – top exercise (TTX) to train hospital staff and law enforcement agents on how to respond to this attack. Knowing how to respond to a cascade attack and the loss of a hospital is applicable to more than just a biological attack. If at any point in time, more than one hospital is closed, city officials will have a suitable protocol in place to avoid confusion and hasty decisions. Providing this scenario to students in a classroom setting leads to generating new ideas on practices and policies that can be implemented during a biological attack. Hindsight decisions are the purpose of What If? Analysis, and the more that are generated the more prepared a city will be on the actions they can take before, during, and after an attack. This scenario was written for Houston, TX so all of the responses by city officials are structured specifically for this city. This information was gathered from the City of Houston Annexes H, I and information on the Office of Emergency Management website. For this reason, if another city decides they want to use the scenario the responses of each office or agency will change according to the structure of the other cities. Adaption of the scenario will not be difficult, and makes it useful to all cities or other agencies that wish to practice preparing for a biological attack of this nature.