HEALTH LAW

Number 78 October 2001

RESPONDING TO BIOLOGICAL THREATS: THE PUBLIC HEALTH SYSTEM'S COMMUNICABLE DISEASE CONTROL AUTHORITY

■ Jill Moore

For the past several years, public health officials at the national, state, and local levels have been concerned about the possibility that individuals or groups might use disease-causing biological agents in acts of terrorism. Articles have been written on the subject, conferences held, and preparedness plans developed.[1] The subject probably was not foremost in the minds of the general public, however, and even those involved in writing the articles or developing the plans may have thought it unlikely that large-scale acts of bioterrorism would be directed at civilians in the United States. But in the immediate aftermath of the terrorist attacks of September 11, 2001, concerns about the possibility of bioterrorism began to surface in the popular media.[2] Shortly thereafter, those same media outlets covered the story as the possibility unfolded into reality.

It started in the early days of October, when the first case of inhalation anthrax to occur in the United States in more than twenty years claimed the life of a Florida man.[3] Within a week, it was discovered that two of the deceased man's co-workers had been exposed to anthrax and the exposures were tentatively linked to a letter sent to the man's Florida office. Less than a week after that, another case of anthrax—also associated with a letter—was confirmed in New York, reports of anthrax-contaminated letters in Nevada and the United States Capitol were

---

The author is an Institute of Government faculty member who specializes in public health law.

1. *See*, *e.g.*, C. Gregory Smith et al., *Bioterrorism: A New Threat with Psychological and Social Sequelae*, 61 N.C. MEDICAL JOURNAL 150 (2000); N.C. Dept. of Health and Human Services, *North Carolina Public Health Bioterrorism Preparedness and Response Plan: Draft* (June 26, 2001) (on file with author).

2. *See, e.g.*, John Fialka et al., *Are We Prepared for the Unthinkable?*, Wall St. Journal, Sept. 18, 2001, at B1; Sheryl Gay Stolberg, *Some See U.S. as Vulnerable in Germ Attack*, N.Y. Times, Sept. 30, 2001.

3. Centers for Disease Control and Prevention, *Update: Investigation of Anthrax Associated with Intentional Exposure and Interim Public Health Guidelines*, *October 2001*, 50 MORBIDITY & MORTALITY WEEKLY REPORT 889, 890 (Oct. 19, 2001).

confirmed, and testing of suspicious letters was underway in locations throughout the United States, including North Carolina. As this bulletin goes to press, there have been eleven confirmed cases of anthrax, all associated with the mail. Three of the cases have been fatal.[4]

Bioterrorist threats or actions require the coordinated response of numerous public agencies and officials at all levels of government. The federal Centers for Disease Control and Prevention (CDC) has identified five key focus areas for bioterrorism response:

1. preparedness for bioterrorist acts,
2. disease detection and surveillance,
3. diagnosis and characterization of biological agents,
4. response to bioterrorist threats and actions, and
5. the development of systems to support communications among official responders and communications to the general public.[5]

The public health system will be a critically important component of any response plan or effort, as its day-to-day work involves many of those activities.

In North Carolina, the legal authority for public health officials to engage in many of the activities required for bioterrorism response comes from our state's communicable disease control laws. Those laws give state and local public health officials numerous powers and duties that enable them to control the spread of diseases caused by biological agents. Among other things, public health officials receive reports of communicable diseases and conditions from physicians and other parties, investigate individual cases of communicable diseases and disease outbreaks, conduct disease surveillance activities, provide certain clinical and laboratory services, educate the public about communicable diseases and conditions, and attempt to ensure that individuals comply with communicable disease control measures.[6] Those powers and duties apply to the communicable diseases that local health departments deal with every day, such as sexually transmitted diseases and tuberculosis. But they also extend to all of the biological agents that the CDC has designated as Category A (or highest priority) agents for bioterrorism preparedness planning (see Table 1).

Table 1. Category A Biological Agents

Category A[7] agents are those that may be used by terrorists and that pose a particular risk to national security because they are easily disseminated or easily transmitted from person-to-person, have high mortality rates and a high potential for significant public health impact, and might cause widespread panic or social disruption. They are:

- Anthrax (*Bacillus anthracis*)
- Botulism (*Clostridium botulinum* toxin)
- Plague (*Yersinia pestis*)
- Smallpox (*Variola major*)
- Tularemia (*Francisella tularensis*)
- Certain viral hemorrhagic fevers, including Ebola hemorrhagic fever, Marburg hemorrhagic fever, Lassa fever, Argentine hemorrhagic fever, and related viruses.

All of the Category A agents are covered by North Carolina's communicable disease control laws.

This bulletin reviews the general law of communicable disease control in North Carolina. It then examines each of the CDC's Category A agents in turn and analyzes in greater detail how the communicable disease statutes and rules would apply to an event involving a particular agent.

Law of Communicable Disease Control

In our day-to-day communications, we may use the term "communicable disease" to refer only to illnesses that are contagious from person to person. North Carolina has a legal definition of communicable disease that includes those illnesses and goes further to pick up a number of illnesses that cannot be transmitted from one person to another. "Communicable disease" is defined by law in North Carolina as an illness caused by an infectious agent—usually a virus or bacterium—

4. News Release, Centers for Disease Control and Prevention, *CDC Summary of Confirmed Cases of Anthrax and Background Information* (Oct. 23, 2001), available on the Internet at http://www.bt.cdc.gov/DocumentsApp/Anthrax/10232001PM/10232001PM.asp.

5. Centers for Disease Control and Prevention, *Biological and Chemical Terrorism: Strategic Plan for Preparedness and Response*, 49 MORBIDITY & MORTALITY WEEKLY REPORT 1, 8–11 (April 21, 2000) (hereafter *CDC Strategic Plan*).

6. N.C. GEN. STAT. § 130A-144 (hereafter G.S.).

7. *CDC Strategic Plan*, *supra* note 5, at 5*; see also* the CDC's bioterrorism Web page, http://www.bt.cdc.gov. The CDC has designated several chemical agents, such as the nerve gas sarin, as high-priority chemical agents. Chemical agents are not subject to communicable disease control laws and are not considered further in this bulletin.

that can be transmitted from person to person, from an animal to a person, through an intermediate host or vector, or through the inanimate environment.[8] A person has a "communicable condition" if the person has been infected with a communicable agent but does not have symptoms of disease.[9] North Carolina's communicable disease laws apply to both communicable diseases and communicable conditions. All of the Category A biologic agents discussed in this bulletin are captured by North Carolina's legal definitions of communicable disease and communicable condition.

Responsibility for communicable disease control in North Carolina is shared by state and local public health officials. At the state level, the Commission for Health Services promulgates communicable disease control rules.[10] The state health director has the authority to examine patient records pertaining to communicable diseases[11] and to order isolation or quarantine in appropriate circumstances.[12] The Division of Public Health, within the state Department of Health and Human Services, has many communicable disease responsibilities: The Division's Epidemiology Section receives reports of cases of communicable diseases,[13] coordinates and conducts disease surveillance and disease investigation activities, provides public information about communicable diseases, and provides support and assistance to local public health agencies in their response to communicable disease. The Division's State Laboratory of Public Health provides laboratory services that support the diagnosis of communicable diseases and conditions.

At the local level, the directors of public health departments must receive reports of communicable diseases and conditions,[14] investigate reported cases,[15] ensure that communicable disease control measures prescribed by the Commission for Health Services have been explained to the appropriate parties,[16] disseminate public health information,[17] and advise local health officials about public health matters.[18] Local health directors also are empowered to examine patient records pertaining to communicable disease[19] and to exercise quarantine and isolation authority.[20]

Required Reporting of Communicable Diseases

Some communicable diseases and conditions are designated as "reportable," meaning that physicians and certain others must make a report to public health officials when they know or suspect that a person has the disease or condition. Individuals who are required by law to make reports are listed in Table 2. The law also authorizes, but does not require, medical facilities to make a report to the local health director when there is a patient in the facility who is reasonably suspected of having a reportable communicable disease or condition.[21]

The list of reportable communicable diseases and conditions is established by the North Carolina Commission for Health Services[22] and currently includes sixty-one diseases and conditions.[23] Reports must be made within time frames prescribed by the Commission for Health Services. Some diseases—including those that are highly infectious or cause high mortality, such as those on the Category A list—must be reported within twenty-four hours by telephone and in written form within seven days. Reports must include the name and address of the patient and the disease diagnosis, among other things.[24]

The required reports involve the disclosure of health information that is ordinarily considered confidential; however, there are specific exceptions to medical confidentiality laws for required communicable disease reporting. There are two principal confidentiality laws to consider in determining whether health care providers may disclose communicable disease information: the federal medical privacy rule (also known as the HIPAA[25] privacy rule), and a state statute that addresses the confidentiality of communicable disease information.

8. G.S. 130A-133(1).
9. G.S. 130A-133(5).
10. G.S. 130A-147.
11. G.S. 130A-144(b).
12. G.S. 130A-145.
13. 15A N.C. ADMIN. CODE 19A.0101.
14. G.S. 130A-135 through 130A-139.
15. G.S. 130A-144(f); 130A-41(b)(3).
16. G.S. 130A-144(e).
17. G.S. 130A-41(b)(5).
18. G.S. 130A-41(b)(6).
19. G.S. 130A-144(b).
20. G.S. 130A-145; 130A-41(b)(4).
21. G.S. 130A-137.
22. G.S. 130A-134.
23. 15A N.C. ADMIN. CODE 19A.0101.
24. 15A N.C. ADMIN. CODE 19A.0102.
25. HIPAA stands for the Health Insurance Portability and Accountability Act of 1996, Pub. L. No. 104-191. Among other things, HIPAA authorized the federal Department of Health and Human Services to promulgate a medical privacy rule. *Id.* § 264.

Table 2. Individuals Required by Law to Report Communicable Diseases and Conditions

Reporter	What to report	To whom to report	N.C.G.S.
Physicians	Any instance in which the physician has reason to suspect that a person about whom the physician has been professionally consulted has a reportable communicable disease or condition	Local health director	130A-135
School principals and operators of child day care facilities	Any instance in which the principal or operator has reason to suspect that a person in the school or child care facility has a reportable communicable disease or condition	Local health director	130A-136
Operators of restaurants and other food/drink establishments	Known or suspected outbreaks of food-borne illnesses among customers or employees, and known or suspected food-borne illnesses in food handlers	Local health director	130A-138
Persons in charge of laboratories	Positive tests for certain communicable diseases (specified in 15A N.C. Admin. Code 19A.0101(c))	Local or state public health officials	130A-139
Local health directors	Communicable diseases, conditions, and positive laboratory findings that are reported to the local health director	N.C. Department of Health and Human Services; in some instances, other local health directors	130A-140

The federal medical privacy rule applies to entities covered by HIPAA, which includes most health care providers.[26] In most instances, the rule requires health care providers to obtain a patient's permission before disclosing individually identifiable health information. However, there are broad exceptions to that requirement for disclosures made to public health officials for public health surveillance, investigation, and intervention; disclosures that are necessary to avert serious threats to health or safety; and disclosures that are required by law.[27] Because of these exceptions, the privacy rule does not prevent a health care provider from sharing information with public health officials investigating and controlling communicable diseases.

Information about reportable communicable diseases is also subject to a strict state confidentiality law. The state's communicable disease confidentiality statute requires any person or entity—whether public or private—to keep confidential all information or records that identify a person with a reportable communicable disease or condition.[28] The statute provides some exceptions to confidentiality, however, including several exceptions that specifically permit the release of information or records for purposes of complying with communicable disease reporting, investigations, and enforcement activities.[29] A

26. HIPAA applies to health plans, health care clearinghouses, and health care providers who transmit health information electronically in connection with a transaction covered by HIPAA. 45 C.F.R. § 160.102.

27. 45 C.F.R. § 164.512(b) (authorizing disclosures to public health officials for the purpose of preventing or controlling diseases, for the conduct of public health investigations or surveillance, or other specified public health activities); 45 C.F.R. § 164.512(j) (authorizing disclosures that are necessary to prevent or lessen a serious and imminent threat to the safety of a person or the public, when those disclosures are made in good faith and consistent with professional and ethical standards); 45 C.F.R. § 164.512(a) (authorizing disclosures that are required by law).

28. G.S. 130A-143.

29. G.S. 130A-143(4) (allowing releases of information that are necessary to protect the public health and are made in accordance with the Commission for Health Services' rules); G.S. 130A-143(5) (allowing releases that are made pursuant to the communicable disease laws); G.S. 130A-143(6) (allowing the Department of Health and Human Services or a local health department to release information in order to enforce the communicable disease control laws); G.S. 130A-143(8) (allowing the Department

separate state law provides immunity from civil or criminal liability for individuals who report communicable diseases pursuant to the reporting laws.[30]

Anthrax, botulism, plague, and tularemia all are on the Commission for Health Services' list of reportable communicable diseases and conditions.[31] Smallpox and the major viral hemorrhagic fevers are not. This means only that no one is required by law to report those illnesses to public health officials. It does not mean that those illnesses should not be reported, nor does it mean that the illnesses are exempt from the remainder of communicable disease control law. Smallpox and the viral hemorrhagic fevers meet the legal definition of "communicable disease" and are therefore governed by all of the communicable disease control laws except for the ones that by their terms apply only to reportable diseases and conditions—that is, the laws governing reporting and confidentiality of communicable disease information.[32]

Even though they are not reportable illnesses, health care providers who know or suspect smallpox or a viral hemorrhagic fever in a patient should make an immediate report to public health officials and should not be deterred from making a report by concerns about patient confidentiality. The state communicable disease confidentiality law does not apply to these diseases since they are not reportable. The federal medical privacy rule does apply in this case, however. Under the federal rule, health care providers may disclose confidential medical information to public health officials with the permission of the patient or the patient's legal representative, or without permission when the disclosure is necessary to prevent or lessen a serious and imminent threat to the public health.[33] Although providers may prefer to obtain permission before making a report, it is extremely important to the public health that the report not be delayed by attempts to obtain permission. The provider will not violate the federal privacy rule by disclosing confidential medical information without permission if the provider in good faith believed that the disclosure was necessary to prevent a serious and imminent threat to the public's health.

Disease Investigation

Local health directors in North Carolina are required by law to investigate cases and outbreaks of communicable diseases and conditions.[34] They are assisted in this effort by state and regional public health officials. Among other things, the director's investigation must determine the identity of all persons for whom control measures are required. If control measures are required, the director must ensure that the measures are explained to the proper parties and that the parties comply.[35]

In the course of a disease investigation, public health officials will obtain information from a number of sources, including but not limited to the infected person, if possible; other exposed persons, if they are known; and health care providers involved in the diagnosis and treatment of the infected persons. Physicians, persons in charge of medical facilities, and persons in charge of laboratories are required by law to permit a local health director or the state health director to examine, review, and obtain a copy of medical records pertaining to the diagnosis, treatment, or prevention of communicable diseases or conditions.[36] The law grants immunity from liability to physicians and persons in charge of medical facilities or laboratories who make their records available in accordance with this law.[37]

Communicable Disease Control Measures

The North Carolina Commission for Health Services is required by law to adopt rules prescribing communicable disease control measures.[38] The Commission has adopted specific control measures for HIV, Hepatitis B, sexually transmitted diseases, and tuberculosis.[39] The control measures for most other communicable diseases and conditions are contained in the American Public Health Association's *Control*

of Health and Human Services and local health departments to release information for the purpose of preventing or controlling the spread of a communicable disease or condition); G.S. 130A-143(10) (authorizing releases made pursuant to G.S. 130A-144(b), which requires physicians, persons in charge of medical facilities, and persons in charge of laboratories to permit a local health director or the state health director to examine, review, and copy records for communicable disease control purposes).

30. G.S. 130A-142.

31. 15A N.C. ADMIN. CODE 19A.0101.

32. G.S. 130A-134 through 130A-143.

33. 45 C.F.R. § 164.512(j).

34. G.S. 130A-144(a); 15A N.C. ADMIN. CODE 19A.0103(a) and (b).

35. 15A N.C. ADMIN. CODE 19A.0103.

36. G.S. 130A-144(b).

37. G.S. 130A-144(c).

38. G.S. 130A-144(g).

39. 15A N.C. ADMIN. CODE 19A.0202 through .0205.

of Communicable Diseases Manual (hereafter *Communicable Diseases Manual*),[40] which is incorporated by reference in the communicable disease control rules.[41] The *Communicable Diseases Manual* contains control measures for all of the Category A biologic agents except for smallpox, which was certified as eradicated by the World Health Organization in 1980.

The Commission also has prescribed general principles to be followed in applying the manual's control measures, and in devising control measures for communicable diseases and conditions for which there are no specific control measures. Among other things, those principles state that control measures must be reasonably expected to decrease the risk of transmission and must be consistent with recent scientific and public health information. For diseases that are transmitted by the airborne route—which includes several of the Category A agents—the control measures must require physical isolation of the person for the duration of infectivity.[42]

All persons are required by law to comply with the communicable disease control measures established by the Commission.[43] Failure to comply is a misdemeanor punishable by a sentence of up to two years.[44]

Isolation and Quarantine

In North Carolina, isolation and quarantine authority may be exercised by a local health director or the state health director.[45] Isolation and quarantine authority are both legally defined as the authority to limit the freedom of movement or action of persons or animals in order to prevent the spread of communicable diseases or conditions. The distinction between the terms is subtle and not necessarily in accord with their common meanings: isolation applies to persons who actually have a communicable disease or condition, while quarantine applies to persons who have been, or are reasonably suspected of having been, exposed to a communicable disease or condition.[46] In either case, the local or state health director may limit the freedom of movement of the person. Isolation or quarantine authority may only be exercised when and for so long as the public health is endangered, and only when all other reasonable means for correcting the problem have been exhausted and no less restrictive alternative exists.[47]

Duties of Physicians

While most of North Carolina's communicable disease control law addresses the authorities and responsibilities of the public health system, portions of the law create legal obligations for private parties as well. In particular, physicians have several important duties under the communicable disease control law. Physicians must:

- Report communicable diseases and conditions to the local health director, as described earlier in this bulletin.[48]
- Instruct individuals with communicable diseases and conditions in the disease control measures that are required by law.[49]
- Cooperate with communicable disease investigations by making records and information available to public health officials who properly request them.[50]

---

40. Abram S. Benenson ed., *Control of Communicable Diseases Manual*, 16th ed. (American Public Health Association, 1995) (hereafter *Communicable Diseases Manual*). The manual may be purchased from the American Public Health Association through its Publication Sales Department, P.O. Box 753, Waldorf, MD 20604; or on the Association's Web site, www.apha.org.

41. 15A N.C. ADMIN. CODE 19A.0201(a).

42. 15A N.C. ADMIN. CODE 19A.0201(b).

43. G.S. 130A-144(f).

44. G.S. 130A-25.

45. G.S. 130A-145.

46. G.S. 130A-133(2) and (4). Quarantine authority also applies to individuals who have not received legally required immunizations, with the limitation that those individuals may only be quarantined when there is an outbreak of the disease for which they have not been immunized and the local health director has determined that immunizations are required to control the outbreak.

47. G.S. 130A-145. The Commission for Health Services has imposed further restrictions on isolation and quarantine orders "for communicable diseases and communicable conditions for which control measures have been established." 15A N.C. ADMIN. CODE 19A.0201(d). It is unclear what this phrase means, but in the context of the communicable disease control rules as a whole, it seems likely that it means only those diseases and conditions that have specific control measures in the rules—i.e., HIV, Hepatitis B, sexually transmitted diseases, and tuberculosis. For those diseases and conditions, isolation and quarantine orders may be no more restrictive than the applicable control measures.

48. G.S. 130A-135.

49. 15A N.C. ADMIN. CODE 19A.0210.

50. G.S. 130A-144(b).

Application of Communicable Disease Laws to Category A Biological Agents

Anthrax

Anthrax is an acute infection caused by a spore-forming bacterium. It occurs primarily in hoofed animals—such as goats, pigs, and cattle—and only rarely in humans. It is not spread from person to person but through contact with the spores. Anthrax can infect the skin (cutaneous anthrax), the intestinal tract, or the respiratory system (inhalation anthrax). Symptoms usually appear within seven days after exposure.[51]

Anthrax is a reportable communicable disease in North Carolina.[52] Physicians who know or suspect that a patient has anthrax must make a report to the local health director within twenty-four hours. An initial report must be made by telephone and followed by a written report within seven days.[53]A person in charge of a laboratory must report any lab findings that indicate anthrax to the state's Division of Public Health, General Communicable Disease Control Branch, within twenty-four hours.[54] A medical facility in which a patient has known or suspected anthrax is authorized by law to make a report to the local health department.[55]

The control measures for anthrax are set forth in the *Communicable Diseases Manual*. Among other things, the control measures require that reports be made to local health authorities and that contacts and the source of the infection be investigated.[56] Immunization of contacts is not required and is not available to the general public. Antibiotic therapy can prevent illness in persons exposed to anthrax.[57]

Many of the control measures that appear in the *Communicable Diseases Manual* appear to assume that the anthrax infection will have occurred from an occupational or other exposure to raw animal materials. Anthrax infections that are caused through terrorist acts may ultimately require the application of additional or different control measures. North Carolina's communicable disease rules acknowledge that public health officials may need to devise control measures for diseases for which specific control measures are not contained in the state rules and require that any such measures be consistent with recent scientific and public health information.[58] This would appear to authorize public health officials to devise control measures that are specific to containing anthrax caused by bioterrorism, provided that those measures are consistent with recent scientific and public health information.

Botulism

Botulism causes weakness and paralysis of the muscles. It can cause death by paralyzing the breathing muscles. There are three main forms of botulism—foodborne botulism, infant botulism, and wound botulism. Foodborne botulism is caused by the ingestion of botulinum toxin in contaminated foods. Infant botulism occurs in infants who harbor the *clostridium botulinum* bacterium in their intestines. Wound botulism can occur when wounds become infected with the bacterium. Botulism is not contagious from person to person. Botulism caused by terrorism would most likely be of the foodborne variety. The symptoms of foodborne botulism usually appear twelve to thirty-six hours after exposure.[59]

Botulism is a reportable communicable disease in North Carolina.[60] Physicians who know or suspect that a patient has botulism must make a report to the local health director within twenty-four hours. An initial report must be made by telephone and followed by a written report within seven days.[61] A person in charge of a laboratory must report any lab findings that indicate botulism to the state's Division of Public Health, General Communicable Disease Control Branch, within twenty-four hours.[62] An operator of a restaurant or other food and drink establishment must report known or suspected outbreaks of botulism among customers or employees to the local health

51. *Communicable Diseases Manual*, *supra* note 40, at 18–20.

52. 15A N.C. ADMIN. CODE 19A.0101(2).

53. 15A N.C. ADMIN. CODE 19A.0102(a).

54. 15A N.C. ADMIN. CODE 19A.0101(c)(1)(B), .0102(d)(3).

55. G.S. 130A-137.

56. *Communicable Diseases Manual*, *supra* note 40, at 21–22.

57. Centers for Disease Control and Prevention, *Facts About Anthrax, Botulism, Plague, and Smallpox*, available on the Internet at http://www.bt.cdc.gov/DocumentsApp/FactsAbout/FactsAbout.asp (hereafter, *CDC Fact Sheet*).

58. 15A N.C. ADMIN. CODE 19A.0202(b).

59. *Communicable Diseases Manual*, *supra* note 40, at 66–69; *CDC Fact Sheet, supra* note 57.

60. 15A N.C. ADMIN. CODE 19A.0101(3).

61. 15A N.C. ADMIN. CODE 19A.0102(a).

62. 15A N.C. ADMIN. CODE 19A.0101(c)(1)(F), .0102(d)(3).

director within twenty-four hours.[63] A medical facility in which a patient has known or suspected botulism is authorized by law to make a report to the local health department.[64]

The control measures for botulism are set forth in the *Communicable Diseases Manual*. Among other things, the control measures require that reports be made to local health authorities, and that contacts and the source of the infection be investigated.[65] There is no vaccination available to prevent botulism; however, the CDC maintains a supply of botulism antitoxin that can reduce the severity of botulism symptoms if it is administered early in the course of the disease.[66]

Plague

Plague is caused by a bacterium that is found in rodents in many areas of the world. It is usually transmitted to humans through an intermediate host, typically a flea. Naturally occurring plague usually begins with a localized abscess followed by the enlargement of the lymph nodes. The enlarged nodes are known as buboes (hence the name, bubonic plague). However, plague can also infect the lungs to create a lethal infection called pneumonic plague, which can be spread from person to person. Symptoms of pneumonic plague usually appear two to four days after exposure.[67]

Plague is a reportable communicable disease in North Carolina.[68] Physicians who know or suspect that a patient has plague must make a report to the local health director within twenty-four hours. An initial report must be made by telephone and followed by a written report within seven days.[69] A person in charge of a laboratory must report any lab findings that indicate plague to the state's Division of Public Health, General Communicable Disease Control Branch, within twenty-four hours.[70] A medical facility in which a patient has known or suspected plague is authorized by law to make a report to the local health department.[71]

The control measures for plague are set forth in the *Communicable Diseases Manual*. The control measures require the isolation of patients with pneumonic plague until forty-eight hours of appropriate antibiotic therapy have been completed and the patient has demonstrated a favorable clinical response. Persons who have been in face-to-face contact with pneumonic plague patients or who live in a patient's household should receive prophylactic antibiotics and be placed under surveillance for seven days. If an exposed person refuses the antibiotic therapy, he or she must be isolated and placed under surveillance for seven days. Additional control measures call for ridding patients' possessions and households of fleas and rodents, reports to local health authorities, and the investigation of contacts and the source of the infection.[72] There is no vaccine against pneumonic plague.[73]

Smallpox

The eradication of smallpox is considered one of the great public health triumphs of our time. The last case of naturally occurring smallpox was in Somalia in 1977. In 1980, the World Health Organization certified that smallpox had been eradicated. At that time, all known samples of the *variola major* virus, which causes smallpox, were held in tight security by the United States or the Soviet Union.[74] Today, those remain the only official stores of virus. However, there have been reports that other parties—including the governments of North Korea and Iraq—have supplies of the virus.[75]

Meanwhile, in the years since eradication, routine vaccination against smallpox has ceased. Smallpox is no longer a reportable communicable disease in most jurisdictions, including North Carolina, and specific control measures for smallpox are no longer contained in the *Communicable Diseases Manual*. Smallpox nevertheless is within the reach of North Carolina's communicable disease control laws,

63. 15A N.C. ADMIN. CODE 19A.0102(b) and (c).

64. G.S. 130A-137.

65. *Communicable Diseases Manual*, *supra* note 40, at 69–70.

66. *CDC Fact Sheet*, *supra* note 57.

67. *Communicable Diseases Manual*, *supra* note 40, at 353–54; *CDC Fact Sheet*, *supra* note 57.

68. 15A N.C. ADMIN. CODE 19A.0101(37).

69. 15A N.C. ADMIN. CODE 19A.0102(a).

70. 15A N.C. ADMIN. CODE 19A.0101(c)(1)(Y), .0102(d)(3).

71. G.S. 130A-137.

72. *Communicable Diseases Manual*, *supra* note 40, at 356–57.

73. *CDC Fact Sheet*, *supra* note 57.

74. *CDC Fact Sheet*, *supra* note 57; *Communicable Diseases Manual*, *supra* note 40, at 425.

75. *E.g.,* William J. Broad, *U.S. Acts to Make Vaccines and Drugs Against Smallpox*, N.Y. Times, Oct. 9, 2001.

because it meets the statutory definition of a communicable disease.[76]

Smallpox begins with high fever and body aches that are followed within days by a skin rash. The rash begins with flat red lesions that become pus-filled and then crust over. Smallpox is highly contagious and is fatal in about 30 percent of cases. Routine vaccination against smallpox ended in the United States in 1972, and it is unknown whether the immunity provided by vaccinations administered before that date is still effective. It is therefore assumed that all persons in the United States, including those who were vaccinated, are susceptible to smallpox infection.[77]

Because it is highly contagious and vaccine-created immunity may no longer be effective, a single case of smallpox constitutes a public health emergency.[78] Because naturally occurring smallpox has been eradicated, a single case also raises a strong suspicion of bioterrorism. Therefore, although smallpox is no longer on North Carolina's list of reportable communicable diseases, health care providers who know or suspect that a person has smallpox should make an immediate report to the local health department. Health care providers may make the report with or without the patient's permission.[79]

When public health officials receive a report of smallpox, they must immediately initiate a disease investigation and implement disease control measures. Local health officials should also immediately contact appropriate state and federal public health and law enforcement officials. There are no specific control measures for smallpox in the North Carolina communicable disease rules or the *Communicable Diseases Manual*; therefore, public health officials must devise appropriate measures. Those measures may include isolation or quarantine of infected and exposed persons.[80] Vaccination against smallpox can prevent or lessen the severity of illness in persons exposed to smallpox if it is given promptly. Smallpox vaccine is not ordinarily available, but the United States maintains an emergency supply.[81]

76. G.S. 130A-133(1).

77. *CDC Fact Sheet*, *supra* note 57.

78. *See Communicable Diseases Manual*, *supra* note 40, at 425 ("Should a smallpox-like case occur, **IMMEDIATE** telephonic communication with health authorities is obligatory.").

79. 45 C.F.R. § 164.512(j).

80. *See CDC Fact Sheet*, *supra* note 57; 15A N.C. ADMIN. CODE 19A.0201(b)(2) (requiring isolation for diseases transmitted by the airborne route).

81. *CDC Fact Sheet*, *supra* note 57.

Tularemia

Tularemia is a bacterial infection that is usually caused by tick or deerfly bites, or by contact with infected rabbits, muskrats, and squirrels. It is not transmitted from person to person. Naturally acquired tularemia usually affects the lymph nodes, but it may also take a pneumonic form, infecting the lungs. Symptoms usually appear three to five days after exposure.[82]

Tularemia is a reportable communicable disease in North Carolina.[83] Physicians who know or suspect that a patient has tularemia must make a report to the local health director within twenty-four hours. An initial report must be made by telephone and followed by a written report within seven days.[84]A person in charge of a laboratory must report any lab findings that indicate tularemia to the state's Division of Public Health, General Communicable Disease Control Branch, within twenty-four hours.[85] A medical facility in which a patient has known or suspected tularemia is authorized by law to make a report to the local health department.[86]

The control measures for tularemia are set forth in the *Communicable Diseases Manual*. Among other things, the control measures require reports to local health authorities and the investigation of contacts and the source of the infection.[87] Tularemia vaccination ordinarily is not available, but an investigational vaccine is maintained by the U.S. Army Medical Research Institute of Infectious Diseases.[88]

Many of the control measures that appear in the *Communicable Diseases Manual* appear to assume that the tularemia infection will have occurred from a natural source. Tularemia infections that are caused through terrorist acts may ultimately require the application of additional or different control measures. North Carolina's communicable disease rules acknowledge that public health officials may need to devise control measures for diseases for which specific control measures are not contained in the state rules, and require that any such measures be consistent with recent scientific and public health

82. *Communicable Diseases Manual*, *supra* note 40, at 499–500.

83. 15A N.C. ADMIN. CODE 19A.0101(54).

84. 15A N.C. ADMIN. CODE 19A.0102(a).

85. 15A N.C. ADMIN. CODE 19A.0101(c)(1)(N), .0102(d)(3).

86. G.S. 130A-137.

87. *Communicable Diseases Manual*, *supra* note 40, at 501–02.

88. *CDC Fact Sheet*, *supra* note 57.

information.[89] This would appear to authorize public health officials to devise control measures that are specific to containing tularemia caused by bioterrorism, provided that those measures are consistent with recent scientific and public health information.

Viral Hemorrhagic Fevers

The CDC's Category A list of biological agents includes the general category of viral hemorrhagic fevers—illnesses that are caused by viruses such as Ebola. These viruses cause high fevers and hemorrhaging throughout the body. The hemorrhaging can lead to shock, multiple system failure, and death.[90] The illnesses are contagious from person to person. They are known to be spread through contact with infected persons' body fluids, and they may be spread through the airborne route as well.

None of the viral hemorrhagic fevers is reportable in North Carolina. However, a single case of a viral hemorrhagic fever is an important public health event and may create the suspicion that a bioterrorist act has occurred. Therefore, health care providers who know or suspect that a person has a viral hemorrhagic fever should make an immediate report to the local health department. Health care providers may make the report with or without the patient's permission.[91]

Control measures for the viral hemorrhagic fevers are found in the *Communicable Diseases Manual.* Infected persons must be isolated. Persons who have been in contact with the infected persons are not required to be quarantined, but they should be placed under surveillance.

89. 15A N.C. ADMIN. CODE 19A.0202(b).

90. *E.g., Communicable Diseases Manual*, *supra* note 40, at 159 (Ebola-Marburg Viral diseases).

91. 45 C.F.R. § 164.512(j).

Conclusion

Terrorist acts involving the use of biological agents require the coordinated response of numerous public and private actors, including—but not limited to—public health officials, law enforcement officials, emergency responders, and health care providers. North Carolina's communicable disease control laws are an important tool in the response to bioterrorism, but they are only one of many tools that are needed. This bulletin therefore provides only one piece of the legal information that readers may need. Moreover, as this goes to press, our understanding of the attack involving anthrax is still developing. For the most recent updates and additional information about responding to bioterrorist events, readers should consult the CDC's bioterrorism Web page at http://www.bt.cdc.gov and the North Carolina Division of Public Health's Web site at http://www.dhhs state.nc.us/dph/.

This Bulletin is published by the Institute of Government to address issues of interest to local and state government employees and officials. Public officials may photocopy the Bulletin under the following conditions: (1) it is copied in its entirety; (2) it is copied solely for distribution to other public officials, employees, or staff members; and (3) copies are not sold or used for commercial purposes.

Additional copies of this Bulletin may be purchased from the Institute of Government. To place an order or to request a catalog of Institute of Government publications, please contact the Publications Sales Office, Institute of Government, CB# 3330 Knapp Building, UNC-CH, Chapel Hill, NC 27599-3330; telephone (919) 966-4119; fax (919) 962-2707; e-mail sales@iogmail.iog.unc.edu; or visit the Institute's Web site at http://ncinfo.iog.unc.edu.

The Institute of Government of The University of North Carolina at Chapel Hill has printed a total of 321 copies of this public document at a cost of $155.14 or $0.48 each. These figures include only the direct costs of reproduction. They do not include preparation, handling, or distribution costs.