

Report of the University of Nebraska Task Force on Bioterrorism Preparedness

Introduction

University of Nebraska President L. Dennis Smith, Ph.D., established the University-wide Bioterrorism Task Force to assess the level of preparedness of each campus, to identify strengths and gaps, and to develop recommendations. These recommendations are to heighten the University's level of preparedness for the safety and security of its students, employees, and facilities; to be a public information resource; and to advance relevant research as appropriate. As chair of the Task Force, UNMC Chancellor Harold M. Maurer, M.D., brought together faculty, students, and staff from the University at large on November 8, 2001, for the Task Force's first meeting. The Task Force was organized into four working groups to develop initial reports: 1) university employee and student safety; 2) public information resources; 3) professional education and training; and 4) research and health sciences. Each working group report was to address the relevant background, identify strengths and gaps, and suggest specific recommendations or action steps. The Task Force presented and discussed these reports on December 13, 2001 and on January 17, 2002. The final report of the Bioterrorism Preparedness Task Force was submitted to President Smith on Monday, January 21, 2002.

Background

The potential for bioterrorism activities clearly has become a major concern of virtually every citizen in America. Most recent public attention has focused on anthrax, but military, scientific, public health, and other medical organizations have voiced concerns regarding the impact of many different bioterrorism agents that could harm biological systems, including human, plant, and animal systems. These agents are classified based on their composition or source of origin. The primary categories include nuclear, biological, and chemical (NBC) sources. The biological agents include viruses or bacteria and some of the toxins that they may produce. An example of a chemical agent is Sarin gas, which was released in the Tokyo subway system in 1995. Radioactive materials produced or distributed by sabotage of a power plant are an example of nuclear bioterrorism. For purposes of this document, bioterrorism refers to chemical and nuclear associated terrorism, as well as the more narrowly defined bioterrorism associated with infectious agents.

Recent terrorist incidents have made it clear that information delivered in an effective manner, and in the appropriate venue, can serve to: 1) provide health and safety professionals with guidelines for proper treatment; 2) provide public officials with guidance for policy formation; and 3) facilitate responsible public reactions and actions. Much established clinical and basic science knowledge, as well as practical advice, is available regarding most of the agents. Clearly, the people of Nebraska, and indeed the nation, are concerned about preparedness for bioterrorism events. They are searching for high quality information and the assurances associated with knowing that responsible institutions, such as the University of Nebraska, are working to confirm or establish the highest possible levels of preparedness for bioterrorism in any form.

All of the campuses in the University have made plans to deal with accidents, natural catastrophes, and various types of disasters that may occur in their respective areas. Many of these plans also would be appropriate for a bioterrorist event. Although initial responses to destructive acts are the responsibility of local authorities, the University will be a resource and a partner in such an event. Efforts to better prepare locally for terrorist actions will have secondary benefits to the University communities, such as improved personal safety, heightened facility security, and enhanced communication methods.

Strengths

Education is the primary mission of the University of Nebraska. The breadth and depth of education and training programs provided by the University are considerable. Many for-credit courses touch on the issue of bioterrorism, and three campuses have courses devoted specifically to terrorism. The IANR College of Agricultural and Natural Sciences has almost 25 courses that have some content focused on the topic of bioterrorism. Disciplines as far-ranging as architectural engineering, anthropology, chemistry, criminal justice, medicine, pharmacy, political science, and allied health provide relevant academic content within their degree programs at the professional, graduate, and undergraduate levels. The newly established joint Master's degree program in Public Health (MPH) provides an excellent and timely opportunity to expand course coverage in topics relevant to bioterrorism. Non-credit and public education programs delivered by most of the campuses also have been extensive since September 11. The University has organized this training in conjunction with the Nebraska Health and Human Services System (HHSS). The training has included: awareness programs for faculty, staff, and students; printed bulletins and educational materials; practical stress and trauma management programs; public educational news stories and videos; bioterrorism Web site development and access; and education programs for external audiences.

The University is well placed to provide information to the public, professionals, and policy makers. Infrastructure and personnel are in place to effectively disseminate such information. Appropriate use of University experts, information technologies, and media access enhances the public standing of the University as a key resource.

The faculty and staff of the University of Nebraska have significant expertise and experience in many areas related to bioterrorism, including the isolation, identification, and characterization of microbial agents as well as the clinical treatment of individuals exposed to such agents. The Nebraska State Public Health Laboratory, supported by both the Nebraska HHSS and the Centers for Disease Control and Prevention (CDC), is located at UNMC and is staffed by UNMC personnel. The University has faculty experts in agricultural disciplines that have direct relevance to NBC agents. These agents may be added to water supplies, soil, and food production systems, and may be further complicated by organisms that can transfer from animals to humans. Both the UNMC and UNL campuses have particular expertise and interests in the development of vaccines for human and agricultural purposes. Many of the laboratory and human resources that would be necessary to extend these studies into the realm of bioterrorism-related agents are already in place. The University has significant expertise and already acts as a resource in the areas of chemical and radiation safety.

In a very similar way, the University has significant faculty, administrative, and technical strengths in the area of information technology and communication. This would be important in public and professional education, and the technical distribution and management of relevant data. It could also support communication systems between campuses, communities, government agencies, and other important sectors of the state infrastructure.

Several federal agencies are sponsoring or intend to sponsor major new research and infrastructure development efforts in bioterrorism-related areas. UNMC and UNL have significant experience with the primary funding agencies – such as the National Institutes of Health, the U.S. Department of Defense and the CDC – to seek new or additional support in these areas of interest. Importantly, the University's state-wide missions of education, service, and research position it well to be an effective component to support Nebraska in responses to potential bioterrorism activities. UNL and UNMC have state-wide roles that are often delivered by, or in association with, their extension and clinical networks, respectively. These widespread activities are further supported by information technology systems and human resources that have been developed throughout the state.

Gaps

Although the University believes it is in full compliance with all federal and state regulations with regard to NBC agents, there are areas in which the University can improve. Many laboratories throughout the University utilize a variety of NBC agents in research or clinical programs. The security of laboratories and buildings where such agents or materials that could support the propagation of such agents are housed, appears to be quite variable. Although each research campus has policies and practices that identify these agents and associated research protocols, the ability to use information technology approaches to easily retrieve detailed information, particularly for biological agents, is not uniformly present. In addition, the tracking of ordering, storage and disposal of such materials does not appear to be handled in a way that is as stringent as that used for other hazardous materials such as radioisotopes. Record-keeping of laboratory workers who use NBC agents is also variable and not always current. These practices make it challenging to determine if or when some of these materials may have been removed from campus, or who may have had access to the agents.

The air-handling systems of some laboratory buildings do not facilitate the most appropriate control of spills and cleanup of either chemical or biological agents. Some spilled agents may be spread by the air-handling systems, and those same systems could be unprotected entry points for a variety of agents. Likewise, it is not clear that the proximate drinking water supply for university buildings is secure from possible terrorist activity.

While the range of education and training programs related in some manner to bioterrorism is positive, there are clear gaps in what is currently being provided. For example, though many academic courses touch on bioterrorism as part of their curricula, no course currently exists within the University that focuses exclusively on the topic. There are no disciplines that focus on bioterrorism in the fields of biology, agriculture, criminal justice, health education, allied health, public health, or environmental science. There also appears to be a limited effort to develop inter-campus or inter-disciplinary programs in bioterrorism preparedness.

Although many efforts have been made on each campus to provide education and support to faculty and staff related to bioterrorism, no systematic program exists across the campuses that is devoted to educating faculty and staff about the issues surrounding bioterrorism, including emergency response protocols. Likewise, the efforts at educating the general public on bioterrorism issues have been largely small, isolated initiatives by faculty or departments. No systematic training program has been developed within the University to provide education, training, or accessible resources to the citizens of Nebraska. Thus, the University system is not as effective as it could be in evoking the sense of expertise, knowledge, and resources for public use.

A number of federal, state, and local agencies would respond to a bioterrorist event. These agencies include city and county offices, hospitals, public health departments, Nebraska HHSS, law enforcement, federal agencies, and the University campuses. Although positive steps have been taken, the sharing of information and resources among federal, state, local, and university entities could be better. Response to an event would improve if the gathering and dissemination of information and expertise were coordinated between those entities. The University's information technology resources are currently not adequately directed toward bioterrorism-related record-keeping, data collection, and communication. Additionally, the University does not have any single point of contact or well-developed policies and procedures related to bioterrorism. These would help to fully facilitate the development of long-term plans and interactions with other agencies.

Recommendations

Recommendation 1

Develop and implement detailed system-wide and campus-specific safety & security guidelines related to:

- security, control, and access to laboratories and buildings where NBC agents are used;
- security, control, and access to all building air-handling systems and drinking water supplies;
- security, control, and access to events and campus locations that have a large population or gathering of students, employees, or the public;
- record-keeping for acquiring, storing, using, and disposing of NBC agents as well as related training of personnel;
- determination, including the value of background checks, of which employees and students should have access to NBC agents.

Recommendation 2

Develop educational programs for students, employees, the public, not-for-profit agencies, and businesses that will:

- consist of printed material, continuing education classes, and Web-based resources that can be accessed throughout Nebraska. In coordination with Nebraska HHSS, develop a Web site to include a listing of all appropriate university resources, provide timely and accurate information, and clarify misinformation or misinterpretations that may exist;
- assure that existing academic courses and programs, or new interdisciplinary specializations, better address the political, social, economic, medical, technological, and environmental issues surrounding bioterrorism.

Recommendation 3

Utilize the University's information technology expertise to help establish the state as a leader in electronic communications and bioterrorism surveillance. Capability provided by the University education and research network, rural medicine outreach program, Peter Kiewit Institute, and academic information sciences programs should be leveraged to accomplish this goal. The University should work closely with state government in this initiative to pursue projects supported by new Homeland Security programs, particularly in the area of information technology.

Recommendation 4

Provide a single contact for the University's clinical medicine expertise and services related to bioterrorism and increase accessibility of these services by Nebraska state government, local businesses and the public. The University should develop a program to increase awareness of available clinical services that might be needed in case of incidents associated with bioterrorism including radiation or chemical exposure, unusual infectious diseases or pathogens, and bioterrorism-related trauma. In conjunction with other educational activities, the University should disseminate information regarding bioterrorism prevention.

Recommendation 5

Expand and further develop coordinated bioterrorism-related research areas. The University should identify expert faculty, who should establish working groups, or research clusters. New funding pools that would spawn more projects should be sought. The University should examine existing funding sources to possibly target bioterrorism research initiatives.

Recommendation 6

The President should appoint Dr. Steven Hinrichs to provide continuing leadership in Bioterrorism Preparedness. Dr. Hinrichs, who would implement these recommendations and report directly to the President, would:

- lead a small, representative committee that would develop – in concert with the Council of Academic Officers, the Council of Business Officers and the public relations officers of the University – a long-range University bioterrorism preparedness plan;
- act as a bioterrorism liaison to the media, other governmental agencies, and the private sector;
- encourage interdisciplinary and cross-functional cooperation and communication amongst and between the campuses;
- assess University compliance with state and federal regulations for NBC agents.

Opportunities

Common themes encompass the core content of the major recommendations of this Task Force. They represent significant opportunities for the University to both be of service to the public and, at the same time, further develop the strengths of the University. Improved public visibility and the coordination of University expertise would allow the University to play an important role in the state's response to a bioterrorist activity. Implementation of these recommendations should position the University to:

- develop a nationally recognized University of Nebraska Bioterrorism Center;
- serve as a model educator and employer for bioterrorism preparedness;
- serve as a resource for other colleges and universities in Nebraska and the nation;
- collaborate with governmental, not-for-profit, and private sector groups to more effectively develop and coordinate bioterrorism preparedness in Nebraska.

Members of NU Bioterrorism Preparedness Task Force

Harold M. Maurer, M.D., Chancellor, UNMC, Chair

Employee & Student Safety Committee

- Owen Yardley (chairman), Chief of Police, UNL;
- John Russell, Executive Director, Human Resources, UNMC;
- James Griesen, Ph.D., Vice Chancellor for Student Affairs, UNL;
- Alison Freifeld, M.D., Associate Professor, Internal Medicine-Infectious Diseases, UNMC;
- John (Jack) Schmitz, Ph.D., Professor and Chairman, Veterinary & Biomedical Sciences, IANR;
- Mike Jess, Senior Lecturer and Water Resources Engineer, Conservation & Survey Division and School of Natural Resource Sciences, IANR;
- Dave Jacobson, Director, Chemical & Radiation Safety, UNMC;
- Stan Schleifer, Manager, Environmental Health and Safety, UNO;
- Carmen Maurer, J.D., Associate General Counsel, Central Administration.

Public Information Resources Committee

- Wayne Briner, Ph.D. (chairman), Professor, Psychology, UNK;
- Robert Bartee, Executive Assistant to the Chancellor, UNMC;
- Sharon Stephan, Director of Marketing, Central Administration;
- Keith Mueller, Ph.D., Professor, Preventative & Societal Medicine, UNMC;
- Darrell Nelson, Ph.D., Dean and Director, Agricultural Research Division, UNL;
- Mark Rupp, M.D., Associate Professor, Internal Medicine-Infectious Diseases, UNMC;
- Stephen Smith, M.D., Chief Medical Officer, Nebraska Health System, Associate Dean, UNMC;
- Sam Augustine, Pharm.D., Associate Professor, Pharmacy Practice, UNMC.

Professional Education and Training Committee

- B.J. Reed, Ph.D. (chairman), Dean, College of Public Affairs and Community Service, UNO;
- Larry Winkler, Ph.D., Assistant Dean, College of Continuing Studies, UNO;
- Suzanne Watson, Clinical Manager, Emergency Department, Nebraska Health System;
- Nancy Gore, Internal Auditor III, UNMC;
- Cheryl Bressington, Assistant Director, Human Resources, UNK;
- Mary Mudd, Ed.D., Vice Chancellor for Student Affairs, UNO;
- Ryan Samuelson, Student Regent, UNK.

Research & Health Sciences Committee

- David Crouse, Ph.D. (chairman), Associate Vice Chancellor for Academic Affairs, UNMC;
- Steve Hinrichs, M.D., Associate Professor, Pathology/Microbiology, UNMC;
- Leon Higley, Ph.D., Professor, Entomology, UNL;
- Clint Jones, Ph.D., Professor, Veterinary & Biomedical Sciences, IANR;
- Walter Weir, Chief Information Officer, Central Administration;
- Oksana Lockridge, Ph.D., Associate Professor, Eppley Research Institute and Biochemistry & Molecular Biology, UNMC;
- Bruce Dvorak, Ph.D., Associate Professor, Civil Engineering.

Appendix 1

Summary of Courses, Programs and Other Educational Resources Related to Bioterrorism Provided by NU

For-credit Courses on Bioterrorism and Training

University of Nebraska Medical Center

College of Medicine

One additional class lecture on bioterrorism has been added for second-year medical students.

College of Nursing

Undergraduate curriculum committee is discussing adding appropriate content to classes after researching what is available.

Graduate programs have no courses dealing specifically with bioterrorism.

College of Pharmacy

The broad scope of basic education includes awareness of chemical warfare agents, and students are prepared to become community educators in their practice. No specific bioterrorism course content additions are planned at this time.

School of Allied Health Professions

Course content has been added to the Physician Assistant and Medical Technology programs.

General bioterrorism information has been added to course content at the Winnebago Tribal College.

The school has located anthrax information in Spanish (on the CDC Web site) for distribution to the Hispanic community.

University of Nebraska-Lincoln

IANR – College of Agricultural Sciences and Natural Resources

FDST 825 – Food Toxicology
FDST 908A – Food Biotechnology
FDST 908B – Food Borne Pathogen
FDST 908D – Readings in Food Microbiology
PPTH 867 – Plant Pathogenic Bacteria
PPTH 869 – Phytopathogenic Fungi
PPTH 965 – Plant Pathology/Plant Virology
PPTH – Biological Invaders
PPTH 370 – Biology of Fungi
AGRO 860 – Soil Biology
VBMS 805 – Introduction to Mechanisms of Disease
VBMS 811 – Introduction to Veterinary Epidemiology
VBMS 824 – Basic Molecular Genetics
VBMS 841 – Pathogenic Microbiology
VBMS 852 – Introduction to Molecular Virology and Viral Pathogenesis
VBMS 911 – Advanced Study of Mechanisms of Disease
VBMS 920 – Measurement of Animal Disease and Production
VBMS 930 – Advanced Food Animal Production Medicine
VBMS 944 – Immunovirology
VBMS 949 – Vaccinology
VBMS 950 – Medical Molecular Virology
VBMS 951 – Advanced Molecular Infectious Diseases
VBMS 966 – Research on Selected Problems in Veterinary Science

** The College also held a satellite conference on Nov. 20, titled “Application of Biosecurity Principles for Livestock and Poultry Operations.”

Architectural Engineering

ARCE 411/811 – Indoor Air Quality Engineering – The field of indoor air quality will be presented in the context of the life cycle of a building. The course will begin by presenting current codes, standards and research relevant to indoor air quality, and the development of design goals will be discussed.
ARCE 818 – Indoor Air Quality Design – Covers tools and methods in the emerging field of indoor air quality design
ARCE 918 – Computation Fluid Dynamics Modeling of Indoor Environment – Covers the application of commercial and public domain computation fluid dynamics software for modeling indoor air flow, fires, and other buildings systems.

Anthropology

Anthropology of Terrorism – graduate course

Chemistry

CHEM 824 – Applied Problems in Analytical Chemistry
CHEM 825D – Mass Spectrometry
CHEM 825G – Chromatographic Separations – Although none focuses on bioterrorism, all deal with methods that would be appropriate for the detection of various agents.

History

HIST 933 – Graduate Seminar – Decolonization in Africa and Asia after WWII – touches on the subject of bioterrorism.

Psychology

PSYC 425/825 and ETHN 425 – Psychology of Racism – Includes readings and discussions on terrorism from both dominant and subordinate groups on an international basis

University of Nebraska at Omaha

Criminal Justice

CJUS 4760 – Terrorism

Health, Physical Education and Recreation

HED 4040 – Prevention and Control of Disease – Prevention and control of disease covers preparedness and prevention; detection and surveillance; diagnosis and characterizations of biological and chemical agents: response; and communication.

HED 4950/8956 – Public Health Leadership and Advocacy – Course will cover some aspects of each of the categories, but not in great detail.

University of Nebraska at Kearney

Chemistry

CHEM 161 – General Chemistry II – Chapter of nuclear chemistry that focuses on forms of radioactive emission and decay mechanisms of common radioactive isotopes.

CHEM 351 – Biochemistry

CHEM 451 – Advanced Biochemistry – In both biochemistry classes, there are sections on how toxic chemical agents and antibiotics are metabolized in the body.

Criminal Justice

CJUS 401 – Issues: Terrorism

CJUS – Crime Prevention and Security

Physics

PHYS 347 – Modern Physics II – Discussion of the physics of making nuclear weapons and the effects of radiation on living tissues and organisms.

Political Science

PSCI xxxx – Terrorism and Political Violence – New course in development for summer 2003.

PSCI 168 – Introduction to World Politics

PSCI 468 – War in World Politics – Both world politics courses have units that deal with terrorism and weapons of mass destruction, including chemical and biological weapons, from an international relations perspective.

UNMC/UNO

Newly developed Master's of Public Health Administration (MPH) – Bioterrorism topics will be added to course content as appropriate. Environmental Health and Public Health Policy (PA 8470) courses will include terrorism issues.

Non-Credit Internal Training Programs and Resources

University of Nebraska Medical Center

Business and Finance

Three Facilities employees are on the campus Spill Team and have had extensive training in hazardous spills procedures

Mail Services issued written procedures for handling suspicious packages and mail.

General

Provided information regarding post-traumatic stress to all employees.
Communicated Question-and-Answer sheet on Sept. 11 tragedy to all employees.
Hosted an employee forum featuring Tom Gouttierre and psychiatrist Carl Greiner, M.D.
Hosted a community forum in association with the Red Cross and Wellness Council of the Midlands.
Held two campus briefings on the level of preparedness for bioterrorism.
Distributed information on anthrax to all employees.

Human Resources -- Employee Assistance Program

Helped organize an employee memorial/prayer service for Sept. 11 victims. Counselors were available to employees after the service.
Wrote article about helping children through the trauma for the bioterrorism Web site.
Planning four-session lunch 'n' learn that will address issues of nature responses to traumatic events, developing effective coping strategies and how we integrate experiences into our lives in reasonably healthy ways.
Will continue to assess employee responses to ongoing events, to communicate observations to HR and offer appropriate interventions to the campus.

Chancellor's Office

Formed a group chaired by Dr. David Crouse that will examine bioterrorism issues specific to the UNMC campus.
Created a Web site, www.unmc.edu/bioterrorism, which offers UNMC resources to answer questions and address concerns related to bioterrorism. UNMC experts in infectious disease, emergency response and research are monitoring the bioterrorism situation and responding to requests for assistance and guidance from across the nation.
Produced a two-hour bioterrorism forum that could be viewed, via satellite, at more than 25 locations across the state. More than 150 people attended the forum.
Assisted in placing bioterrorism experts as speakers to various groups in the Omaha area.
Organized for bioterrorism experts to meet with media members in central Nebraska, explaining the possible risks of bioterrorism and updating them on current bioterrorism issues.

University of Nebraska-Lincoln

Human Resources and EAP

Issued bulletins and education materials through e-mail and written form on general anxiety, talking to children, and talking to students about the Sept. 11 events.
Six group sessions were offered during the week after the attack at various locations at extended hours.
Convened the trauma team, which allowed walk-in times for faculty, staff and students with 25 counselors trained in critical response for visitors to talk with.
On Sept. 11 and 12, housing posted counselors in the television rooms and did walk-throughs of the large students union to assist those visibly upset.

Video tapes – Two videos are available at \$425 each: 1) Emergency Action plan: Crisis Under Control; and 2) Facility Security: The Critical Link. To order, call 1-888-761-9639, e-mail sales@coastal.com or visit www.coastal.com. Be sure to include your name, company name, address and phone number with your order.

IANR

NebFact – Protecting livestock from terrorism.
IANR news story dated Nov. 12: Agricultural Bioterrorism Threat Requires Vigilance.
Cropwatch newsletter article – How Real is the Threat of Crop Disease Bioterrorism?
Three articles written by Sharon Skipton on drinking water and terrorist threat.
IANR news story dated Oct. 17: NU Biosecurity Satellite Conference Will Address Animal Diseases
NebGuide – Biosecurity Basic for Cattle Operations and Good Management Practices for Controlling Infectious Diseases

NebGuide – Biosecurity Principles for Livestock Producers

Site Security and Bioterrorism, by David R. McKenzie, executive director, NERA (based in part on an EPA publication, “Chemical Accident Prevention: Site Security.”)

Library

The library’s collections include materials to support programs in bioterrorism preparedness. They have the major journals, index and abstract services for the biology and chemistry – these will cover much of the material on bioterrorism.

NETV

Numerous programs dealing directly with bioterrorism have been aired on ETV and ETV2.

University of Nebraska at Kearney

The Chancellor’s Office organized a prayer ceremony at the Bell Tower the day after the attack.

The campus is in the process of developing a bioterrorism task force.

Human Resources and EAP: The week after the attack, a session was offered to allow staff an opportunity to express their feelings and provide them information on appropriate methods of coping.

Appendix 2

Reference list of bioterrorism related publications

1. Lane HC, AS Fauci. Bioterrorism on the home front: A new challenge for American medicine. JAMA 286:2595, November 28, 2001.
2. Swartz MN. Recognition and management of Anthrax - an update. N Engl J Med 345:1621, November 29, 2001.
3. Cohen J, E Marshall. Vaccines for biodefense: a system in distress. Science 294:498, October 19, 2001.
4. Wilson JF. Biological terrorism. The Scientist 15:1, November 12, 2001.
5. Dutton G. Detecting biowarfare weapons: developing systems to combat terrorism. Genetic Engineering News 21:1, November 1, 2001.
6. CDC, Biosafety in Microbiological and Biomedical Laboratories (BMBL) 4th Edition. Richmond & McKinney, Editors. U.S. Government Printing Office, Washington, D.C., 1999. Available at: <http://www.cdc.gov/od/ohs/biosfty/bml4/bml4toc.htm>
7. United States Army Medical Research Institute of Infectious Diseases Medical Management of Biological Casualties Handbook, 4th Edition, Kortepeter et al., Editors. USAMRIID, Frederick MD, 2001. Available at: <http://www.usamriid.army.mil/education/bluebook.html>
8. Ladisch MR, R Love. Biotechnology in the battlefield. HMS Beagle: The Biomed Magazine Vol 116, December 7, 2001. Available at: http://news.bmn.com/hmsbeagle/116/viewpts/op_ed
9. World Health Organization, Public Health Response to Biological and Chemical Weapons - WHO Guidelines, 4nd Edition (prepublication). Report of a WHO Consultant Group, WHO Pub., 2001. Available at: http://www.who.int/emc/pdfs/BIOWEAPONS_exec_sum2.pdf
10. Federal Bureau of Investigation, “United States Government Interagency Domestic Terrorism Concept of Operations Plan”, U.S. Government Printing Office, January 2001. Available at: : <http://www.fbi.gov/publications/conplan/conplan.pdf>

Appendix 3

Summary of Web Resources related to bioterrorism

1. National Association of State Universities and Land-Grant Colleges / Association of American Universities (NASULGC/AAU), "Post September 11 Resources for Universities": <http://www.aau.edu/resources/resources.html>
2. Saint Louis University School of Public Health, "Center for the Study of Bioterrorism & Emerging Infections": <http://bioterrorism.slu.edu/>
3. Johns Hopkins University Schools of Public Health and Medicine, "Center for Civilian Biodefense Strategies": <http://www.hopkins-biodefense.org/>
4. American Academy of Pediatrics, "Children, Bioterrorism and Disasters": <http://www.aap.org/advocacy/releases/cad.htm>
5. University of Nebraska Medical Center, "Readiness and Response to Bioterrorism": <http://www.unmc.edu/bioterrorism/>
6. Center for Disease Control (CDC), "Public Health Emergency Preparedness and Response": <http://www.bt.cdc.gov/>
7. Department of Health and Human Services, "Anthrax and Biological Incidents: Preparedness and Response": <http://www.hhs.gov/hottopics/healing/biological.html>
8. American College of Physicians / American Society of Internal Medicine (ACP-ASIM), "Bioterrorism resources": <http://www.acponline.org/bioterro/>
9. National Institute of Allergy and Infectious Diseases (NIAID-NIH), "Bioterrorism Resources": <http://www.niaid.nih.gov/publications/bioterrorism.htm>
10. University of Maryland; Health Sciences and Human Services Library, "Terrorism Resources for the Health Care Community": <http://www.hshsl.umaryland.edu/resources/terrorism.html>
11. National Institute of Allergy and Infectious Diseases (NIAID-NIH), "Bioterrorism Related Research Funding Opportunities": <http://www.niaid.nih.gov/dmid/bioterrorism/>
12. National Domestic Preparedness Office (NDPO), Home Page: <http://www.ndpo.gov/>
13. World Health Organization, "Health Aspects of Biological and Chemical Weapons": http://www.who.int/emc/deliberate_epi.html
14. Federal Bureau of Investigation, "Terrorism in the United States": <http://www.fbi.gov/publications/terror/terror99.pdf>