S. HRG. 103-900

UNITED STATES DUAL-USE EXPORTS TO IRAQ AND THEIR IMPACT ON THE HEALTH OF THE PERSIAN GULF WAR VETERANS

HEARING

BEFORE THE

COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS UNITED STATES SENATE

ONE HUNDRED THIRD CONGRESS

SECOND SESSION

ON

UNITED STATES CHEMICAL AND BIOLOGICAL WARFARE-RELATED DUAL-USE EXPORTS TO IRAQ AND THEIR POSSIBLE IMPACT ON THE HEALTH CONSEQUENCES OF THE PERSIAN GULF WAR

MAY 25, 1994

Printed for the use of the Committee on Banking, Housing, and Urban Affairs

U.S. GOVERNMENT PRINTING OFFICE

86-558 CC WASHINGTON : 1994

For sale by the U.S. Government Printing Office
Superintendent of Documents, Congressional Sales Office, Washington, DC 20402
ISBN 0-16-047069-2

Further, reports of Gulf War illnesses being reported are no longer limited to military veterans of the Gulf War. Others reporting manifestation of these symptoms include:

- Department of Defense civilians who served in the Persian Gulf War.

- Department of Defense civilians working at the Anniston (AL) Army Depot and the Sharpsite (CA) Army Depot decontaminating equipment which was returned from the Persian Gulf.

- Spouses, particularly the spouses of male veterans, are reporting the following symptoms: chronic or recurring vaginal yeast infections, menstrual irregularities (excessive bleeding and severe cramping), rashes, fatigue, joint and muscle pain, and memory loss.

- Children born to veterans prior to the Gulf War. In many cases both male and female children born prior to the war have experienced symptoms similar to those of the veterans and their spouses.

- Children born following the Gulf War. Some reports have been published which suggest a high rate of miscarriages in the families of Gulf War veterans. Further, several reports have surfaced which suggest that there has been a high rate of physical abnormalities in children born to Gulf War veterans since the war.

U.S. Exports of Biological Materials to Iraq

The Senate Committee on Banking, Housing, and Urban Affairs has oversight responsibility for the Export Administration Act. Pursuant to the Act, Committee staff contacted the U.S. Department of Commerce and requested information on the export of biological materials during the years prior to the Gulf War. After receiving this information, we contacted a principal supplier of these materials to determine what, if any, materials were exported to Iraq which might have contributed to an offensive or defensive biological warfare program. Records available from the supplier for the period from 1985 until the present show that during this time, pathogenic (meaning "disease producing"), toxigenic (meaning "poisonous"), and other biological research materials were exported to Iraq pursuant to application and licensing by the U.S. Department of Commerce. Records prior to 1985 were not available, according to the supplier.

Histoplasma Capsulatum: causes a disease superficially resembling tuberculosis that may cause pneumonia, enlargement of the liver and spleen, anemia, an influenza-like illness and an acute inflammatory skin disease marked by tender red nodules, usually on the shins. Reactivated infection usually involves the lungs, the brain, spinal membranes, heart, peritoneum, and the adrenals.

Brucella Melitensis: a bacteria which can cause chronic fatigue, loss of appetite, profuse sweating when at rest, pain in joints and muscles, insomnia, nausea, and damage to major organs.

Clostridium Perfringens: a highly toxic bacteria which causes gas gangrene. The bacteria produce toxins that move along muscle bundles in the body killing cells and producing necrotic tissue that is then favorable for further growth of the bacteria itself. Eventually, these toxins and bacteria enter the bloodstream and cause a systemic illness.

In addition, several shipments of Escherichia Coli (E.Coli) and genetic materials, as well as human and bacterial DNA, were shipped directly to the Iraq Atomic Energy Commission.

The following is a detailed listing of biological materials, provided by the American Type Culture Collection, which were exported to agencies of the government of Iraq pursuant to the issuance of an export licensed by the U.S. Commerce Department:[57]

Date : February 8, 1985
Sent to : Iraq Atomic Energy Agency
Materials Shipped:

Ustilago nuda (Jensen) Rostrup

[57]American Type Culture Collection, Rockville, Maryland (January 21, 1994).

16. Clostridium botulinum Type E (ATCC 17855)
Batch= 06-21-71
Class III pathogen.

17. Bacillus megaterium (ATCC 19213)
Batch= 3-84 (2 each)

18. Clostridium botulinum Type A (ATCC 19397)
Batch= 08-18-81 (2 each)
Class III pathogen

19. Brucella abortus Biotype 3 (ATCC 23450)
Batch= 08-02-84 (3 each)
Class III pathogen

20. Brucella abortus Biotype 9 (ATCC 23455)
Batch# 02-05-68 (3 each)
Class III pathogen

21. Brucella melitensis Biotype 1 (ATCC 23456)
Batch# 03-08-78 (2 each)
Class III pathogen

22. Brucella melitensis Biotype 3 (ATCC 23458)
Batch# 01-29-68 (2 each)
Class III pathogen

23. Clostridium botulinum Type A (ATCC 25763)
Batch# 8-83 (2 each)
Class III pathogen

24. Clostridium botulinum Type F (ATCC 35415)
Batch# 02-02-84 (2 each)
Class III pathogen

Date : March 10, 1986
Sent to : Officers City Al-Muthanna, Quartret 710, Street 13, Close 69 House 28/I, Baghdad, Iraq
Materials Shipped:

1. 1 vial botulinum toxoid #A2 (non-infectious)

Date : June 25, 1985
Sent to : University of Baghdad, College of Medicine , Department of Microbiology
Materials Shipped:

1. 3 yeast cultures (etiologic) Candida sp.

Date : May 21, 1985
Sent to : Basrah, Iraq
Materials Shipped:

1. Lyophilized arbovirus seed (etiologic)
2. West Nile Fever Virus

Date : April 26, 1985
Sent to : Minister of Health, Ministry of Health, Baghdad, Iraq
Materials Shipped:

1. 8 vials antigen and antisera (r. rickettsii and r. typhi) to diagnose rickettsial infections (non-infectious)

the Department's understanding of what actions should be taken in the event that a biological weapon has been or is suspected to have been employed.

"Biological agents cannot be detected by the human senses. A person could become a casualty before he is aware he has been exposed to a biological agent. An aerosol or mist of biological agent is borne in the air. These agents can silently and effectively attack man, animals, plants, and in some cases, materiel. Agents can be tailored for a specific type of target.[60]

Methods of using antipersonnel agents undoubtedly vary so that no uniform pattern of employment or operation is evident. It is likely that agents will be used in combinations so that the disease symptoms will confuse diagnosis and interfere with proper treatment. It is also probable that biological agents would be used in heavy concentrations to insure a high percentage of infection in the target area. The use of such concentrations could result in the breakdown of individual immunity because the large number of micro-organisms entering the body could overwhelm the natural body defenses. [61]

Types of Biological Agents

Different antipersonnel agents require varying periods of time before they take effect, and the periods of time for which they will incapacitate a person also vary. Most of the diseases having antipersonnel employment potential are found among a group of diseases that are naturally transmitted between animals and man. Mankind is highly vulnerable to them since he has little contact with animals in today's urban society. The micro-organisms of possible use in warfare are found in four naturally occurring groups - the fungi, bacteria, rickettsiae, and viruses.[62]

↓
ticks

---

[60] Nuclear and Chemical Operations, MCI 7711B, Marine Corps Institute, Command and Staff College's nonresident program (Marine Barracks, Washington, D.C., 1983), p. 8, section 1501.

[61] Ibid.

[62] Ibid, p. 9, section 1502.

a. Fungi. Fungi occur in many forms and are found almost everywhere. They range in size from a single cell, such as yeast, to multicellular forms, such as mushrooms and puffballs. Their greatest employment potential is against plants, although some forms cause disease in man. A fungus causes the disease coccidioidomycosis in man. Other common infections caused by Fungi include ringworm and "athletes foot." [63]

b. Bacteria. Bacteria comprise a large and varied group of organisms. They occur in varying shapes, such as rods, spheres, and spirals, but they are all one-celled plants. Some bacteria can assume a resistant structure called a spore, which enables them to resist adverse environmental conditions. Others may produce poisonous substances called toxins. Examples of human disease caused by bacteria are anthrax, brucellosis, tularemia, staphylococcus, and streptococcus.[64]

c. Rickettsiae. Rickettsiae organisms have the physical appearance of bacteria and the growth characteristics of viruses. Members of this group must have living tissue for growth and reproduction, whereas most fungi and bacteria can be grown on artificial material. Another characteristic of rickettsiae is that most diseases caused by this group are transmitted by the bite of an insect, such as the mosquito, mite, or tick. Rocky Mountain Spotted Fever, Q fever, and typhus are diseases of mankind caused by rickettsiae.[65]

d. Virus. The smallest living things known to mankind are viruses. Viruses are so small than an electron microscope is required to see them. Viruses cannot be grown in the absence of living tissue. Diseases which are caused by viruses cannot normally be treated with antibiotics. Viruses cause yellow fever, rabies, and poliomyelitis.[66]

---

[63]Ibid, p. 9, section 1502a.

[64]Ibid, p. 9, Section 1502b.

[65] Ibid, p. 9, Section 1502c.

[66]Ibid, p. 9, Section 1502d.