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Bioterrorism and Emergency Preparedness

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Course

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Bioterrorism and Emergency Preparedness

Objectives

To scrutinize the theoretical and research perspective of Bioterrorism and emergency preparedness.

To determine the epidemiology of Bioterrorism.

Identify the at-risk population for bioterrorism.

To recognize the implications of bioterrorism and emergency preparedness based on legal, ethical and health policies.

Brief Content Outline

In this paper, theoretical and research perspective of bioterrorism and emergency response is discussed, particularly, how the biological agents are used in the attack and how individuals should react in case of the emergency occurrence. The anthrax bioterrorism event of 2001 in the United States is revisited and linked with family preparedness and health sector response plan. Also, the epidemiology of bioterrorism is determined and the effects and factors of the events are provided. The population at risk was also determined and it included all people especially those involved in the response plan such as the military and healthcare professionals. Finally, the ethical issues with the provision of care to affected individuals are decisions on who to be vaccinated.

Theoretical and Research Support

As time passes by advancements have occurred in almost all fields including, health, industries and also terrorism. Technology is among the many reasons that have resulted in

significant changes and progress in such fields. However, not all advancement is positive in peoples' lives, because the more terrorist uses sophisticated weapons they will lead to the death of many individuals. According to Janik et al. (2019), terrorism is an illegitimate event intending to generate uncertainty in the community through unsettling individuals' standard way of life by interfering with their safety and security. Thus, while people have been experiencing terrorism in ways such as threats and violence, the modern way of terrorist activity is through the use of bioterrorism.

Janik et al. (2019), defined bioterrorism as utilization of radio nuclear and biological agents by terrorists to achieve public unsteadiness. Therefore, with many people being involved in traditional acts of terrorism, biotechnology has revolutionized the sector. However, bioterrorism is not a new method as it has been used for the past two decades. For example, one of the bioterrorist attacks that ever happened in the United States happened in 2001 (Goel, 2015). The attack comprised of Anthrax agents which led to significant tension and worry to the nation. Similarly, this trembled an individual's confidence in health and safety capability to safeguard the interests of a particular group of individuals as well as the country in general. Furthermore, considering that the attack happened in the United States, individuals from all countries such as Canada experienced the effects of the attack.

The occurrence of the Anthrax attack resulted in the development of emergency plans that could help people recover from the attacks easily and be safe. Many health emergencies always begin as a community activity and depending on the way the event manifested as well as the agent is spreading, it may result in it being referred to as a global or state emergency. Green et al. (2019), stated that the organization and collaboration in the preparation of such before the event, during the response of the event and in recovery phases is indispensable for a

comprehensive and effective public health approach. Again, every emergency preparation and response plan should have three different stages to ensure an effective plan. First one is that preparation for emergency starts before the emergency happens and thus pre-event is very critical. According to Green et al. (2019), during the pre-event stage individuals, organizations and the government needs to ensure several foundations are considered such as training, surveillance structures, resources are interceded and strategically acquired, eventuality planning, laboratory network and analytical capability. When the event happens is the second stage and elements to be considered include state and global response, involvements and eventuality plan initiation both in the communities and states. Finally, the post-event stage is when the bioterrorism event has already happened to people and the country, in general, is recovering. In this phase, the elements to be considered include assessment of event planning suitability, response capacity and recovery execution which includes reintegration and reimbursement.

Bioterrorism can happen anytime and anywhere because a terrorist is always devising new ways of setting their threats. Therefore, it is the responsibility of the community and individuals to also have their emergency plan in existence. According to Skryabina et al. (2017), families need to have their emergency kit, create a family disaster plan and be informed always on all types of emergency. Being prepared and informed will make individuals understand and realize the measures to be taken based on the biological agent used. For example, if it is an anthrax bioterrorism event, then individuals will know how to get the antibiotics. Also, developing a family medical history would help identify the best antibiotic to be used to those individuals as well as realize the symptoms of the agent.

Epidemiological Considerations

Although the rate of occurrence of bioterrorism event is low, the effects that can be caused when it occurs are enormous. Pal et al. (2017), argued that the use of bioweapons can result in significant emotional and behavioral problems. Also, increased psychological effects that emanate from an indeterminate acquaintance of an imperceptible agent has been considered to have a significant impact on individuals' lives. However, the majority of professionals have recommended the development of strategic preparation plans. Also, the event resulted in increased emotional distress to individuals and behavioral variations coming from the activities of indeterminate acquaintance. Similarly, the bioterrorism activity can result in to delay between the contact and the progression of symptoms which emanates from the ambiguity.

According to Goel (2015), the majority of the bioterrorism events which have occurred in the past indicated more effects on public health. For example, the same source stated that in the year 2001, the attack in the United States resulted in 16 reported cases of anthrax. One of the individuals reported having contracted anthrax was a sixty-three years old man who was in Florida and contracted the disease in an outdoor event. This attack led to 5 deaths. Oludairo et al. (2015), added that the majority leader of the senate acknowledged a letter encompassing the biological agent. Furthermore, another case of dermal anthrax was conveyed in 2002 and was associated with the mails originating from Texas Laboratory. One of the reasons that make the majority of the population being exposed to bioterrorist agents is because they are not informed about the disease. For instance, during the anthrax occurrence in 2001 in the United States, the majority of the individuals got the agent because they did not know if it was transmissible.

National security plays a very critical role in individuals' well-being, for that reason when interfered it can cause a significant effect on people which includes causing mental problems. Besides, security ensures that country is protected against threats and other

uncertainties that may interfere with people's safety. According to Oludairo et al. (2015), national security is a situation where the individuals live democratically, uniting and maintain each other's welfare as the country is safeguarded and improved. Therefore, bioterrorism events can also cause other significant effects that will interfere with national security such as causing illness and even deaths in high numbers. Similarly, the events will develop fear and pain to individuals hence incapacitating the vagueness to unsettle the societal and economic activities, ecological, animal infection, contamination, hunger, plant obliteration and weakening of the military reaction.

Anthrax is considered as the most used and possibility of being used in future as an agent of a bioterrorist. ¹ According to the Centers for Disease Control and Prevention (n.d), suppose the bioterrorist activity was to occur, then *Bacillus anthracis* will be the most probable agent to be utilized because of several factors. The first factor for anthrax to be used is that the bacteria can easily be obtained from nature, formed in the laboratories and can stay for an elongated time in the environment (Goel, 2015). Also, anthrax can produce a better weapon since it can be unconfined silently without recognition as the pores could be stored in food, sprays or water and do not have smell or taste to make them realized. And finally, anthrax has been used in previous attacks making it more possible for it to be used again.

At-Risk Population

Everybody is always at risk in case of a bioterrorist attack. However, there is certain population that is at greater risk because they have to be involved in the response of the attack and thus become more vulnerable and exposed to the agent. ¹ According to the Center for Disease Control and Prevention (n.d), individuals at great risk are the military personnel, laboratory personnel and other healthcare professionals who will be involved in the response plan.

However, other individuals at the scene will also be susceptible to the agent. For example, based on the 2001 anthrax attack in the United States, individuals who were at risk included mail handlers, livestock producers, laboratory experts, military individuals and healthy individuals involved in the response plan.

Legal, Ethical and Health Policy Implications

After the occurrence of the bioterrorist attack, no one always realizes there is a biological agent that has been released and this makes it very challenging to realize immediately. Additionally, the agent always takes some time to infect several individuals who will be exposed as well as the health professionals take the lead to realize the type of agent used. Therefore, during the treatment of the agent, the intervention with more benefits will be used and be justified. Also, the medical intervention to be used is always based on that which has low side effects and complications. For example, the anthrax vaccine created was used but it had several side effects and adverse reactions to individuals such as restricted movement and pains in the arm, memory loss, joint pain and severe fatigue that persisted for more than seven days (Goel, 2015). Nevertheless, the physicians were to decide on who should take the vaccine depending on the impact it will have on a certain population. For instance, despite individuals at risk of being given the vaccine, children under eighteen years, adults more than sixty-five years, pregnant and nursing mothers were not given the vaccine.

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