Book Review

Biological and Chemical Terrorism Countermeasures, Editors: Ronald J. Kendall, Steven M. Presley and Seshadri S. Ramkumar, ISBN: 978-1-4987-4758-5,

CRC PRESS, 2016

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Summary

The book is a science-based guide to counter CBW threats . With thorough research on the threats, vulnerabilities and the toxic effects of various agents, the book provides a detailed understanding on how to successfully implement CBW counter measures in the present and the future.



Tt is no doubt that science has propelled Lhumankind forward in the 21st century. The globalization of science and technology in the modern era has made ineffective the transnational physical borders, thereby expanding its reach and benefitting the global population. However, along with the boon comes the curse. The advancements in the field of science, have also rendered the human population vulnerable to new kinds of threats. One of those being, the development of Chemical and Biological Weapons (CBW). Since time immemorial, CBW have been used as agents of warfare between states. Of late, their easy availability, accessibility and means of delivery have made it possible not just for states, but also for the terrorists to use them without hassle. The magnitude of the risks associated with CBW has increased compared to what it was during both the World Wars or even the Cold War. The peculiarity of the threats associated with the CBW agents necessitates the scientific understanding of their characteristics which could make the countermeasures effective.

The book New Developments in Biological and Chemical Terrorism Countermeasures, as one of its editors Ronald J. Kendall mentions in the preface, is meant to enhance the effectiveness of the science of countermeasures that would/ shall be deployed against CBW threats. The evaluation of the threats posed by CBW can be optimized if the characteristics of the CBW threat agents are comprehended clearly. In that sense, the book proves to be a scientific guide in finding potential advancements when it comes to countering CBW threats.

The book's first chapter starts under the pretext that the enemy is not any one nation-state but a collection of individuals leaning towards a radical religious ideology that seeks to confine the world under one theocratic rule. To add on, it also says that the hatred towards the west would drive those radical religious entities to fulfill their goals by any means necessary. A modern day occurrence that contrasts the pretext is the killing of Kim Jong-Nam, the half-brother of the North Korean leader, Kim Jong-Un in the Kuala Lampur airport by using the liquid nerve agent VX.¹ This serves to highlight the fact that religious radicalism and the hatred towards the west are not necessarily the only driving forces behind the use of CBW.

The same chapter brings to the readers' notice the available technologies and related difficulties involved in the detection and identification of biological and chemical threat agents. CBW surveillance and detection systems are necessary not just to improve the public health response and readiness, but also to improve the quality of public health policies, because they help analyze the gravity of the threats.

The second chapter speaks about framing an effective model that can counter the challenges and risks of vector- borne diseases. Insects as vectors can be used as agents of entomological warfare because they are easily available at a meager cost hence making their deliverability easy. With around 1 million people losing their lives to vector-borne diseases,² it is imperative to construct a compact model that can help improve the quality of countermeasures against them. The authors examine two frameworks for designing a model that can assess the risk of vector- borne diseases.

The third and the fourth chapters embody the threats and vulnerabilities associated with biological threat agents; and the pathogenic and toxic effects of the same, respectively. As mentioned earlier, biological threat agents are easily available and are plain simple in contrast to nuclear weapons. These factors make the civilian populations around the world an easy target for terrorists to deploy biological threat agents as a means to make their statement, rather than conventional modes of terrorism. Understanding each agent's characteristics independently is imperative when it comes to formulating prevention strategies and improving the state of science of countermeasures that would be deployed during a potential combinational attack (Two or more agents used as a bio-weapon at the same time).

The fifth chapter is solely dedicated to Ricin. Despite the difficulties in converting castor beans into a lethal form of ricin, the small dosage required to cause numerous casualties makes ricin one of the most dangerous biological threat agents. Having been used as a bio-warfare agent since the First World War, the increase in the number of ricin attacks in the 21st century lays importance as to why ricin needs to be studied in detail. In this chapter,a wide array of facets related to ricin, ranging from its properties to how its toxicity can be deterred is discussed in detail.

The sixth chapter's content is dedicated to developing a probiotic bio-therapeutic countermeasure against the cholera toxin. Diarrheal diseases caused by viruses such as vibrio cholera, Shigella, rotavirus, etc are severe in consequences. The reason for a probiotic cure as an alternative for a disease such as cholera is that the viruses have become antibiotic resistant, hence rendering the conventional treatment methods ineffective most of the times. If Cholera breaks within the civilian population as a plot of a terrorist attack, probiotics can turn out to be an effective and an easily available cure.

The penultimate chapter "New perspectives on protective fibrous substrates" explores the domain of technical textiles. Given the hybrid nature of threats that prevail in the current era, it is important for both civilians (in the conflict prone zones) and the military personnel to use clothing that can protect them from getting injured or incapacitated. To transform the protective textile domain into a protean one, more collaborative, inter and multi- disciplinary research must be undertaken. Most of the concepts discussed in the chapter have not yet been put to a wider use and with larger threats looming, the faster and sensible the research process is, the better the situational readiness would become. The eighth chapter serves as the conclusion in which the authors stress on the importance of continuing vigilance to counter the ever evolving CBW threats.

The book ends with the authors giving a set of recommendations and the reasons for future research needs owing to the evolving nature of CBW threats faced by the modern day nation states. Overall the book adds value to the literature on the subject. However, there are few shortcomings that have to be mentioned. One, is that the book is USA- centric, which does not take into its account, the fact that most of the third world countries, lack the technology and resources to deploy high end CBW surveillance. Many other factors such as economic status, policy hurdles, bureaucratic hurdles vary from one part of the globe to another hence making it difficult to incorporate "one size fits all" countermeasures against CBW. Second is that the flow of the book seems disconnected as each chapter discusses in detail an independent topic which is in contrast with the preceding and the succeeding chapters. Although biological threat agents and their effects have been studied independently, the lack of sequential cohesion makes comprehending the book's purpose difficult for the reader.

The third and the major drawback of the book is that, there has been very less emphasis on chemical weapons. The substances used in chemical warfare are more dangerous and lethal than some of the substances used in biological warfare, therefore countering them must have been given equal priority. Nerve agents such as VX, Tabun, and especially Sarin which has been used in Syria frequently in the last few years have been left out completely. Use of Sarin started in Syria in 2013 and ever since the usage and banning of chemical threat agents have been a subject of a global debate. Even regularly used blistering agents such as mustard have not found a place in the book. Since the book is about the science of countermeasures the makers of the book must have included a chapter on different types of chemical threat agents, the symptoms caused by them, magnitude of their toxicity and the complexity of treatments for chemical attack victims, amongst others. Also, by not adding such a chapter, the focus on prevention strategies for an attack of this nature has been compromised from the view of the book. This loophole along with the two previously mentioned ones end up doing less justice to the title of the book.

Endnotes:

- Holmes, Oliver, and Tom Phillips. "Kim Jongnam killed by VX nerve agent, say Malaysian police." The Guardian. February 24, 2017. (Accessed August 09, 2017) at https:// www.theguardian.com/world/2017/feb/24/ kim-jong-nam-north-korea-killed-chemicalweapon-nerve-agent-mass-destructionmalaysian-police.
- 2. A global brief on vector-borne diseases. Issue brief no. WHO/DCO/WHD/2014.1. World Health Organization. 2014. (Accessed August 16, 2017) at http://apps.who.int/iris/bitstream/10665/111008/1/WHO_DCO_WHD_2014.1_eng.pdf