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COMMENTS

BIOTERRORISM: PERFECTLY LEGAL

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The possibility of a large-scale biological weapons¹ attack occurring within the United States is more than merely hypothetical.² A number of

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1. See Matthew Meselson et al., *Characteristics of Biological and Toxin Weapons*, in POISON IN THE WIND: THE SPREAD OF CHEMICAL AND BIOLOGICAL WEAPONS 15, 16-18 (Gary E. McCuen ed., 1992) (defining biological weapons). Biological weapons consist of either disease-causing, living microorganisms, or of toxic substances produced by living organisms. See *id.* Biological weapons can kill or harm people, animals, or plants; those containing living microorganisms are particularly dangerous because these living organisms reproduce, spreading the disease throughout populations and ecosystems. See Jonathan King, *All Research Programs Are Offensive*, in POISON IN THE WIND: THE SPREAD OF CHEMICAL AND BIOLOGICAL WEAPONS, *supra* at 80, 81. These weapons are thousands of times more lethal per unit than any other type of weapon. See James H. Anderson, *Microbes and Mass Casualties: Defending America Against Bioterrorism*, HERITAGE FOUND. BACKGROUNDER (Heritage Found. Wash. D.C.), May 26, 1998, at 1, 6. Bioterrorists can easily elude authorities by disseminating the deadly agents invisibly with aerosol devices. See *id.* at 6. Victims do not show symptoms for hours or days, leaving time for such terrorists to cover their tracks. See *id.* Furthermore, because biological weapons programs can be masked as programs for the production of vaccines, antibiotics, or other legitimate research, bioterrorists can conceal biological weapons programs easily. See *id.* at 8. Scientists have yet to develop effective vaccines against many infectious agents. See Meselson, *supra* at 20. Protections for a civilian population against a bioterrorist attack may include: issuing gas masks; constructing shelters; conducting regular education and drills for the entire population; massive medical supplies; and fast-response epidemiological teams. See *id.*

2. See Anderson, *supra* note 1, at 1 (discussing the growing threat and likelihood of an attack involving the use of biological weapons against the United States); see also *The Threat of Bioterrorism: Assessing the Adequacy of the Federal Law Relating to Dangerous Biological Agents: Hearings Before the Subcomm. on Oversight and Investigations of the House Commerce Comm.*, 106th Cong. 14 (1999) [hereinafter *House Bioterrorism Hearings*] (statement of James S. Reynolds, Chief, Terrorism and Violent Crime Section, United States Department of Justice). Counterterrorism enforcement officials, numerous academics, and health care professionals agree that "the most serious form of terrorist threat confronting the United States relates to the potential use of a biological weapon." *Id.* But see Daniel S. Greenberg, *The Bioterrorism Panic*, WASH. POST, Mar. 16, 1999, at A21 (criticizing the federal government for increasing the Department of Health and Human Service's budget for "bioterrorism preparedness" by \$144 million even though there are no independent assessments of the potential for bioterrorism; noting, however, that skeptics of the current bioterrorism panic have not gone public because of "the real possibility of events proving them horribly wrong").

reasons account for the increasing likelihood of this threat.³ First, rapid growth in the field of genetic engineering, specifically with cloning technology, has enlarged the number of tools available for biological warfare.⁴ The growing number of nations that maintain biological weapons programs has increased the likelihood that terrorists will procure biological weapons expertise, possibly through the sponsorship of bioterrorism by a nation with such capacity.⁵ Terrorists, as well as disgruntled or de-ranked individuals, are showing a growing interest in these weapons and in causing mass fatalities.⁶ Finally, Russian scientists who worked exten-

3. See Anderson, *supra* note 1, at 2-9 (listing reasons that the threat of bioterrorism on United States soil is increasing); Brad Roberts, *New Challenges and New Policy Priorities for the 1990s*, in *BIOLOGICAL WEAPONS: WEAPONS OF THE FUTURE?* 68, 93 (Brad Roberts ed., 1993) (reviewing past and future issues surrounding biological warfare, and noting that, combined, a number of factors increase the likelihood of an attack involving biological weapons).

4. See 142 CONG. REC. 1863 (1996) (testimony of Sen. Orrin G. Hatch (R-Utah)) (introducing the Biological Agents Enhanced Penalties and Control Act, which was later enacted as part of the Antiterrorism and Effective Death Penalty Act of 1996). Senator Hatch urged Congress to pass the Biological Agents Act because new threats, not in existence when Congress and regulatory agencies drafted current laws, have increased the risk of bioterrorist attack. See *id.* An example of these emerging threats is the rapid growth of genetic technology, which allows scientists to alter microorganisms so that the substances are more toxic, or more difficult to treat. See *id.*; see also Robert H. Kupperman & David M. Smith, *Coping with Biological Terrorism*, in *BIOLOGICAL WEAPONS: WEAPONS OF THE FUTURE?*, *supra* note 3, at 35, 38 (discussing past threats of biological warfare and terrorism, and evaluating the possible, yet unhelpful defenses to these weapons). Although advances in several fields of science have enhanced human life dramatically, these breakthroughs, particularly in recombinant DNA technology, have introduced new tools for warfare. See *id.*; see also Jeremy Rifkin, *Environmental Impact of Biological Weapons Research*, in *POISON IN THE WIND: THE SPREAD OF CHEMICAL AND BIOLOGICAL WEAPONS* *supra* note 1, at 101, 102 (arguing that biological weapons programs pose a threat to the environment and that increasing security at weapons labs, for example, could minimize the damaging effects of these programs). Advances in genetic engineering technology also increased the potential for warfare involving biological weapons. See *id.*

5. See Anderson, *supra* note 1, at 1. The likelihood that terrorists could gain possession of biological expertise has increased because approximately 10 nations have biological weapons programs. See *id.* Consequently, these nations may transfer this expertise to terrorists, directly or indirectly. See *id.*; see also *Biological Weapons: The Threat Posed by Terrorists: Hearing on Examining Federal Efforts on Dealing with Chemical and Biological Threats to America Before the Subcomm. on Tech., Terrorism, and Gov't Info. of the Senate Comm. on the Judiciary*, 105th Cong. 10, 12-13 (1998) [hereinafter *Joint Senate Committee Hearings*] (statement of Dr. W. Seth Carus, Visiting Defense Fellow, Center for Nonproliferation Research, National Defense University). In addition, the chances that a nation with a biological warfare program will support a terrorist with biological weapons expertise are great. See *id.* at 12-13. For example, the Department of Defense and the Arms Control and Disarmament Agency believe that a number of the nations that have records of supporting terrorist organizations, such as Libya, North Korea, and Iraq, have biological warfare programs. See *id.* at 12.

6. See *House Bioterrorism Hearings*, *supra* note 2, at 13 (statement of James Rey-

sively on the Soviet Union's massive biological weapons program dispersed after that government dissolved, thereby increasing the danger that other nations and terrorist groups will acquire biological weapons expertise.⁷

Threats of biological weapons attacks are increasingly common and response costs are significant.⁸ Although many of these threats turn out to be hoaxes,⁹ continually having to respond to these threats may eventually desensitize people to the possibility of actual attacks.¹⁰ Furthermore, these threats disrupt the responding community.¹¹

Despite the impending dangers of bioterrorism, naturally occurring infectious diseases are still a bigger threat to the American population.¹²

nolds). The Five-Year Interagency Counter-Terrorism and Technology Plan, submitted to Congress by Attorney General Janet Reno on December 31, 1998 noted increasing intelligence evidence of terrorist interest in using biological weapons. *See id.* Over the past few years, the FBI has encountered a significant increase in the number of cases involving biological weapons and toxins, which reflects a growing interest in biological agents. *See id.*; *see also* Anderson, *supra* note 1, at 1-2 (stating that most intelligence analysts once agreed that terrorists "want a lot of people watching, not a lot of people dead"). However, recent events, such as the 1995 sarin attack in a Tokyo subway and the 1996 Oklahoma bombing, contradict this view. *See id.*

7. *See* Anderson, *supra* note 1, at 7-9 (stating that Russia maintained the largest offensive biological weapons program during much of this century); *see also* *House Bioterrorism Hearings*, *supra* note 2, at 97, 133-34 (statement of Richard Preston, expert and author on biological weapons describing the Soviet Union's bioweapons program, called the Biopreparat, and stating that it would be foolish to deny that scientists left Russia without bringing their expertise or master seed strains of biological weapons). *See generally* Richard Preston, *Annals of Warfare: The Bioweaponers*, *THE NEW YORKER*, Mar. 9, 1998, at 52 (interviewing scientists who worked on the Soviet Union's biological weapons program and later immigrated to the United States).

8. *See* *House Bioterrorism Hearings*, *supra* note 2, at 17 (statement of Robert M. Burnham, Section Chief, Domestic Terrorism National Security Division, FBI) (noting that the number of incidents involving weapons of mass destruction, particularly those dealing with biological and chemical weapons, has increased steadily and that the cost of responding to threats of bioterrorism is significant). In the first five months of 1999, the FBI opened 123 cases involving weapons of mass destruction, 100 of which involved biological agents. *See id.* at 19. This is an increase from 37 cases involving weapons of mass destruction in 1996, 74 weapons of mass destruction cases, 22 of which involved biological agents in 1997, and 181 cases involving weapons of mass destruction, 112 of which involved biological agents in 1998. *See id.* The biological agent cited most often in 1998 and 1999 was anthrax and a rash of anthrax-related threats around the country during that period affected businesses, schools, hospitals, and courthouses. *See id.* at 18. Los Angeles estimated that the cost of responding to an onslaught of threats that the city received in the beginning of 1999 was \$1.5 million. *See id.*

9. *See id.* Several cases involve "vague or veiled threats, stating only that anthrax has been released." *Id.* Other cases involve callers who stated, "in an apparent[ly] non-threatening manner, that anthrax had been released." *Id.*

10. *See id.* at 20.

11. *See id.*

12. *See id.* at 51 (prepared statement of Dr. Ronald M. Atlas, Co-Chair, Task Force

Research on disease prevention and treatment is necessary for the population's well being.¹³ In order to reduce illness and death due to these diseases, microbiologists and other researchers use dangerous pathogens as reference cultures.¹⁴ Researchers also use these agents to increase the nation's medical preparedness against bioterrorism.¹⁵ Extreme control measures that limit the free exchange of microbial cultures may drive microbiologists away from important research and thus, ultimately jeopardize the public's health and safety.¹⁶

International laws as well as domestic federal laws and regulations, currently pertain to the control of biological weapons in the United States.¹⁷ The applicable international laws, which are the 1925 Geneva Protocol (Protocol)¹⁸ and the 1972 Biological Weapons Convention (BWC),¹⁹ have not prevented nations from creating biological weapons.²⁰ These treaties do not have verification regimes or effective enforcement mechanisms.²¹ Furthermore, the Protocol prohibits use of biological

on Biological Weapons Control, American Society for Microbiology). The major cause of death in the world is infectious diseases, which kill approximately 17 million people every year. *See id.*

13. *See id.* at 49.

14. *See id.* at 51.

15. *See id.* at 50.

16. *See id.* at 51.

17. *See infra* Part I.A-B. Practitioners identify the rules of international law by looking to explicit, written agreements and the customary practices of nations, including constitutional, legislative, executive, and judicial promulgations of states. *See* MARK W. JANIS, AN INTRODUCTION TO INTERNATIONAL LAW 4-6 (2d ed. 1993). Part I of this Comment discusses several written agreements between nations. These agreements, whether styled as treaties, conventions, or protocols are "essentially contracts between states." *Id.* at 9. In this Comment, these terms are used interchangeably. For a thorough discussion of the law of treaties, see JANIS, *supra* at 9-39. For an analysis of the relationship between treaties and the municipal law of the United States, see JANIS, *supra* at 84-94.

18. Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, June 17, 1925, 26 U.S.T. 571, 94 L.N.T.S. 65 [hereinafter Protocol].

19. Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, Apr. 10, 1972, 26 U.S.T. 583, 1015 U.N.T.S. 163 [hereinafter BWC].

20. *See The Biological Weapons Anti-Terrorism Act of 1989: Hearing on S.993 Before the Senate Comm. on the Judiciary*, 101st Cong. 28-29 (1989) [hereinafter *Judiciary Hearings*] (statement of Ambassador H. Allen Holmes, Assistant Secretary of State for Politico-Military Affairs, Department of State) (commenting on the general situation with regard to biological weapon proliferation and urging Congress to pass the proposed bill to implement the United States' obligations to the BWC).

21. *See BWC, supra* note 19; Protocol, *supra* note 18; *see also* RANDALL FORSBERG ET AL., NONPROLIFERATION PRIMER: PREVENTING THE SPREAD OF NUCLEAR, CHEMICAL, AND BIOLOGICAL WEAPONS 69 (1995) (stating that the Protocol and the BWC do not have verification or effective enforcement provisions).

weapons only during war and only against other Protocol parties.²² The BWC, unlike the Protocol, includes enforcement provisions.²³ The effectiveness of the BWC's enforcement provisions is questionable, however, because the BWC does not include verification provisions to support allegations of violations.²⁴

Congress recently strengthened²⁵ federal criminal laws and regulations pertaining to bioterrorism²⁶ but significant gaps remain.²⁷ For example, merely possessing dangerous pathogens is not a crime unless a prosecutor can prove that the possessor intended to use a pathogen as a weapon.²⁸ Existing laws also do not address false reports and threats²⁹ and do not attach criminal penalties to handling pathogens in a reckless

22. See *infra* Part I.A (discussing the Protocol).

23. See BWC, *supra* note 19, 26 U.S.T. at 588-89, 1015 U.N.T.S. at 167 (referring to Articles V-VII, which set forth the BWC's enforcement procedures).

24. See *infra* Part I.A.2 (discussing the BWC).

25. See Antiterrorism and Effective Death Penalty Act of 1996, Pub. L. No. 104-132, § 511(d)(1)(A), 110 Stat. 1214, 1284 (codified as amended in scattered sections of 42 U.S.C.) (amending several of the provisions enacted by the Biological Weapons Anti-Terrorism Act of 1989, Pub. L. No. 101-298, § 1, 104 Stat. 201 (May 22, 1989), and requiring the Secretary of Health and Human Services to create regulations pertaining to the control of dangerous biological agents).

26. See 18 U.S.C. §§ 175-178, 2332a (1994 & Supp. II 1997); Additional Requirements for Facilities Transferring or Receiving Select Agents, 42 C.F.R. § 72.6 (1998); *infra* note 104 and accompanying text (discussing federal laws that prohibit assorted acts pertaining to biological agents).

27. See *House Bioterrorism Hearings*, *supra* note 2, at 16 (statement of Robert M. Burnham) (discussing law enforcement concerns about existing federal laws that criminalize acts pertaining to dangerous biological agents).

28. See 18 U.S.C. § 175(a) (1994 & Supp. III 1998) (prohibiting the knowing possession of dangerous agents for use as a weapon); *Joint Senate Committee Hearings*, *supra* note 5, at 62 (statement of Attorney General Janet Reno) (noting that merely possessing biological agents without proving that the possessor intended to use this substance as a weapon is not a federal crime). Current federal criminal laws pertaining to bioterrorism do not take significant factors, such as having a felony record, into account. See *id.* Criminal statutes must balance the need for public safety with the need for legitimate scientific research on these agents. See *id.* A clear public safety concern arises, however, when people who do not have scientific training or who have records of irresponsible conduct possess highly lethal substances, when they do not have a legitimate reason for having such a substance. See *id.*

29. See 18 U.S.C. §§ 175, 2332a(a)-(b) (1994 & Supp. III 1998) (prohibiting the knowing attempt or threat to violate the section, but not prohibiting hoaxes pertaining to biological weapons and weapons of mass destruction); *House Bioterrorism Hearings*, *supra* note 2, at 16 (statement of James Reynolds) (stating that existing laws do not address false threats of bioterrorism, which are an increasingly growing type of threat). Current laws do not capture false reports as threats because they require evidence that the terrorists actually intended to use biological weapons or to develop or possess biological pathogens in order to use them eventually as weapons. See *id.*

manner.³⁰ Although there are biological and toxin agents that can cause widespread and serious illness, current regulations only address lethal agents.³¹

The federal government is currently spending vast sums to prepare for a potential attack involving weapons of mass destruction,³² but the most efficient as well as most cost-effective way to counter bioterrorism remains to prevent it.³³ To facilitate this objective, the United States Department of Justice is drafting legislation that will strengthen current laws pertaining to bioterrorism.³⁴ This legislation will establish criminal penalties for the unauthorized possession of biological agents that could be used in biological weapons without a legitimate peaceful purpose, for handling these agents unsafely, and for perpetrating a biological weapons hoax.³⁵ The Department of Justice worked closely with the Department of Health and Human Services to ensure that this bill maintains the accessibility of dangerous biological agents for legitimate scientific research.³⁶

Part I of this Comment reviews current laws pertaining to the control of biological weapons, including the Protocol, the BWC, the Biological Weapons Anti-Terrorism Act of 1989 (1989 Act),³⁷ and the Antiterrorism

30. See 18 U.S.C. §§ 175, 2332a(a)-(b); *House Bioterrorism Hearings*, *supra* note 2, at 15 (statement of James Reynolds) (stating that current federal criminal law does not penalize people who handle dangerous substances in an unsafe manner, thereby consciously disregarding and posing an unreasonable risk to public health and safety).

31. See *House Bioterrorism Hearings*, *supra* note 2, at 15 (statement of James Reynolds). The current list of agents that the Centers for Disease Control and Prevention regulates does not, for example, include *Shigella* or *Salmonella*. See *id.* In recent years, however, terrorists have caused hundreds of people to become ill using these agents. See *id.*

32. See Greenberg, *supra* note 2. Congress originally allocated \$14 million to the Department of Health and Human Services budget for bioterrorism preparedness, but eventually added \$144 million for this purpose. See *id.* The White House proposed to provide this agency with \$230 million for the next term for bioterrorism preparedness. See *id.*

33. See *House Bioterrorism Hearings*, *supra* note 2, at 14 (statement of James Reynolds) (quoting testimony by Dr. Margaret Hamburg on Mar. 25, 1999, before the House of Representatives, who stated that measures that prevent bioterrorism are the most cost effective ways to counter this type of terrorism).

34. See *id.* at 15 (stating that a crime bill that will improve existing federal statutes pertaining to dangerous biological agents and toxins is currently undergoing finishing touches).

35. See *id.* at 14 (listing the acts that the crime bill will criminalize).

36. See *id.* at 15. The Department of Justice's primary focus in creating the crime bill is to make it easier for law enforcement officials to prevent bioterrorism. See *id.*

37. Pub. L. No. 101-298, § 1, 104 Stat. 201 (1990).

and Effective Death Penalty Act of 1996 (1996 Act).³⁸ Part I then discusses the legislation that the Attorney General's office is currently drafting to strengthen existing laws. Part II of this Comment argues that existing laws do not sufficiently eliminate the threat of bioterrorism. Part III of this comment asserts that criminalizing the unauthorized possession of dangerous agents, unsafe handling of these agents, and perpetration of hoaxes pertaining to bioterrorism would be more effective than current laws in eliminating the threat of bioterrorism. This Comment concludes by recommending that Congress promptly pass the Attorney General's proposed legislation.

I. CURRENT BIOTERRORISM LAWS AND REGULATIONS

Two international instruments, as well as federal regulations and federal criminal laws, specifically pertain to the control of biological weapons.³⁹ The Protocol and the BWC are the primary international agreements that specifically restrict the use of biological weapons.⁴⁰ The 1989 Act implemented the United States' obligations to the BWC by creating federal criminal laws that prohibit several acts of bioterrorism.⁴¹ Subsequently, Congress enacted the 1996 Act, which strengthened these federal criminal laws.⁴² The 1996 Act also required the Secretary of Health and Human Services to promulgate and then to enforce regulations that manage facilities storing and transferring highly lethal substances.⁴³

38. Pub. L. No. 104-132, § 511, 110 Stat. 1214, 1284 (1996).

39. See *House Bioterrorism Hearings*, *supra* note 2, at 14-16 (statement by James S. Reynolds) (noting that current federal criminal statutes, 18 U.S.C. §§ 175, 2332a, as well as current federal regulations do not protect the United States from bioterrorism sufficiently); *Judiciary Hearings*, *supra* note 20, at 28-29 (statement of Ambassador H. Allen Holmes) (noting the inadequacies of the two international agreements pertaining to biological weapons, the 1925 Geneva Protocol and the 1972 Biological and Toxin Weapons Convention).

40. See Elizabeth Smith, Note, *International Regulation of Chemical and Biological Weapons: "Yellow Rain" and Arms Control*, 1984 U. ILL. L. REV. 1011, 1011.

41. See 18 U.S.C. § 175 (1994 & Supp. III 1998) (stating that Congress enacted the Biological Weapons Anti-Terrorism Act of 1989 to implement the United States' obligations to the BWC); *Judiciary Hearings*, *supra* note 20, at 5 (statement of Sen. Kohl) (introducing the Biological Weapons Anti-Terrorism Act for several reasons, including implementation the United States' obligations to the BWC, under Article IV).

42. See discussion *infra* Part I.B.2.

43. See Antiterrorism and Effective Death Penalty Act of 1996, § 511(d)-(e), Pub. L. No. 104-132, 110 Stat. 1284 (requiring the Secretary of Health and Human Services to establish and maintain a list of dangerous biological agents and requiring the Secretary to regulate these substances).

A. International Bioterrorism Laws: The 1925 Geneva Protocol and the 1972 Biological Weapons Convention

1. The 1925 Geneva Protocol: Banning Use of Bacteriological Methods of Warfare

Although people have used biological weapons for centuries,⁴⁴ the first international treaty banning the use of these weapons was the 1925 Geneva Protocol.⁴⁵ The United States signed the Protocol in 1925,⁴⁶ and has generally abided by its terms.⁴⁷ However, the United States did not ratify this treaty until 1975.⁴⁸ The Protocol merely states a rule of law requiring

44. See MARTIN VAN CREVELD, *TECHNOLOGY AND WAR: FROM 2000 B.C. TO THE PRESENT* 72 (1989) (stating that although the use of bacteriological weapons currently is denounced, they have a long and honorable history); see also *Joint Senate Committee Hearings*, *supra* note 5, at 2 (statement of Sen. Shelby (R-Ala.)) (noting that one of the earliest recorded attacks involving a biological weapon occurred in the 15th century, when a Tatar force catapulted the bodies of victims who died from the plague into what is now the Ukraine); Kupperman and Smith, *supra* note 4, at 37-38. More than 2000 years ago, Greeks and Romans contaminated their adversaries' wells with corpses of victims of infectious diseases. See *id.* Combatants also used biological agents during the Crimean War and the American Civil War. See *id.*

45. See Alice I. Youmans et al., *Questions and Answers*, 83 L. LIBR. J. 195, 202 (1991) (noting that the Protocol is more comprehensive than previous agreements pertaining to chemical and biological warfare because this treaty specifically prohibits bacteriological, in addition to chemical, asphyxiating, poisonous, or gas weapons). For a historical synopsis on international agreements pertaining to chemical-biological warfare prior to the Protocol, see Youmans et al., *supra* at 199-203 and Smith, *supra* note 40, at 1031-33. The reader can find treaties that existed prior to the Protocol as well as draft treaties of the Protocol in 3 STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE (SIPRI), CBW AND THE LAW OF WAR: THE PROBLEM OF CHEMICAL AND BIOLOGICAL WARFARE, 151-54.

46. See Protocol, *supra* note 18, 26 U.S.T. at 571-72, 94 L.N.T.S. 72 (proclaiming that the United States signed the Protocol at Geneva on June 17, 1925). See generally FORSBERG ET AL., *supra* note 21, at 69 (stating that as of January 1, 1994, 130 countries were parties to the Protocol).

47. See LEONARD COLE, *THE ELEVENTH PLAGUE: THE POLITICS OF BIOLOGICAL AND CHEMICAL WARFARE* 9 (1997).

48. See Protocol, *supra* note 18, 26 U.S.T. at 571-72, 94 L.N.T.S. 72. On December 16, 1974, the United States Senate consented to ratify the Protocol and on January 22, 1975, the President ratified the Protocol. See *id.* The United States deposited the Protocol on April 10, 1975, whereby this treaty entered into force for the United States. See *id.* The United States originally reserved the right to use prohibited weapons to retaliate against enemies who used these weapons first. See *id.* However, the United States rescinded that reservation in January 1993. See FORSBERG ET AL., *supra* note 21, at 69.

Commentators give different reasons for why the United States did not ratify the treaty for almost 50 years after signing the Protocol. Compare Hoyt Gimlin, *Chemical-Biological Weaponry*, 23 EDITORIAL RES. REP. 459, 463 (1969) (stating that the Protocol was presented to Congress during a time when the United States was in an "isolationist mood," that Congress did formally vote on the law, and that the treaty was withdrawn when, after

humanitarian conduct during war.⁴⁹ This instrument is not an arms control agreement, and therefore does not regulate the amount of bacteriological weapons that its signatories produce or stockpile.⁵⁰

The Protocol only applies to allegations of use of biological weapons under certain circumstances.⁵¹ First, the Protocol only applies to confrontations involving its signatories.⁵² But the Protocol's rule against use of these weapons may reflect customary international law,⁵³ and therefore may apply to all nations.⁵⁴ Furthermore, some parties reserved the right

a lengthy debate, it appeared that defeat was imminent), with JEANNE MCDERMOTT, *THE KILLING WINDS: THE MENACE OF BIOLOGICAL WARFARE* 195-96 (1987) (asserting that Congress did not ratify the Protocol because chemical manufacturing corporations successfully blocked its passage), and Youmans et al., *supra* note 45, at 202 (contending that the Senate did not ratify the agreement "because no efforts were made to lobby for the Protocol or to educate the Senators to the terms of the document").

49. See Michael D. Diederich, Jr., "Law of War" and Ecology: A Proposal for a Workable Approach to Protecting the Environment Through the Law of War, 136 MIL. L. REV. 137, 146 (1992) (stating that various treaties, including the Protocol, prohibit use of weapons that cause unnecessary human suffering and that use of these weapons is considered to be contrary to the laws of humanity, as well as to international law principles, declarations, and binding agreements); Michael J. Matheson, *ASIL International Law Week-end: Panel on Internal Conflicts*, 3 I.L.S.A. J. INT'L & COMP. L. 523, 526 (1997) (observing that commentators often classify the Protocol as an arms control agreement, but that the treaty is actually an important rule prohibiting the use of biological weapons in war); Smith, *supra* note 40, at 1031 & n.134 (reporting that the international community created the Protocol to prohibit use of weapons that inflict or prolong unnecessary suffering).

50. See Smith, *supra* note 40, at 1031, n.134 (stating that the Protocol does not try to regulate the number or kinds of biological weapons that nations produce or stockpile).

51. See *id.* at 1040 (concluding that the Protocol only applies to unique circumstances).

52. See Protocol, *supra* note 18, 26 U.S.T. at 575, 94 L.N.T.S. at 69 (declaring that the Protocol's parties agree to the Protocol's terms as between themselves); Smith, *supra* note 40 at 1033 (noting that the Protocol applies only when all combatants in a confrontation are signatories).

53. See Statute of the International Court of Justice, June 26, 1945, art. 38 (1)(b), 59 Stat. 1055, 1060, T.I.A.S. No. 993 [hereinafter ICJ Statute] (enunciating that one source of international law is international custom, which is evidenced by regular practice that nations accept as the law); DAVID HUNTER ET AL., *INTERNATIONAL ENVIRONMENTAL LAW AND POLICY*, 223 (1998) (instructing that one form of international law is that which is created from the customary practice of nations when nations practice this rule if these nations believe that this practice is required by law). International customary law is binding on all nations. See *id.* at 224.

54. See SIPRI, *supra* note 45, at 15, 23, 26-27 (characterizing the rule prohibiting biological weapons as customary international law). The Protocol states that the civilized world condemns the use of chemical weapons in war, see Protocol, *supra* note 18, 26 U.S.T. at 575, 94 L.N.T.S. at 67, but declares that the treaty's ban extends to biological methods of war. See *id.* 26 U.S.T. at 575, 94 L.N.T.S. at 69. Nevertheless, since 1925, nations have generally not used these weapons and nations have expressed commitment to the ban on use of biological weapons. See SIPRI, *supra* note 45, at 23, 26-27 (stating that the prohibition against use of biological weapons has become customary international law since its creation); see also Matheson, *supra* note 49, at 526 (noting that many nations ac-

to retaliate against enemies that use the prohibited weapons first.⁵⁵ Second, the Protocol applies only to the use of biological weapons in war; it does not define the ambiguous term "war."⁵⁶ If the Protocol's rule prohibiting use of biological weapons constitutes customary international law, this prohibition may extend beyond international armed conflicts.⁵⁷ Thus, the Protocol may also apply when a nation uses biological weapons against another nation, even though the two countries do not recognize each other as belligerents.⁵⁸ Third, the Protocol only applies when its parties use agents, including biological weapons, that the treaty prohibits.⁵⁹

The International Court of Justice (ICJ)⁶⁰ may determine whether a nation has violated the Protocol⁶¹ and then may fashion an appropriate

cept the position that the Protocol's rule against use of biological weapons reflects customary international law); Smith, *supra* note 40, at 1041 (stating that the Protocol's prohibition against use of biological weapons may reflect customary international law).

55. See Youmans et al., *supra* note 45, at 202 (arguing that one of the Protocol's weaknesses is that it only operates upon mutuality and that its signatories reserved the right to use biological weapons to retaliate against enemies who use prohibited weapons).

56. See Protocol, *supra* note 18, 26 U.S.T. at 575, 94 L.N.T.S. at 69 (declaring that the treaty's signatories agree to prohibit use of biological weapons during war); Matheson, *supra* note 49, at 526 (stating that the Protocol only applies to use of the prohibited weapons during war). See generally SIPRI, *supra* note 45, at 28-33 (discussing the meaning of the term "war" in light of other international laws).

57. See Matheson, *supra* note 49, at 526 (stating that the Protocol applies solely to use of chemical and biological weapons in war, but that some nations include internal conflicts as well as international wars in this definition); Smith, *supra* note 40, at 1034-35 (stating that the Protocol only applies to wartime situations, but that the treaty may or may not apply to situations other than legally-declared war, such as civil war insurgents); see also International Trib. For the Former Yugoslavia, *Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction*, 7 CRIM. L.F. 51, 125-28 (1996) [hereinafter International Tribunal] (explaining that several nations, including Greece, the United Kingdom, Germany, and the United States, declared that Iraq's use of chemical weapons against its civilian population violated the Protocol).

58. See SIPRI, *supra* note 45, at 32 (noting that the international rule prohibiting use of biological weapons in war seems to be a minimum standard and thus extends "to conflicts, not of an international character, and perhaps even in cases where the parties do not recognize each other as belligerents.").

59. See Protocol, *supra* note 18, 26 U.S.T. at 575, 94 L.N.T.S. at 69 (declaring that the parties will not use bacteriological warfare methods); Smith, *supra* note 40, at 1033, 1035-36 (contending that treaty violations are difficult to identify because there are language differences between the English and French texts).

60. See U.N. CHARTER, arts. 92-96; ICJ Statute, arts. 34-36, (stating that all nations that are United Nations parties enjoy full access to the International Court of Justice and must adhere to the court's governing principles); see also BARRY E. CARTER & PHILLIP R. TRIMBLE, INTERNATIONAL LAW, 302-03 (3d ed. 1999) (reporting that the International Court of Justice is the primary judicial organ of the United Nations and is comprised of 15 judges who serve nine year terms).

61. See ICJ Statute, art. 36(2)(c) (providing that nations may grant the court jurisdiction to resolve whether an action constitutes a breach of an international law obligation).

remedy.⁶² A party that alleges that another nation has violated the Protocol has the burden of proving such a violation to the court.⁶³ The ICJ prefers documentary evidence, but if the alleging nation does not have this type of evidence, the court will scrutinize closely any circumstantial evidence.⁶⁴ The Protocol does not, however, include verification or enforcement provisions with which to acquire documentary evidence.⁶⁵ Further, nations have not always complied with the ICJ's judgments, and the United Nations Security Council has never enforced an ICJ judgment.⁶⁶ Consequently, if the ICJ holds that a nation violated the Protocol, the aggrieved nation may not be able to recover.⁶⁷

Nations may use the international political process and the presence of strong international norms against terrorist use of these weapons.⁶⁸ The international community, however, has not always supported the United States' use of sanctions or force.⁶⁹ Relying on America's potential adversaries to view offensive use of biological weapons as morally abhorrent may not be realistic, and the fact that Americans view these weapons as morally abhorrent may make bioterrorism more appealing to terrorists.⁷⁰

62. See *id.* art. 36(2)(d) (stating that nations may grant the court jurisdiction to determine the type and extent of a reparation for a breach of an international obligation).

63. See Smith, *supra* note 40, at 1029 (noting that the ICJ generally requires alleging parties to prove the alleged violation).

64. See *id.* (stating that the court may allow circumstantial evidence of an alleged violation, but that the court scrutinizes this evidence closely).

65. See FORSBERG, *supra* note 21, at 69; Smith, *supra* note 40, at 1058 (indicating that the Protocol does not specify the conditions under which parties or the United Nations have authority to investigate alleged Protocol violations).

66. See CARTER, *supra* note 60, at 307-08 (citing examples of nations that have not complied with ICJ judgments and noting that the U.N. Security Council has never taken measures to enforce an ICJ judgment); see also FORSBERG ET AL., *supra* note 21, at 91 n.10 (stating that the United Nations has never taken official action against parties that have violated the Protocol's prohibitions).

67. See *id.* at 306 (stating that affected parties generally have complied with the ICJ's judgments, but that recently, some affected parties have not complied with these judgments).

68. See SIPRI, *supra* note 45, at 18 (comparing sanctions for violations of domestic laws to laws of war and noting that the types of sanctions that apply to the latter are "protests, international condemnation, political isolation, the risk of reprisals, the risk of subsequent trial for war crimes, etc."); Smith, *supra* note 40, at 1058 (concluding that nations rely on world public opinion and the international political process rather than on judicial processes because international laws on biological warfare have extensive interpretational problems).

69. See COLE, *supra* note 47, at 197-98 (listing international means of managing biological weapons and observing that the international community has responded inconsistently to the use of sanctions or use of force against international law violations).

70. See ANDERSON, *supra* note 1, at 9 (stating that the United States intelligence community did not recognize the growing potential for bioterrorism because that commu-

In 1988, for example, several nations publicly condemned Iraq for violating the Protocol when Iraq allegedly used prohibited weapons against Kurdish nationals.⁷¹ Despite these public condemnations, Iraq merely reaffirmed its commitment to the Protocol without taking any substantive remedial action.⁷²

2. *The Biological and Toxin Weapons Convention: Resolving the Protocol's Enforcement Weaknesses, But Not Effectively Curbing Biological Weapons Proliferation*

In the 1950s and 1960s, the Protocol remained the only international agreement that prohibited biological warfare.⁷³ During this time, a number of nations sought to expand and strengthen the Protocol⁷⁴ and proposed draft agreements and resolutions.⁷⁵ The Biological and Toxin Weapons Convention (BWC), which complements and expands the Protocol, represents the fruition of these nations' efforts.⁷⁶ The BWC bans the development, production, stockpiling, acquisition, or retention of biological weapons or biological agents in types or amounts that are not justified for peaceful purposes.⁷⁷

nity assumed that moral norms against offensive use of biological weapons constrains their use by the enemy) ; COLE, *supra* note 47, at 217-25 (noting that, historically, the world community has viewed biological weapons use as repugnant). The United States Army continually faced difficulties in the 1950s and 1960s in trying to establish and maintain a biological weapons program. *See id.* at 217-19. People view biological weapons with repugnance partly because these weapons can kill large numbers of human beings indiscriminately and partly because we constantly face a danger from naturally occurring biological agents. *See id.* at 219. This traditional view, however, does not mean that this sense of abhorrence will continue. *See id.* at 221.

71. *See* International Tribunal, *supra* note 57, at 125-27 (quoting several nations' declarations concerning reports of alleged use of chemical weapons by Iraq in September 1988).

72. *See id.* at 127-28 (stating that when Iraq denied charges of chemical weapons use it also reaffirmed its adherence to the Protocol on September 17, 1988).

73. *See* Youmans et al., *supra* note 45, at 202. In the 1960s, the Soviet Union charged the United States with violating the spirit of the Protocol for using tear gas and herbicides during the Vietnam conflict. *See id.* Although the United States was not a party to the Protocol at the time, Secretary of State Dean Rusk responded to this allegation by arguing that these agents are not prohibited by the Protocol. *See id.*

74. *See id.* at 202.

75. *See* Smith, *supra* note 40, at 1042-43 (providing the history of the BWC).

76. *See id.* at 1041-42 (noting that the BWC resulted from almost twenty years of disagreements between the United States and the Soviet Union over how to avoid some of the Protocol's weaknesses); Diederich, *supra* note 49, at 146 (stating that the BWC expanded the Protocol's restraints on biological warfare).

77. *See* BWC, *supra* note 19, 26 U.S.T. at 587, 1015 U.N.T.S. at 166 (Art. I). *See generally*, Michael Moodie, *Arms Control Programs and Biological Weapons*, in *BIOLOGICAL WEAPONS: WEAPONS OF THE FUTURE?*, *supra* note 3, at 47. There have been three conferences, held in 1979, 1986, and 1991, reviewing the performance of the BWC, and ad-

Unlike the Protocol, the BWC is an arms-control treaty, rather than a mere limitation on wartime acts.⁷⁸ Thus, the BWC's provisions apply at all times, rather than in wartime only.⁷⁹ Furthermore, the BWC clearly defines which substances, equipment, and means of delivery it prohibits.⁸⁰ Notably, however, more nations are developing biological weapons now than before the BWC's creation.⁸¹

To meet the BWC's goal of halting biological weapons proliferation, the treaty includes provisions that allow its parties to address alleged violations.⁸² Parties may consult and cooperate with each other on their own or through help from the United Nations.⁸³ Parties that believe that other parties are violating the BWC may lodge a detailed complaint stating all possible evidence of alleged violations with the United Nations Security Council.⁸⁴ This complaint must request the Security Council to consider investigating the alleged violation.⁸⁵ If the Security Council initiates an investigation based on the complaint, the parties must cooperate with this investigation.⁸⁶ The Security Council must report investiga-

dress possible measures to strengthen its provisions. *See id.*

78. *See* Smith, *supra* note 40, at 1042 (comparing the BWC to the Protocol); Youmans et al., *supra* note 45, at 203 (stating that the BWC is basically a disarmament treaty).

79. *See* BWC, *supra* note 19, 26 U.S.T. at 587, 1015 U.N.T.S. at 166. Parties to the BWC agreed, under article I, not to develop, produce, stockpile, procure, or hold dangerous biological agents in any circumstance. *See id.*; *see also* Theodor Meron, *International Criminalization of Internal Atrocities*, 89 AM. J. INT'L L. 554, 574-75 (1995) (observing that the Protocol may only apply to biological weapons' use during international wars and concluding that the BWC is not as limited in its application, and applies against parties in any circumstance).

80. *See* BWC, *supra* note 19, 26 U.S.T. at 587, 1015 U.N.T.S. at 166. Under article I, parties to the BWC agree to not develop or possess "[m]icrobial or other biological agents, or toxins whatever their origin or method of production," as well as weapons, equipment, or means that deliver biological substances or toxins. *Id.*

81. *See id.*, 26 U.S.T. at 585-86, 1015 U.N.T.S. at 164-65 (stating that the BWC parties are determined to achieve progress towards general and complete disarmament and to completely exclude the possibility of use of biological weapons); COLE, *supra* note 47, at 4-5 (maintaining that biological weapons programs are growing as the number of signatories to international agreements prohibiting these weapons increases).

82. *See* BWC, *supra* note 19, 26 U.S.T. at 588-89, 1015 U.N.T.S. at 167 (articles V-VII).

83. *See id.*, 26 U.S.T. at 588, 1015 U.N.T.S. at 167 (declaring, in article V, that BWC parties must consult with each other and cooperate to solve problems that arise regarding the BWC's objectives or applications).

84. *See id.*, 26 U.S.T. at 588, 1015 U.N.T.S. at 167 (providing, in article VI(1), that BWC parties that find that other parties are breaching their obligations to the BWC may lodge a complaint with the United Nations Security Council).

85. *See id.*

86. *See id.* (stating, in article VI(2), that BWC signatories undertake to cooperate in carrying out the Security Council's BWC investigations).

tion results to all BWC parties.⁸⁷

Critics of the BWC question the effectiveness of these enforcement provisions because the BWC does not provide verification measures to assess potential violations and relies instead on international political pressure.⁸⁸ Without sufficient evidence though, parties may be reluctant to report an alleged violation when a nation has harmed its own citizens.⁸⁹ Furthermore, the lack of verification provisions permits violating nations to deny other nations access to their lands, delay news of the incident, and destroy evidence, thus thwarting the investigative process.⁹⁰ A complaining party may have a particularly difficult time verifying an alleged violation when a nation has taken advantage of biotechnological advances that have decreased the potential for detection.⁹¹

87. *See id.*

88. *See Smith, supra note 40, at 1046.* Although violations of the BWC may be difficult to prove, the BWC does not include mandatory verification requirements. *See id.* The question of allowing for verification measures under the BWC, however, has proven controversial. *See Moodie, supra note 77, at 54* (noting the ongoing debate regarding the potential effectiveness of a verification placed under the BWC). Commentators debate whether verification entails highly intrusive inspections permissible at any time or should merely require a demonstration of compliance. *See id. at 54; see also Roberts, supra note 3, at 93* (noting that the various challenges pertaining to biological weapons use have grown more pronounced, and that the proliferation of biological weapons and noncompliance issues have resulted in an erosion of confidence in the BWC).

Commentators note that the BWC is limited in detecting and responding to violations in view of the rising proliferation of biological warfare capabilities, particularly in Iraq and Russia. *See id. at 78.* Iraq managed to evade international detection as it developed an offensive biological weapons program, despite indications that something was amiss in that country. *See id.* Similarly, the United States and its allies alleged that the Soviet Union violated the BWC by providing its allies with biological weapons in the late 1970s, by using these weapons in Afghanistan in the 1980s, and by possessing these weapons after the Soviet Union experienced an anthrax outbreak in 1979. *See id. at 79.* The Soviet Union denied these allegations. *See id. at 80.* In February 1992, however, Russian President Boris Yeltsin acknowledged that past military efforts in the Soviet Union did not comply with international treaties. *See id.* Commentators note that this acknowledgment raises doubts about the BWC as a treaty that relies on international pressure to bring nations in compliance with its provisions. *See id. at 81.* The fact that the international community could not gather the political will to resolve allegations of BWC violations by Iraq and the Soviet Union, or even try to secure compliance when the allegations later proved true, indicts the international community itself. *See id.*

89. *See Smith, supra note 40, at 1046* (noting that parties may be reluctant to report incidents involving another nations' use of biological weapons against its own citizens if the first nation does not have enough evidence to prove this allegation).

90. *See id.* (stating ways that a violating nation can thwart the investigative process).

91. *See Thomas Dashiell, A Review of U.S. Biological Warfare Policies, in BIOLOGICAL WEAPONS: WEAPONS OF THE FUTURE?, supra note 3, at 1, 5* (noting that biotechnology advances increase the difficulty, and hence decrease the probability, of detecting BWC violations).

Commentators also criticize a BWC loophole⁹² that allows its parties to possess dangerous biological agents and toxins for defense research or other peaceful purposes.⁹³ Critics claim that biological weapons testing and research inherently create a substantial risk that the agents will escape into the environment.⁹⁴ Likewise, nations easily could take advantage of this loophole because developing agents for defense purposes is operationally equivalent to developing agents for offensive purposes.⁹⁵ On the other hand, a nation that genuinely conducts research on biological agents for defense purposes may have a difficult time convincing others that such research will not be used to develop offensive weapons.⁹⁶

Defenders of the peaceful research exception argue that governments must be allowed to defend against biological warfare.⁹⁷ Defensive research reduces the number of casualties from a biological weapons attack

92. See BWC, *supra* note 19, 26 U.S.T. at 571, 1015 U.N.T.S. at 166 (stating, in article I, that parties to the BWC may not possess substances that could create biological weapons "in quantities that have no justification for prophylactic, protective or other peaceful purposes").

93. See Victor W. Sidel, *The History of Biological Warfare and Research*, in POISON IN THE WIND: THE SPREAD OF CHEMICAL AND BIOLOGICAL WEAPONS, *supra* note 1, at 9, 13 (arguing that the BWC's exception for defensive or legitimate purposes creates a loophole because the risk of release in the environment and biological weapons research inevitably leads to more biological weapons); Smith, *supra* note 40, at 1046 (stating that BWC commentators have expressed concerns that nations may, under this exception, justify possession of a large amount of these agents as immunizations for their citizens, but then use these agents against their enemies). See generally Frank Barnaby, *Chemical and Biological Warfare*, in FUTURE WAR: ARMED CONFLICT IN THE NEXT DECADE 106-13 (Frank Barnaby ed., 1984). Under this loophole, the Soviet Union probably did not violate the BWC in 1982, as alleged by the United States, even though an explosion in a biological weapons research laboratory near Sverdlovsk resulted in an anthrax epidemic in that region. See *id.* at 111.

94. See Rifkin, *supra* note 4, at 103 (noting that advertent or inadvertent release of dangerous organisms into the environment could come about due to "human error, equipment failure, terrorism, or natural disasters").

95. See David L. Huxsoll, *The U.S. Biological Defense Research Program*, in BIOLOGICAL WEAPONS: WEAPONS OF THE FUTURE?, *supra* note 3, at 58, 62 (suggesting that it is easy to obscure the line between offensive and defensive research on dangerous biological agents); Smith, *supra* note 40, at 1046 (contending that nations easily could breach the BWC's prohibition against possession of dangerous agents by having research programs).

96. See Anthony Robbins, M.D., *The Biological Warfare Program Should Be Abolished*, in POISON IN THE WIND: THE THREAT OF CHEMICAL AND BIOLOGICAL WARFARE, *supra* note 1, at 91, 96 (citing reasons that the United States should halt biological warfare testing). Dr. Robinson observes that research on offensive and defensive uses of biological agents are functionally the same, concluding that it is impossible to prove to other nations that the United States conducts this research for legitimate defensive purposes. See *id.*

97. See Huxsoll, *supra* note 95, at 61 (stating that biological weapons programs are a legitimate and legal method of preparing a nation for a biological weapons attack).

and prevents technological surprise.⁹⁸ Furthermore, many agents that terrorists could use in weapons also occur in nature, and international accords should allow governments to examine and improve their ability to deal with these agents.⁹⁹

*B. United States Laws and Regulations that Manage Dangerous
Biological Agents*

*1. The Biological Weapons Anti-Terrorism Act of 1989: Implementing
the United States Obligations Under the BWC and the Beginnings of
Criminalizing Bioterrorism*

Before 1990, federal criminal codes did not regulate private citizens' actions regarding biological weapons specifically.¹⁰⁰ Although the government could have prosecuted bioterrorists for murder for killing people with biological weapons, the manufacture of a biological weapon was not a crime.¹⁰¹ As a threshold matter, law enforcement authorities could not prevent private citizens from building biological weapons.¹⁰² The Reagan Administration stated that extensive existing legislation prevented private citizens from engaging in conduct prohibited under the BWC.¹⁰³ These laws, however, do not cover biological agents and toxins that the BWC describes, and do not implement the BWC's goal of eradicating biological weapons.¹⁰⁴ Consequently, Congress passed the 1989

98. *See id.* at 61-62.

99. *See House Bioterrorism Hearings, supra* note 2, at 51 (statement of Dr. Ronald M. Atlas) (noting that microbiologists use the same natural infectious diseases that could be used to create biological weapons to develop means of reducing illness from these agents).

100. *See Judiciary Hearings, supra* note 20, at 8 (statement of Rep. Robert Kastemeier (D-Wis.)). In 1973, the executive branch encouraged Congress to pass legislation that would prohibit and provide penalties for developing and acquiring biological weapons. *See id.* Congress, however, did not consider this legislation because of the delay in ratifying the BWC. *See id.* The 1980 legislative session ended before Congress could enact similar legislation. *See id.*

101. *See id.* at 5 (statement by Sen. Kohl) (citing the reasons that he introduced this bill, one of which was to close the gap in the criminal laws pertaining to use of biological weapons).

102. *See id.*

103. *See id.* at 8 (statement of Rep. Kastemeier).

104. *See id.* The Reagan Administration stated that "the Arms Export Control Act, the Export Administration Act, Hazardous Material Transportation Act, Toxic Substances Control Act, the Public Health Service Act, [and] the Federal Insecticide, Pesticide and Rodenticide Act" controlled bioterrorism. *Id.* None of these laws, however, effectively prevent this sort of terrorism. *See id.* The Arms Export Control Act, for example, gives the President authority to control the export and import of defense articles, which includes biological agents. *See* 22 U.S.C. § 2778 (1994); 22 C.F.R. § 121.1 (category XIV) (1999). Unfortunately, neither the Act nor its implementing regulations defines

Biological Weapons Anti-Terrorism Act of 1989 (1989 Act) to close the gap in federal legislation controlling bioterrorism, thereby enhancing the nation's safety.¹⁰⁵ This Act also fulfilled the United States' obligations to the BWC.¹⁰⁶

The 1989 Act created a new chapter in title 18 of the *United States Code* that pertains solely to biological weapons crimes.¹⁰⁷ This chapter contains four sections.¹⁰⁸ The first section mandates fines or imprisonment for anyone in the United States who knowingly creates, transfers, or possesses biological agents, toxins, or delivery systems in order to use these items as biological weapons.¹⁰⁹ The United States has jurisdiction over biological weapons offenses that are committed by or against United States nationals.¹¹⁰

The second section of the 1989 Act gives the Attorney General authority to search for and seize biological agents, toxins, or delivery systems that are held to create or transfer biological weapons.¹¹¹ The Attorney General may search for and seize agents of the kind or amount that are not justified for peaceful purposes.¹¹² In emergencies, the Attorney General does not need a warrant to seize and destroy these agents if there is probable cause to believe that violators are using the agents as

"biological agents" clearly. *See Judiciary Hearings, supra* note 20, at 108 (supplement to the testimony of Francis A. Boyle) (listing legislation that the Reagan Administration held as sufficient to implement the BWC, and explaining why each act is not sufficient to implement the BWC). Furthermore, the Act does not provide the government with adequate regulatory authority over biological agent research and manufacture. *See id.*

105. *See* 135 CONG. REC. 16,501-02 (1989) (testimony of Sen. Kohl); *Judiciary Hearings, supra* note 20, at 5 (statement of Sen. Kohl) (stating that one of the reasons he introduced the bill was to close the loophole in the federal criminal laws that prohibits people from killing with biological weapons but does not prohibit people from creating biological weapons).

106. *See* Biological Weapons Anti-Terrorism Act of 1989, Pub. L. No. 101-298, § 2(a), 104 Stat. 201 (1990); 135 CONG. REC. 16,501-02 (1989) (testimony by Sen. Kohl). Before this Act, the United States fulfilled part of its obligations to the BWC by renouncing biological weapons and by destroying the nation's stockpiles of biological weapons. *See id.* However, the United States did not completely fulfill all of its obligations to the BWC because it never took measures to outlaw biological weapons domestically. *See id.*

107. *See* Biological Weapons Anti-Terrorism Act § 3(a), 104 Stat. at 201 (stating that title 18 of the U.S. Code is amended by inserting a new chapter after chapter 9).

108. *See id.*, 104 Stat. at 201-03 (setting forth four sections in chapter 10, titled "Prohibitions with respect to biological weapons," "Seizure, forfeiture, and destruction," "Injunctions," and "Definitions")

109. *See* 18 U.S.C. § 175(a) (Supp. III 1997) (providing that those who violate this section shall be fined, or imprisoned for life or any term of years).

110. *See id.*

111. *See id.* § 176.

112. *See id.* § 176(a).

biological weapons.¹¹³ Alleged violators may defend their biological agent, toxin, or delivery systems against forfeiture by presenting evidence that these items are meant for prophylactic, protective, or peaceful purposes.¹¹⁴

The last two sections of the 1989 Act provide for civil injunctions and define several key terms.¹¹⁵ The 1989 Act gives the United States authority to seek a civil injunction against those who commit actions prohibited by the 1989 Act or against those who prepare, solicit, try, or conspire to violate the 1989 Act.¹¹⁶ Alleged violators may defend themselves against such civil injunctions if their actions with respect to the dangerous agents are justified for peaceful purposes.¹¹⁷ Finally, the Act defines four terms: biological agent,¹¹⁸ toxin,¹¹⁹ delivery system,¹²⁰ and vector.¹²¹

When Congress introduced the Biological Weapons Anti-Terrorism Act, the biotechnology industry stated that the industry supported the bill, but expressed concern that the 1989 Act would impede legitimate research.¹²² Although acknowledging that the 1989 Act provides a defense against the seizure of biological agents,¹²³ the biotechnology industry argued that legitimate researchers would have the burden of proving this defense.¹²⁴ The legislature responded to this concern by clearly stat-

113. *See id.* § 176(a)(2).

114. *See id.* § 176(c). In addition to a peaceful purpose, the alleged violator must show that the agent, toxin, or delivery system "is of a type and quantity reasonable for that purpose." *Id.* § 176 (c)(2).

115. *See id.* §§ 177-178.

116. *See id.* § 177(a).

117. *See id.* § 177(b) (stating that an alleged violator may present an affirmative defense against an injunction by showing a peaceful purpose and that the type and quantity of the material corresponds to such a purpose).

118. *See id.* § 178(1) (defining a biological agent as any microorganism, virus, or infectious substance that can cause other living organisms to die or become ill, cause food, water, equipment or supplies to deteriorate, or deleteriously alter the environment).

119. *See id.* § 178(2) (defining toxins as poisonous substances that living organisms produce or poisonous isomers, homologs, or derivatives of these substances).

120. *See id.* § 178(3). Delivery systems include equipment or apparatus that are designed to deliver or disseminate biological agents, toxins, or vectors. *See id.* § 178(3)(A). A delivery system is also a vector. *See id.* § 178(3)(B); *see also infra* note 121 (defining vector).

121. *See id.* § 178(4). Vectors are living organisms that can carry biological agents or toxins to a host. *See id.*

122. *See Judiciary Hearings, supra* note 20, at 70-71 (testimony of Richard Godown, President, Industrial Biotechnology Association).

123. *See id.* at 71 (expressing concerns about the 1989 Act's impact on the research community).

124. *See id.*

ing in the bill's legislative history that the 1989 Act did not intend to prohibit legitimate scientific research.¹²⁵

2. *The Antiterrorism and Effective Death Penalty Act of 1996: Responding to United States v. Harris and Strengthening Biological Weapons Laws*

In 1996, federal laws and regulations were still not sufficient to protect Americans from bioterrorism.¹²⁶ On March 12, 1996, Senator Orrin G. Hatch (R-Utah) introduced the Biological Agents Enhanced Penalties and Control Act¹²⁷ (Biological Agents Act), which Congress eventually incorporated into the Antiterrorism and Effective Death Penalty Act of 1996 (1996 Act).¹²⁸ The Biological Agents Act sought to close gaps in the criminal laws that made it difficult to prosecute people who buy pathogens without legitimate purposes and in the federal regulations that allowed anyone to have dangerous biological agents.¹²⁹ Like the 1989 Act, the Biological Agents Act sought to balance citizens' needs to be protected from bioterrorism with researchers' needs to use pathogens without having to meet over-burdensome regulations.¹³⁰ The impetus for the creation of the Biological Agents Act was a case involving the

125. *See id.* at 87-88 (statement of Sen. Kohl) (asking Mr. Godown if the biotechnology industry would be more secure if the bill's legislative history clearly stated that the bill did not intend to prevent legitimate research and receiving an affirmative answer); *see also* 135 CONG. REC. 16,501, 16,502 (1989) (statement of Sen. Kohl). Senator Kohl emphasized that the drafters carefully crafted the Biological Weapons Anti-Terrorism Act to ensure that legally valid researchers working with dangerous biological agents or toxins are not targeted for prosecution mistakenly. *See id.*

126. *See* 142 CONG. REC. 1862 (1996) (statement of Sen. Hatch).

127. S. 1606, 104th Cong. (1996); *see also* 142 CONG. REC. 1862 (statement of Sen. Hatch) (introducing the Biological Agents Act, noting the bill's purpose, and acknowledging the bill's cosponsors: Senators Orrin G. Hatch (R-Utah), Diane Feinstein (D-Cal.), Strom Thurmond (R-S.C.), Mike DeWine (R-Ohio), Herb Kohl (D-Wis.), and Joseph R. Biden, Jr. (D-Del)).

128. *See Joint Senate Committee Hearings, supra* note 5, at 6-7 (statement of Sen. Feinstein) (discussing current federal criminal laws pertaining to biological weapons); *id.* at 4-5 (statement by Sen. Kyl, discussing congressional efforts to combat bioterrorism).

129. *See* 142 CONG. REC. 1862 (statement of Sen. Hatch). Senator Hatch also noted that federal regulations pertaining to the interstate transportation of agents that are pathogenic to plants and animals are more strict than those regulating the interstate transportation of human pathogens. *See id.*

130. *See id.* at 1863.

unauthorized possession of dangerous pathogens,¹³¹ *United States v. Harris*.¹³²

In 1995, Larry Wayne Harris bought samples of the bacteria that causes bubonic plague for what he claimed was legitimate research “to counteract an imminent invasion from Iraq of super-germ-carrying rats.”¹³³ The court convicted Harris of fraudulently misrepresenting himself to the lab where he faxed his order for the bacteria.¹³⁴ When Senator Hatch introduced the Biological Agents Act, he noted that if Mr. Harris had not used fraudulent misrepresentation to buy the substance, the court would not have convicted him of anything because gaps in the laws enabled anyone to obtain dangerous pathogens.¹³⁵

a. Expansion of the Government's Capacity to Prosecute Crimes Involving Biological Weapons

The 1996 Act amended the federal criminal statutes pertaining to biological weapons to update these laws with science and technology and to ensure that bioterrorists will face severe and certain punishment.¹³⁶ The 1996 Act accomplished these goals by amending three sections of the 1989 Act.¹³⁷ The terms “biological agent,” “toxin,” and “vector” under

131. See *Joint Senate Committee Hearings*, *supra* note 5, at 4-5 (statement of Sen. Kyl) (asserting that Congress enacted the Antiterrorism and Effective Death Penalty Act in 1996 as a response to the fact that Larry Wayne Harris acquired the bubonic plague bacteria); 142 CONG. REC. 1862 (statement of Sen. Hatch) (referring to an incident in Las Vegas in May 1995 without specially naming Harris).

132. 961 F. Supp. 1127 (S.D. Ohio 1997).

133. *Id.* at 1129, 1132.

134. See *id.* at 1129. Harris ordered bacteria that causes bubonic plague from American Type Culture Collection (ATCC), a Maryland company. See *id.* He misrepresented to ATCC that he was qualified to order the bacteria by stating that he had an Environmental Protection Agency (EPA) certification number. See *id.* Harris also misinformed ATCC by telling them that he had a small animals laboratory. See *id.* See generally COLE, *supra* note 47, at 3-4. Harris ordered the bacteria a few weeks after the sarin gas attack in a Tokyo subway. See *id.* After a police search in his home revealed racist and anti-Semitic literature, as well as a certificate declaring Harris to be a member of a white supremacist organization, a spokesmember for the Anti-Defamation League of B'nai B'rith expressed concern that Harris intended to use the bacteria for purposes other than against Iraq. See *id.* at 4, 157. Harris entered a guilty plea to a wire fraud charge in exchange for the maximum six-month jail sentence. See *id.*

135. See 142 CONG. REC. 1862 (statement of Sen. Hatch).

136. See *id.* at 1862-63 (statement of Sen. Hatch) (noting that existing laws do not reflect current scientific and technological capabilities, and stating that the Biological Agents Act would strengthen these laws by expanding the federal government's jurisdiction to prosecute individuals who might take advantage of these current capacities).

137. See Antiterrorism and Effective Death Penalty Act of 1996, Pub. L. No. 104-132, § 511(b), 110 Stat. 1214, 1284 (amending 18 U.S.C. §§ 175, 177-178 (1994)).

the federal criminal code now include genetically altered products.¹³⁸ In addition, there are criminal penalties for attempts, threats, or conspiracies to violate federal biological weapons criminal laws.¹³⁹ Finally, the federal government now has authority to seek injunctions against those who threaten to violate federal criminal laws involving biological weapons.¹⁴⁰

b. Criminalizing Genetically Altered Biological Weapons

The 1996 Act also amended the federal statute that criminalizes the use of weapons of mass destruction.¹⁴¹ Under this section, weapons of mass destruction include poison gas, weapons involving disease organisms, and weapons that release dangerously high levels of radiation.¹⁴² Those who use, try to use, or conspire to use such weapons against United States citizens who are outside of the United States, against people who are within the United States, or against federal property in or outside of the United States will face imprisonment or the death penalty.¹⁴³ The 1996 Act expanded this section by including the use of biological agents and toxins as they are defined in 18 U.S.C. § 178 in the general prohibition against use of weapons of mass destruction, thereby including genetically altered products.¹⁴⁴

c. Tightening Safety and Transfer Regulations

Aside from amending existing federal criminal statutes, the 1996 Act also tightened regulations on transfers and possession of potentially haz-

138. Compare 18 U.S.C. § 178 (Supp. III 1998) (including biological products that can be biotechnologically engineered to the provision's definition of biological agent), with 18 U.S.C. § 178 (1994) (limiting the definition of biological agent to microorganisms, viruses, or infectious substances).

139. Compare 18 U.S.C. § 175(a) (Supp. III 1997) (including attempts, threats, or conspiracies in the section's general prohibitions), with 18 U.S.C. § 175(a) (1994) (limiting the section to prohibit the knowing development, production, stockpiling, transfer, acquisition, retention, or possession of the banned substances).

140. Compare 18 U.S.C. § 177 (Supp. III 1997) (including threats to engage in prohibited actions pertaining to biological weapons in the list of acts the United States can obtain a civil injunction against), with 18 U.S.C. § 177 (1994) (allowing the United States to obtain a civil injunction against those who prepare, solicit, try, or conspire to engage in prohibited actions pertaining to biological weapons).

141. See Antiterrorism and Effective Death Penalty Act § 511(c) (amending 18 U.S.C. § 2332a(a), which criminalized use of weapons of mass destruction).

142. See 18 U.S.C. § 2332a(c)(2) (Supp. III 1997).

143. See 18 U.S.C. § 2332a(a) (1994 & Supp. III 1997).

144. See Antiterrorism and Effective Death Penalty Act § 511(c) (codified as amended at 18 U.S.C. § 2332a(a) (Supp. III 1997)).

ardous biological agents.¹⁴⁵ Before the 1996 Act, biological pathogens were available to various legitimate users, yet anyone could legally procure these agents, as long as the sellers of the agents did not impose their own limits.¹⁴⁶ Several federal agencies, such as the Environmental Protection Agency and the Department of Agriculture, regulated the management of these agents.¹⁴⁷ However, the regulations were developed for narrow purposes in an era when most lawmakers did not consider domestic bioterrorism as a realistic possibility.¹⁴⁸ The agencies did not coordinate their biological agents¹⁴⁹ or keep up with advancing science.¹⁵⁰ Therefore, these regulations provided an ineffective response to bioterrorism incidents.¹⁵¹

Medical and research facilities must be able to ship infectious agents because these agents are used to further medical research and to diagnose and treat infectious diseases.¹⁵² Communities must have adequate

145. *See id.* § 511(d)-(e) (requiring the Secretary of Health and Human Services to promulgate final regulations controlling biological agents within 120 days after the Act passes).

146. *See* 142 CONG. REC. 1862 (1996) (statement of Sen. Hatch). There were three legitimate groups of biological agent users prior to the 1996 Act. *See id.* Clinical laboratories could analyze small amounts of biological agents from patient samples. *See id.* Government and private scientists could use biological agents to conduct legitimate basic and clinical research. *See id.* The Department of Defense could use biological agents to develop protective strategies against the use of biological weapons in war. *See id.*

147. *See id.* (listing the various federal agencies that regulate biological agents, including the Postal Service and the Food and Drug Administration).

148. *See id.* For example, the Centers for Disease Control and Prevention (CDC) grouped biological agents into four classifications, ranging from agents that do not harm humans to agents that are very harmful to humans. *See id.* at 1863. Regulations required laboratories to manage each class of agents in a particular manner. *See id.* The CDC promulgated this classification system to protect laboratory workers and to prevent the accidental release of agents into the environment. *See id.* The regulations did not take theft of the agents into account or attempt to prevent misdirection of dangerous agents to terrorists. *See id.*

149. *See id.* at 1862.

150. *See id.* at 1862-63 (citing, for example, CDC regulations that did not address new strains of organisms or provide an adequate definition of biological agent).

151. *See id.* at 1863 (quoting testimony by Dr. James M. Hughes, the Assistant Surgeon General and Director of the National Center for Infectious Diseases for the CDC, before the Senate Judiciary Committee, in March 1996). Dr. Hughes testified that regulations seeking to safeguard against the acquisition and distribution of agents pathogenic to people are not comprehensive. *See id.* Although these regulations effectively control the packaging, labeling, and transporting of these agents, the number of different departmental regulations do not effectively control the possession and transfer of these substances within the United States. *See id.*

152. *See House Bioterrorism Hearings, supra* note 2, at 50 (statement of Dr. Atlas) (noting that combating infectious diseases requires working with the same dangerous agents used by bioterrorists).

protection, however, from those who may steal the agents or intentionally divert the agents to terrorists, who could then use the agents to create biological weapons.¹⁵³ Therefore, the 1996 Act sought to ensure that regulations governing the transfer of dangerous biological agents strike a balance between assuring that medical and research communities have access to these materials and preventing non-legitimate users from having such access.¹⁵⁴

The 1996 Act mandated new responsibilities for the Secretary of Health and Human Services.¹⁵⁵ These responsibilities include establishing and maintaining a list of biological agents that could pose a severe public health and safety threat¹⁵⁶ and creating regulations for transfers of listed biological agents.¹⁵⁷ The 1996 Act specifically states that the Secretary, in promulgating these regulations, must ensure that biological agents remain available for legitimate uses.¹⁵⁸

d. Whether to Implement the Transfer and Disposal of Biological Agents Requirements: Immediate Criticisms of the Efficacy of the Regulations

In response to the requirements the 1996 Act imposes on the Secretary, the Centers for Disease Control and Prevention (CDC) issued a Notice of Proposed Rulemaking on June 10, 1996.¹⁵⁹ The CDC issued the

153. See 142 CONG. REC. 1863 (statement of Sen. Hatch).

154. See *Joint Senate Committee Hearings, supra* note 5, at 23 (statement of Dr. Stephen M. Ostroff, Associate Director of Epidemiologic Science, National Center for Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia).

155. See Antiterrorism and Effective Death Penalty Act, Pub. L. No. 104-132, § 511(d)-(f), 110 Stat. 1284, 1285 (amending 18 U.S.C. §§ 175, 177-78) (requiring the Secretary of Health and Human Services to regulate biological agents that could pose severe threats to public health and safety).

156. See *id.* § 511(d), (f) (requiring the Secretary to establish a proposed list of all such agents within three months after the Act's enactment and to promulgate a final version of the list within six months). In creating this list, the Secretary must consider four criteria. See *id.* § 511(d)(1)(B)(i). These criteria include the agent's effect on human health upon exposure, how contagious the agent is, as well as methods by which the agent could be transferred to humans, the availability and effectiveness of immunizations against infection, and any other appropriate criteria. See *id.* The Secretary must also consult with scientific experts from appropriate professional groups. See *id.* § 511(d)(1)(B)(ii).

157. See *id.* § 511(e). The Act directs the Secretary to create regulations requiring users to have proper training and appropriate skills before handling these agents and directs the Secretary to provide guidelines for containment and disposal. See *id.* § 511(e)(1)(A)-(B). The regulations must include safeguards preventing access to dangerous biological agents and procedures that protect the public safety in case a listed biological agent is transferred in violation of the safety procedures. See *id.* § 511(e)(2).

158. See *id.* § 511(e)(4) (stating that legitimate purposes include research and education).

159. See Additional Requirements for Facilities Transferring or Receiving Select In-

final regulation on October 24, 1996 after a thirty-day comment period and time for the CDC to consider the comments.¹⁶⁰ The final regulation became effective April 15, 1997.¹⁶¹

The final regulation has several fundamental components.¹⁶² First, it provides a list of select agents that pose a threat to public health and safety.¹⁶³ Commercial suppliers, as well as those agencies, universities, research institutions, individuals, and private companies that transfer or obtain any of the listed agents¹⁶⁴ must now register with the Secretary.¹⁶⁵

fectious Agents, 61 Fed. Reg. 29,327-28 (proposed June 10, 1996) (suggesting new regulations pertaining to the acquisition and transfer of dangerous biological agents in accordance with the Antiterrorism and Effective Death Penalty Act).

160. See Additional Requirements for Facilities Transferring or Receiving Select Agents, 61 Fed. Reg. 55,190 (1996) (codified at 42 C.F.R. pt. 72). The CDC received 67 written responses, many of which contained multiple comments and most of which were favorable. See *id.* These comments focused on specific sections of the regulation, requested clarification of particular provisions, or suggested that agents be added or deleted from the proposed list. See *id.* Some commentaries stated that the regulation would not protect the public against biological terrorism, would impede research, and would simply provide unnecessary additional administrative costs and burdens. See *id.*

161. See *id.*; Additional Requirements for Facilities Transferring or Receiving Select Agents, 42 C.F.R. § 72.6 (1998); Penalties, 42 C.F.R. § 72.7 (1998); Select Agents, 42 C.F.R. app. § 72 (1998).

162. See *Joint Senate Committee Hearings*, *supra* note 5, at 23 (statement of Dr. Ostroff) (noting that the new regulations include six fundamental components, including registration of facilities and verification procedures, as well as a list of select agents that are subject to the rule); 42 C.F.R. § 72.6-7, app.

163. See 42 C.F.R. app. § 72; see also *Joint Senate Committee Hearings*, *supra* note 5, at 23 (testimony of Dr. Ostroff). The CDC will supplement or modify this list of 40 select agents as needed. See *id.* CDC based the select agents list on an existing list of infectious agents regulated for export from the United States that can harm the public's health. See *id.* Sen. Feinstein criticized the CDC for not including *Salmonella typhimurium* on the list because terrorists previously used this agent to harm the public. See *id.* at 37. Dr. Ostroff responded to this criticism by stating that placing this agent on the list "would be an exercise in futility" because *Salmonella* is ubiquitous, existing naturally in poultry, as well as other types of animals. See *id.* In a persuasive example, he noted that anyone can go to a grocery store, buy several chickens, isolate the *Salmonella* organism, and then poison several hundred people with it. See *id.* at 37-38. Dr. Ostroff concluded that continually adding agents like *Salmonella* to the select list would not strengthen the regulations. See *id.*

164. See 42 C.F.R. § 72.6(j) (defining the term facility under the regulation).

165. See *id.* § 72.6(a)(1). The registration process involves certifying that facilities meet minimum biosafety levels. See *id.* § 72.6(a)(2)(i). The Secretary may also require facility inspections in order to ensure that facilities meet mandated biosafety levels. See *id.* § 72.6(a)(2)(ii), (g). Once approved, facilities receive unique registration numbers that indicate that the facilities may work with listed agents at specific biosafety levels. See *id.* § 72.6(a)(i), (a)(2)(iii). The Secretary may deny registration to or withdraw registration from a facility if there is evidence that the facility cannot handle these agents safely, that the facility handles the agents unsafely, that the facility intends to use these agents in a manner that could harm people, or that the facility is otherwise not complying with the regulations. See *id.* § 72.6(a)(4). Facilities may appeal denial or withdrawal of registration. See *id.* § 72.6(b).

Transferors and requestors of listed agents must now keep track of these agents¹⁶⁶ and comply with disposal and storage requirements.¹⁶⁷ Certain agents, however, such as the less pathogenic vaccine strains of restricted viral agents, are exempt from the regulations so that legitimate facilities retain the ability to use them for reference, diagnostic, and research studies.¹⁶⁸ In addition, the Clinical Laboratories Improvement Amend-

During federal congressional hearings a year after the CDC promulgated these regulations, Senator Kyl expressed concern that the CDC did not carry out the regulations' mandate by registering facilities quickly enough. *See Joint Senate Committee Hearings, supra* note 5, at 33-35 (testimony of Sen. Kyl and Dr. Ostroff). At the same hearing, Sen. Feinstein expressed concern with the registration process, asking Dr. Ostroff whether the CDC may delegate authority to register laboratories to private entities as noted in § 72.6(c). *See id.* at 35 (statement of Sen. Feinstein). Dr. Ostroff stated that the CDC discussed having an outside organization try to implement some aspects of the regulation, but decided that it is most appropriate to keep these responsibilities within the agency. *See id.* at 35.

Senator Feinstein also criticized the regulations for not including a provision requiring that the CDC do a background check on individual employees who work with the select agents. *See id.* at 35-36. She was concerned that another situation similar to the Harris incident, which precipitated these regulations, could recur. *See id.* Dr. Ostroff stated that it would be extraordinarily difficult to prevent people with criminal intentions from obtaining dangerous agents. *See id.* Dr. Ostroff noted, however, that the regulation has safeguards sufficient to prevent another Larry Wayne Harris episode from occurring. *See id.* at 36-37.

166. *See* 42 C.F.R. § 72.6(d)-(f). Transferors and requestors of select agents are required to complete an official transfer form and to provide specific information about the request, such as the purposes for which the agent will be used. *See id.* § 72.6(d). Both parties to the transfer must retain a copy of the transfer form, and the transferor must also send a copy to a designated central repository. *See id.* § 72.6(d)(3), (f)(3). The purpose of the form is to track the whereabouts of select agents, which is helpful in cases of illegitimate access to the agents. *See* Additional Requirements for Facilities Transferring or Receiving Select Agents, 61 Fed. Reg. 55,190, 55,192 (1996). Facilities do not have to follow the regulation's transfer and verification requirements in order to transfer agents within the facility if they maintain adequate records of such transfers. *See* 42 C.F.R. § 72.6(j).

Each registered facility must designate a responsible facility official who is authorized to transfer and receive any of the agents listed, and who is either a safety manager or senior management official of the facility. *See id.* The statute requires the responsible facility official to take an active role in the transfer process. *See id.* § 72.6(d)(1)(iii), (d)(2), (e).

167. *See* 42 C.F.R. § 72.6(i)(1)(i) (stating that select agents must be "stored in accordance with prudent laboratory practices"). The final rule explained that prudent practice includes secure and controlled access to the area and to the equipment where the agents are stored. *See* Additional Requirements for Facilities Transferring or Receiving Select Agents, 61 Fed. Reg. at 55,193. In addition, facility officials must dispose of select agents at the facility, using known effective methods. *See* 42 C.F.R. § 72.6(i)(1)(iii). Facilities must maintain records of disposals and notify the registering agency that the agent was destroyed. *See id.* at (i)(2). The final rule stated that the combination of facility management oversight of the select agents, facility employee responsibilities, and stiff penalties for violations of the regulation will ensure compliance with these regulations. *See* Additional Requirements for Facilities Transferring or Receiving Select Agents, 61 Fed. Reg. at 55,193.

168. *See* 42 C.F.R. app. § 72 (noting exemptions to the list of select agents); Additional

ments of 1988¹⁶⁹ exempt certified laboratories from the regulations if they use listed agents "for diagnostic, reference, verification, or proficiency testing purposes."¹⁷⁰

Although the CDC promulgated the regulations within the allotted time under the Antiterrorism Act, the agency has not yet completely implemented these regulations due to resource constraints.¹⁷¹ The CDC requested adequate funding in its 1999 budget, which should have resolved this problem,¹⁷² but to date, many of the facilities managed by the regulations are not registered.¹⁷³

Commentators have criticized the regulations because of this lack of full implementation, and have expressed doubt that the regulations will deter bioterrorists even when fully implemented.¹⁷⁴ The failure to fully implement these regulations means that, for all practical purposes, the United States' ability to control the transfer of dangerous biological agents is no better today than before the 1996 Act.¹⁷⁵ Furthermore, al-

Requirements for Transferring or Receiving Select Agents, 61 Fed. Reg. at 55,194 (responding to commentator concerns that this exception provides a loophole in the regulation by explaining that the clinical specimen must be used for diagnostic, reference, or verification purposes to be exempt). Toxins used for medical purposes or biomedical research are also exempt from the select agents list. See 42 C.F.R. app. § 72.

169. 42 U.S.C. § 263a (1994).

170. See 42 C.F.R. § 72.6(h)(2).

171. See *House Bioterrorism Hearings*, *supra* note 2, at 52 (statement of Dr. Atlas) (stating that, as of May 1999, only half of the 300 institutions that possess listed agents are registered with the CDC because the agency does not have sufficient financial resources to register the additional 150 institutions); *Joint Senate Committee Hearings*, *supra* note 5, at 33-34 (testimony of Dr. Ostroff) (answering questions from Sen. Jon Kyl about the lack of full implementation of the CDC's biological agents regulations). Sen. Kyl noted that, as of March 1998, nearly 25% of the laboratories that should register with the CDC to have select agents were not registered due to a lack of CDC inspectors, and that none of the laboratories had been certified yet. See *id.* at 34. Dr. Ostroff responded that, in order to raise sufficient resources for the CDC to carry out the terms of the regulations, the CDC implemented a user fee, which has deterred some of the approximately 200 facilities required to register with the CDC from doing so. See *id.*

172. See *Joint Senate Committee Hearings*, *supra* note 5, at 34 (testimony of Dr. Ostroff).

173. See *House Bioterrorism Hearings*, *supra* note 2, at 52 (statement of Dr. Atlas) (urging Congress to provide the CDC with additional resources if the legislature expands existing regulations because CDC has not yet fully implemented the current regulations due to the present lack of sufficient resources).

174. See Anderson, *supra* note 1, at 14 (commenting that although the 1996 Act established tighter controls over the transfer of biological agents, the CDC has not fully implemented the regulations which would prevent terrorists from procuring lethal agents); see also *Joint Senate Committee Hearings*, *supra* note 5, at 38 (testimony of Dr. Carus) (noting that, once implemented, the regulations may not prevent a determined perpetrator from obtaining dangerous agents from a source other than those which are regulated).

175. See Sen. Jon Kyl, Opening Statement submitted to the Subcomm. on Tech., Terrorism, and Gov't Info. of the Senate Comm. on the Judiciary, 105th Cong., 2d Sess., Mar. 4, 1998, (visited Feb. 10, 2000) <<http://www.senate.gov/~kyl/sbiowep.htm>> ("For all practi-

though limiting access to dangerous agents,¹⁷⁶ the regulations only cover one means of obtaining these agents, which is through medical or research laboratories.¹⁷⁷ Individuals who are not transferors or shippers of these agents can therefore culture these agents in their home.¹⁷⁸ Moreover, regulations cover lethal agents only, leaving nonlethal agents that can harm people and cause widespread illness unregulated.¹⁷⁹ As a consequence, the regulations' restrictions would not deter a dedicated perpetrator from procuring the means with which to create a biological weapon.¹⁸⁰

C. Proposed Legislation: Finally Closing the Gaps that Enable Bioterrorism

On February 19, 1998, enforcement authorities arrested Larry Wayne Harris again, this time in Las Vegas, Nevada.¹⁸¹ Harris possessed anthrax bacteria, which turned out to be a harmless animal vaccine.¹⁸² Law en-

cal purposes, we today appear to be in the same position as we were in 1995 with regard to the lack of controls over transfers of dangerous biological agents within the United States"). The published text of the committee hearing does not contain this language. See *Joint Senate Committee Hearings*, *supra* note 5, at 4-5.

176. See *Joint Senate Committee Hearings*, *supra* note 5, at 38 (statement of Dr. Ostroff) (responding to questions posed by Sen. Feinstein concerning his level of confidence in the regulations as a means of providing protection against bioterrorism, and noting that the regulations help raise barriers to, and thus limit the acquisition of, dangerous biological agents).

177. See *id.* (noting that obtaining dangerous biological agents legitimately is only one method of obtaining dangerous biological agents); see also *House Bioterrorism Hearings*, *supra* note 2, at 55 (statement of Dorothy B. Preslar, Washington Project Officer, Biological Weapons Verification Project) (urging Congress to require facilities that possess listed agents, rather than those that merely transfer or receive these agents, to register with the CDC, and arguing that the government should impose stricter controls on individuals who fall outside of the confines of registered facilities).

178. See *Joint Senate Committee Hearings*, *supra* note 5, at 37-38 (testimony of Dr. Ostroff). For example, a person could buy several chickens from a grocery store, isolate the Salmonella organism, and poison hundreds of people with this bacteria. See *id.*

179. See *House Bioterrorism Hearings*, *supra* note 2, at 15 (statement of Mr. Reynolds) (noting that CDC regulations do not cover potentially injurious nonlethal agents).

180. See *Joint Senate Committee Hearings*, *supra* note 5, at 38 (testimony of Dr. Carus) (stating that we should not mislead ourselves by believing that the regulations will prevent bioterrorists from acquiring dangerous biological substances).

181. See *The World Today* (CNN television broadcast, Feb. 19, 1998) (transcript No. 98021901V23), available in LEXIS, News Transcripts (interviewing Mr. Harris, noting his recent arrest in Las Vegas, and discussing his history of involvement with deadly agents).

182. See *Joint Senate Committee Hearings*, *supra* note 5, at 1-3 (statement of Sen. Shelby) (noting that information revealed after the Las Vegas anthrax scare showed that the public's safety was never at risk); Roger K. Lowe, *Nation Lags in Protection from Biological Terrorism*, COLUMBUS DISPATCH, Mar. 8, 1998, at 3B (reporting that Mr. Harris boasted in Las Vegas that he possessed anthrax bacteria, but that the substance turned

forcement authorities responded to this threat more quickly than they did to threats concerning weapons of mass destruction a few years ago.¹⁸³ Evidentiary requirements, however, delayed positive identification of the strain for three days after authorities seized the agent from Mr. Harris.¹⁸⁴ This delay could have prevented victims from receiving necessary and timely medical treatment and would have caused unnecessary loss of life.¹⁸⁵ This interdiction demonstrated that the United States is not adequately prepared for a bioterrorist attack.¹⁸⁶ To correct this problem, Senator Diane Feinstein (D-CA) stated that Congress should enact legislation that would prohibit citizens from possessing biological agents in the first place.¹⁸⁷

On April 22, 1998 and on February 4, 1999, Attorney General Janet Reno stated that the Department of Justice is developing a proposal to amend federal criminal statutes pertaining to bioterrorism.¹⁸⁸ The Attorney General stated that under current federal law, it is not a crime to merely possess a substance that could be used as a biological weapon unless a prosecuting attorney can prove that the possessor intended to

out to be anthrax vaccine).

183. See *Joint Senate Committee Hearings*, *supra* note 5, at 64-65 (testimony of Louis J. Freeh, Director, Federal Bureau of Investigation) (stating that the government responded more quickly and in a more efficient manner to the 1998 Las Vegas threat than they did to a similar threat in New York in 1995).

184. See *id.* at 32-33 (testimony of Col. David R. Franz, deputy commander, U.S. Army Medical Research and Materiel Command, Ft. Detrick, MD) (responding to questions from Sen. Kyl about the delayed response in identifying the biological agent from the Las Vegas incident). Col. Franz testified that it takes approximately 30 minutes to identify whether a substance is an infectious disease, but it takes several hours to identify whether the disease is merely a vaccine strain. See *id.* at 32. He also noted that it takes time to work through requirements imposed on laboratories; for example, researchers at the laboratories cannot leave fingerprints on the evidence. See *id.* at 32-33.

185. See *id.* at 32 (statement of Sen. Kyl).

186. See *id.* at 36 (statement of Sen. Feinstein) (expressing concern about the continued availability of dangerous agents under the CDC regulations); *id.* at 41 (statement of Sen. Richard H. Bryan (D-Nev.), noting that federal agencies still lack adequate resources and personnel to respond effectively to bioterrorism); *supra* note 175 and accompanying text.

187. See *Joint Senate Committee Hearings*, *supra* note 5, at 6-7 (statement of Sen. Feinstein).

188. See *id.* at 62 (testimony by Attorney General Janet Reno) (stating that one of the ways that the federal government intends to improve its ability to prevent and respond to bioterrorism is to amend federal criminal statutes that pertain to biological weapons); *Hearing Before the Subcomm. on Counter-terrorism Efforts: Commerce, Justice, and State, the Judiciary, and Related Agencies of Senate Appropriations Comm.*, 106th Cong. (Feb. 2, 1999) [hereinafter *Senate Appropriations Hearing Comm.*] (testimony of Attorney General Janet Reno) (stating that the federal government is reviewing the possibility of amending federal biological weapons criminal laws to clarify the definitions under these laws and to expand these laws to give the government better control over these agents).

use the substance as a weapon.¹⁸⁹ Criminal statutes that control biological agents, the Attorney General explained, must strike a careful balance between the public's need for safety and scientific researchers' need to freely access these agents.¹⁹⁰ She concluded that a clear public safety concern remains when those who do not have the requisite scientific training or have a demonstrated record of irresponsible conduct can legally acquire and retain such dangerous substances.¹⁹¹

On May 20, 1999, the Chief of the Terrorism and Violent Crime section of the Criminal Division at the United States Department of Justice, Jim Reynolds, stated that legislation that will criminalize the possession of dangerous biological agents is undergoing finishing touches and will be presented to Congress soon.¹⁹² The model for this crime bill was the Chemical Weapons Implementation Act,¹⁹³ which prohibits possession of chemical weapons not justified by legitimate research.¹⁹⁴ The crime bill proposes to keep dangerous biological agents and toxins out of bioterrorists' hands by establishing five new criminal penalties that will prohibit hoaxes pertaining to biological weapons and prohibit unauthorized possession of dangerous biological agents.¹⁹⁵ This crime bill also reflects an attempt to respect legitimate scientific researchers' needs to have access to these dangerous agents.¹⁹⁶ The Department of Justice worked on the bill with representatives from the Department of Health and Human Services to draft a proposal that will intrude minimally on the legitimate research community.¹⁹⁷

Current law does not address unjustified possession of agents that are not on the CDC's select list, but that are harmful and can cause wide-

189. See *Senate Appropriations Hearing Comm.*, *supra* note 188 (statement of Attorney General Janet Reno); *Joint Senate Committee Hearings*, *supra* note 5, at 62 (statement of Attorney General Janet Reno).

190. See *Joint Senate Committee Hearings*, *supra* note 5, at 62 (statement of Attorney General Janet Reno).

191. See *id.*

192. See *House Bioterrorism Hearings*, *supra* note 2, at 14-15 (statement of James Reynolds).

193. Pub. L. No. 105-277, div. I, title II, subtitle A, § 201, 112 Stat. 2681-866 (1998) (codified at 18 U.S.C. §§ 229-229F (Supp. IV 1998)).

194. See *House Bioterrorism Hearings*, *supra* note 2, at 14 (statement by James Reynolds); 18 U.S.C. §§ 229(a)-(b), 229F(7) (Supp. IV) (criminalizing possession and use of chemical weapons but exempting authorized individuals from this law; defining purposes not prohibited by this chapter as peaceful, protective, unrelated military, and law enforcement purposes).

195. See *House Bioterrorism Hearings*, *supra* note 2, at 15 (statement of James Reynolds).

196. See *id.*

197. See *id.*

spread and serious injury.¹⁹⁸ The current list includes only highly lethal agents.¹⁹⁹ The crime bill thus proposes to criminalize the possession of merely harmful agents in addition to listed and lethal biological agents in types or quantities that are not justified by peaceful purpose.²⁰⁰ For example, neither *Shigella* nor *Salmonella* are listed on the CDC select agents list because laboratories handle these agents routinely and because these agents are not highly lethal.²⁰¹ Nevertheless, bioterrorists have used these agents to harm hundreds of people.²⁰²

Current law does not permit law enforcement officers to take action against laboratories that do not have adequate safeguards to prevent bioterrorists from accessing dangerous biological agents, or to take actions against home laboratories²⁰³ that have grossly inadequate or nonexistent safeguards.²⁰⁴ Hence, the crime bill creates criminal penalties for handling biological agents unsafely and with conscious disregard for the public's health and safety.²⁰⁵ This provision only attaches criminal penalties when violators consciously disregard the public's health and safety,

198. *See id.* (stating that laws should manage unjustified possession of highly lethal and other harmful agents).

199. *See id.* *But see supra* note 163 (explaining the consequences of adding ubiquitous agents like *Salmonella* to the list of select agents).

200. *See House Bioterrorism Hearings, supra* note 2, at 15 (statement of James Reynolds); *see also id.* at 53 (testimony of Dr. Atlas) (stating that any laws that propose to manage dangerous pathogens should focus on penalizing possession in types or amounts that are not justified by legitimate research). These biological agents are invisible and undetectable without sophisticated procedures, hence there is a chance that an individual could be in technical violation of regulations prohibiting possession without knowing it. *See id.* For example, a person could pick up a dead deer mouse that has Hantavirus or a jar of honey with *Clostridium botulinum*, not knowing that they are in possession of agents included on the select list. *See id.*

201. *See id.*

202. *See id.* at 15 (statement of James Reynolds). Recently, a hospital laboratory technician spread *Shigella*, a bacteria that causes dysentery, over donuts and made nineteen people sick. *See id.* In 1985, members of a cult in Oregon caused hundreds of people to become seriously ill by spreading *Salmonella* over restaurant salad bars. *See id.*

203. *See id.* In one instance in 1997, the FBI arrested Thomas Leahy for shooting his son in the face. *See id.* at 19 (statement of Robert M. Burnham). The FBI discovered that the basement in the Leahy home consisted of a makeshift laboratory. *See id.* Field tests on the laboratory indicated that Leahy produced the biological agent ricin. *See id.* As a result, the grand jury indicted Leahy for producing a biological weapon in violation of 18 U.S.C. § 175. *See id.* Further laboratory analysis determined that Leahy tried to cultivate botulism and mixed nicotine sulfate with a solvent, which was in a spray bottle. *See id.* Leahy eventually pleaded guilty for violating biological weapons laws. *See id.* At that time, federal prosecutors did not have sufficient evidence that Leahy intended to use the nitrate sulfate as a weapon. *See id.*

204. *See id.* at 15 (statement of James Reynolds).

205. *See id.*

but does not penalize negligent or accidental conduct.²⁰⁶

Existing federal regulations require entities that transfer and receive select agents to register with the CDC,²⁰⁷ but do not reach individuals who cultivate listed agents without transferring or receiving these agents.²⁰⁸ The crime bill addresses this concern by requiring those who possess select agents to report this to authorities so that authorities are aware of who has these agents.²⁰⁹ This additional reporting requirement is still under consideration, however, because the CDC has expressed concerns that this type of a responsibility will conflict with the agency's public health mission.²¹⁰

Current federal criminal laws do not effectively address hoaxes regarding biological agents.²¹¹ Individuals can evade criminal liability by claiming that they never intended to use the reported agents as a weapon thereby stymieing prosecutors, who have the burden of proving intent under current laws.²¹² The crime bill would deter hoaxes, which are an increasingly common occurrence,²¹³ by criminalizing the knowing perpetration of hoaxes pertaining to biological weapons.²¹⁴

Finally, current federal laws do not restrict those who do not have scientific training or those who have a record of irresponsible conduct from possessing dangerous biological agents, even though these individuals do not have legitimate reasons for possessing such agents.²¹⁵ Criminalizing

206. *See id.* (stating that this complements current regulations that relate to safety and security).

207. *See* Additional Requirements for Facilities Transferring of Receiving Select Agents, 42 C.F.R. § 72.6(a)(1) (1998).

208. *See id.*; *Joint Senate Committee Hearings, supra* note 5, at 39 (statement of Sen. Bryan) (questioning Dr. Ostroff about the CDC regulations and confirming that individuals who do not transfer or receive listed agents do not have to apply for registration).

209. *See House Bioterrorism Hearings, supra* note 2, at 15-16 (statement of James Reynolds).

210. *See id.* at 16 (noting that the Department of Justice is aware of the CDC's concerns regarding the proposed reporting requirement).

211. *See id.*

212. *See id.* at 14, 16 (referring to the evidentiary requirements imposed by 18 U.S.C. § 175).

213. *See supra* notes 8-11 and accompanying text (discussing the increase in hoaxes pertaining to biological weapons).

214. *See House Bioterrorism Hearings, supra* note 2, at 16 (statement of James Reynolds) (stating that the crime bill includes a false reporting provision); *id.* at 20 (statement of Robert Burnham) (stating that legislation that criminalizes threats and false reports pertaining to biological agents is an imperative deterrent to the cost of responding to these false threats).

215. *See id.* at 15 (statement of James Reynolds) (referring to testimony of the Attorney General on April 22, 1998 addressing this concern).

the possession of listed agents by such individuals addresses this problem.²¹⁶

II. CURRENT LAW PERTAINING TO BIOLOGICAL WEAPONS: FAILING TO DETER THE DETERMINED BIOTERRORIST

Existing laws and regulations manage biological agents that can be used to create biological weapons in three different ways.²¹⁷ These laws prohibit use of these weapons during war,²¹⁸ prohibit possession in amounts or types that cannot be justified by peaceful purposes or for use as weapons,²¹⁹ and regulate transferors and shippers of these highly lethal agents.²²⁰ The United States, however, still remains susceptible to bioterrorism.²²¹

A. *Banning Use of Biological Weapons: Applying the 1925 Geneva Protocol to Bioterrorism*

According to the Protocol's terms, this treaty only bans use of biological weapons during wartime situations involving parties to the Protocol.²²² The Protocol's ban may not be so limited, though, as this treaty may reflect customary international law.²²³ Thus, the Protocol's rule that pro-

216. *See id.*

217. *See* discussion *supra* Part I (discussing international instruments and federal laws and regulations that manage dangerous biological agents).

218. *See* Protocol, *supra* note 18, 26 U.S.T. at 575, 94 L.N.T.S. at 69 (extending the prohibition against wartime use of prohibited weapons to use of bacteriological methods of war).

219. *See* 18 U.S.C. § 175 (Supp. III 1997) (prohibiting the knowing possession of biological agents, toxins, or delivery systems for use as a weapon); BWC, *supra* note 19, art. I, 26 U.S.T. at 587, 1015 U.N.T.S. at 166 (prohibiting possession in amounts or types that cannot be justified by peaceful or defensive purposes).

220. *See* Additional Requirements for Facilities Transferring or Receiving Select Agents, 42 C.F.R. § 72.6(a)(1) (1998) (requiring facilities that transfer or ship highly lethal agents to register with the CDC).

221. *See House Bioterrorism Hearings, supra* note 2, at 12 (testimony of James Reynolds) (noting that numerous law enforcement officials involved with counterterrorism, academics, and health care professionals agree that the potential use of a biological weapon is the most serious form of terrorist threat currently faced by the United States); *see id.* at 16 (testimony of Robert Burnham) (stating that existing laws pertaining to bioterrorism have significant gaps); *see* Anderson, *supra* note 1, at 1 (stating that America remains susceptible to bioterrorism).

222. *See* Protocol, *supra* note 18, 26 U.S.T. at 575, 94 L.N.T.S. at 67, 69 (proclaiming that the signatories condemn use of the Protocol's prohibited agents in war and extending its prohibition to bacteriological methods of war).

223. *See supra* notes 53-54, 57-58 and accompanying text (classifying the Protocol's prohibition against use of biological weapons as customary international law, therefore applying at all times rather than merely during international strife, and applying to all na-

hibits use of these weapons may apply against nations that are not at war with the United States, but that attack the United States with biological weapons.²²⁴ Furthermore, the Protocol's prohibition may apply against violating nations that are not parties to the Protocol.²²⁵

Even if the Protocol's rule against use of biological weapons applies to a bioterrorist attack against the United States, its prohibition will probably not prevent other nations from committing bioterrorist acts against the United States. At the International Court of Justice (ICJ), the United States would bear the burden of proving that another nation committed an act of bioterrorism on United States soil.²²⁶ Yet, biological weapons attacks are difficult to detect,²²⁷ and the Protocol does not give accusing nations the right to verify allegations of violations.²²⁸ Thus, the United States would probably not be able to obtain this preferred documentary evidence.²²⁹ Inevitably, the United States would have to rely on circumstantial evidence, which the ICJ would scrutinize closely.²³⁰ Thus, a nation that commits bioterrorism against the United States would probably prevail against such allegations at the ICJ. Even if the United States manages to prevail against a violating nation at the ICJ, this nation may not comply with the ICJ's resulting judgment.²³¹ Furthermore, the U.N. Security Council will probably not enforce the ICJ's judgment, because it has never done so before.²³²

The United States cannot protect its citizens from bioterrorist attacks by relying on international law remedies or expecting that other nations will view biological weapons as morally abhorrent.²³³ This is because other nations have not always supported the United States' use of sanc-

tions rather than only to parties to the Protocol).

224. *See id.*

225. *See id.*

226. *See supra* note 63 and accompanying text (noting that nations that allege that other nations violated international obligations bear the burden of proving these violations before the ICJ).

227. *See Anderson, supra* note 1, at 6, 8 (discussing the difficulties of detecting biological weapon attacks).

228. *See Protocol, supra* note 18, 26 U.S.T. at 575, 94 L.N.T.S. at 67, 69 (prohibiting use of biological weapons, but not providing enforcement or verification measures).

229. *See supra* text accompanying note 64 (noting that the ICJ prefers documentary evidence).

230. *See id.*

231. *See supra* text accompanying note 66 (noting that, historically, some nations have not complied with ICJ judgments).

232. *See id.* (stating that the U.N. has never enforced ICJ judgments).

233. *See supra* text accompanying notes 69-70 (discussing the unreliability of use of sanctions, force, or overly relying on other nations to view biological weapons with abhorrence).

tions or force in response to violations of international obligations.²³⁴ Unlike the United States, not all nations necessarily view biological weapons with repugnance.²³⁵ Thus, the United States cannot rely on the Protocol's rule against use of biological weapons to protect its citizens from bioterrorism.

B. Prohibiting Possession in Types or Quantities Unjustified by Peaceful Purposes: The Biological Weapons Convention and 18 U.S.C. §§ 175, 2332c

1. The Biological Weapons Convention

The BWC prohibits nations from possessing biological weapons and from transferring biological weapons or biological weapons expertise to other nations or individuals.²³⁶ Nevertheless, the BWC permits nations to possess dangerous biological agents for peaceful or defensive research.²³⁷ Unlike the Protocol, the BWC includes provisions that allow nations to enforce its obligations.²³⁸ Like the Protocol, however, the BWC does not effectively prevent bioterrorism on United States soil. This is because the BWC does not support its enforcement articles with provisions allowing other nations to verify such violations.²³⁹ Furthermore, the BWC's exception for defense or peaceful research, valid or not,²⁴⁰ creates a loophole that rogue nations can manipulate to create biological weapons.²⁴¹ Even if these nations do not intend to use such weapons, increasing the number of biological weapons in the world increases the possibility that the United States will face a bioterrorist attack.²⁴²

234. See *supra* text accompanying note 69.

235. See Anderson, *supra* note 1, at 9 (stating that potential United States adversaries may not view biological weapons with the same abhorrence as Americans).

236. See BWC, *supra* note 19, 26 U.S.T. at 587, 1015 U.N.T.S. at 166, 167 (stating, in article I, that parties to the BWC agree not to acquire or retain the types or amounts of biological agents or toxins that are not justified for peaceful purposes or biological weapons, equipment or means of delivery, and stating, in article III, that parties to the BWC agree not to transfer these agents or weapons to any recipient).

237. See *id.* 26 U.S.T. at 587, 1015 U.N.T.S. at 166 (art. I).

238. See *id.* 26 U.S.T. at 588-89, 1015 U.N.T.S. at 167 (art. V-VII).

239. See FORSBERG ET AL., *supra* note 21.

240. See *supra* text accompanying notes 92-99 (discussing criticisms and defenses of the exception/loophole).

241. See *supra* text accompanying notes 92-95 (noting problems with the loophole in the BWC that allows for peaceful research).

242. See *supra* text accompanying note 5 (stating that the likelihood of bioterrorism rises as the number of nations with biological weapons programs rises).

2. Federal Criminal Laws

The Biological Weapons Anti-Terrorism Act of 1989 created federal criminal laws prohibiting biological weapons and the 1996 Antiterrorism and Effective Death Penalty Act strengthened these laws.²⁴³ These laws implement the United States' obligations to the BWC by creating criminal penalties for violating the treaty's prohibition against possession of biological agents in types or quantities not justified by legitimate research.²⁴⁴ These laws now extend to possession of genetically altered biological agents and criminalize attempts, threats, or conspiracies to use these weapons.²⁴⁵ Furthermore, federal criminal laws give the federal government authority to seize biological agents from individuals who create or transfer biological weapons and from individuals who threaten to violate biological weapons laws.²⁴⁶

Like the BWC, this type of prohibition does not deter acts of bioterrorism in the United States effectively because there are too many gaps in these laws that permit the determined bioterrorist to commit such acts legally.²⁴⁷ These laws do not criminalize false reports pertaining to biological weapons attacks.²⁴⁸ Nor do federal criminal laws prohibit individuals from possessing dangerous pathogens or toxins, even though such individuals may have criminal backgrounds or records of irresponsible conduct.²⁴⁹ These laws do not penalize individuals who handle these dangerous agents unsafely and with conscious disregard for the public's health and safety.²⁵⁰ This particular gap prevents law enforcement officials from responding to laboratories and basement operations that do

243. See discussion *supra* Parts I.B.1, I.B.2.a-b (discussing the changes that the 1989 and 1996 Acts made to federal criminal laws pertaining to biological weapons).

244. See 18 U.S.C. § 175 note (Supp. III 1997) (stating that the law implements international obligations prohibiting possession of biological weapons unjustified by legitimate research).

245. See *id.* §§ 175, 2332a (prohibiting possession of biological weapons and weapons of mass destruction, respectively, and including genetically-altered agents).

246. See *id.* § 177(a).

247. See *House Bioterrorism Hearings, supra* note 2, at 14-16 (statement of James Reynolds) (noting the deficiencies of current laws with respect to preventing bioterrorism).

248. See *id.* at 16.

249. See 18 U.S.C. § 175 (prohibiting only possession is not justified by legitimate research); *Joint Senate Committee Hearings, supra* note 5, at 62 (statement of Attorney General Janet Reno).

250. See *House Bioterrorism Hearings, supra* note 2, at 15 (statement of James Reynolds); *Joint Senate Committee Hearings, supra* note 5, at 62 (statement of Attorney General Janet Reno).

not have adequate safeguards to prevent bioterrorist access to agents.²⁵¹

*C. Regulating Facilities That Transfer and Ship Highly Lethal Substances:
CDC Regulations*

The 1996 Act required the Secretary of Health and Human Services to create regulations requiring transferors and shippers to register with the CDC, keep track of these agents, and comply with disposal and storage requirements.²⁵² Aside from the fact that the CDC has not yet fully implemented these regulations,²⁵³ they fall short of protecting the United States from bioterrorism²⁵⁴ because individuals who do not transfer or ship dangerous agents do not have to comply with them.²⁵⁵ These regulations do not regulate individuals with home laboratories²⁵⁶ and thus do not protect the United States from a bioterrorist attack any more than it was protected before the 1996 Act.²⁵⁷

III. PROVIDING THE PROPER BALANCE FOR PUBLIC SAFETY WHILE
PRESERVING THE RIGHT TO CONDUCT PEACEFUL RESEARCH

Current laws pertaining to the management of dangerous pathogens and toxins do not effectively prevent bioterrorism on United States soil.²⁵⁸ This is because these laws require prosecutors to show a nexus between possession of biological agents and an attempt to use these agents as weapons.²⁵⁹ Furthermore, relevant regulations solely govern transfer-

251. See *House Bioterrorism Hearings*, *supra* note 2, at 15 (statement of James Reynolds).

252. See Antiterrorism and Effective Death Penalty Act of 1996, Pub. L. No. 104-132, § 511 (d)-(f), 110 Stat. 1214, 1284-85.

253. See *supra* notes 171-73 and accompanying text (discussing incomplete implementation of the regulations).

254. See *House Bioterrorism Hearings*, *supra* note 2, at 14-15 (statement of James Reynolds) (listing problems with current regulations pertaining to the management of biological agents).

255. See Additional Requirements for Facilities Transferring or Receiving Select Agents, 42 C.F.R. § 72.6(a)(1) (1998) (requiring only facilities that transfer and ship select agents to register with the Secretary of Health and Human Services).

256. See *House Bioterrorism Hearings*, *supra* note 2, at 15 (statement of James Reynolds) (referring to Thomas Leahy).

257. See Anderson, *supra* note 1, at 14 (quoting Sen. Kyl).

258. See *House Bioterrorism Hearings*, *supra* note 2, at 14-15 (statement of James Reynolds) (noting that existing laws contain gaps that increase the likelihood of a bioterrorist attack in the United States).

259. See 18 U.S.C. § 175 (Supp. III 1997) (prohibiting possession of biological agents for use as a weapon); *Joint Senate Committee Hearings*, *supra* note 5, at 62 (statement of Attorney General Janet Reno).

ors and shippers of these agents.²⁶⁰ Legislation that prohibits individuals who are not conducting legitimate research from possessing dangerous agents and legislation that criminalizes false reports pertaining to biological weapons, however, would deter bioterrorism.²⁶¹

A. Criminalizing Individual Possession Protects the Public from Bioterrorism

Measures that deter or prevent bioterrorism are the most effective ways to combat bioterrorism.²⁶² One method of deterring or preventing bioterrorism is to gain better control over who possesses the types of substances that could be used to create these weapons.²⁶³ Thus, federal criminal laws should simply prohibit individuals from possessing these agents absent authority from the CDC, rather than requiring a prosecutor to show that the individual intended to use this agent to harm others.²⁶⁴

Another way to deter bioterrorism is to give the federal government better control over the handling of these agents.²⁶⁵ Unregulated agents in laboratories that do not transfer or receive listed agents could fall into the hands of a bioterrorist, and unsafe handling of these agents could expose populations to disease.²⁶⁶ Thus, federal laws should criminalize unsafe handling of these agents and require individuals or facilities that possess these agents to report this possession to the appropriate authori-

260. See 42 C.F.R. § 72.6(a)(1) (1998) (providing that facilities must register with the Secretary of Health and Human Services prior to shipping or receiving select agents).

261. See *House Bioterrorism Hearings*, supra note 2, at 14 (statement of James Reynolds) (noting that the best way to prevent bioterrorism is to improve existing federal criminal statutes by criminalizing individual possession of biological agents); *Joint Senate Committee Hearings*, supra note 5, at 62 (statement of Attorney General Janet Reno) (stating that the federal government has improved its ability to address bioterrorism since 1995, but that this ability could be improved further by criminalizing individual possession of dangerous substances).

262. See *House Bioterrorism Hearings*, supra note 2, at 14 (statement of James Reynolds).

263. See *id.* at 15-16; see also *id.* at 53 (testimony of Dorothy Preslar) (suggesting ways to prevent bioterrorism, one of which is to strictly control individual possession of dangerous substances); *id.* at 58-59 (statement of Nancy Connell) (suggesting ways to improve current regulations preventing bioterrorism, and stating that individuals should not have access to these substances).

264. See *id.* at 58-59.

265. See *id.* at 15 (statement of James Reynolds) (stating that one way to give the government more control after the handling of biological agents is to impose criminal penalties on individuals or laboratories that handle agents unsafely or do not have sufficient safeguards to protect the United States against bioterrorism).

266. See *id.*

ties.²⁶⁷

Another way to prevent bioterrorism in the United States is to close the gap in current federal criminal laws that allow bioterrorists to perpetrate hoaxes pertaining to biological agents without repercussions.²⁶⁸ Responding to false reports requires vast sums of money and resources, and potentially desensitizes populations to actual attacks.²⁶⁹ Thus, federal laws should criminalize threats regarding biological agents.²⁷⁰

B. Laws Criminalizing Individual Possession in Types or Amounts Unjustified by Legitimate Research Preserves Legitimate Researchers' Ability to Use These Agents

Federal laws that prohibit unauthorized individual possession of dangerous substances of the types or quantities unjustified by legitimate research would not prevent legitimate scientists and researchers from accessing the types of substances they need to improve health care or defenses against bioterrorism.²⁷¹ The Secretary of Health and Human Services would register and authorize legitimate laboratories.²⁷² Furthermore, federal criminal laws would solely criminalize possession of agents in the types or amounts that are not justified by legitimate research.²⁷³

IV. CONCLUSION

Current laws and regulations governing biological weapons are insufficient to deter bioterrorists from making false reports about biological agents, from buying dangerous pathogens or toxins, and then creating biological weapons. Granted, there are valid reasons for having such agents, and researchers and those in the medical arena who legitimately need these agents should not fear prosecution for such possession. However, the government should not allow individuals who are not qualified to have dangerous biological agents to possess them. Exposure to these agents, purposefully or accidentally, can kill or incapacitate huge popula-

267. *See id.*

268. *See id.* at 20 (statement of Robert M. Burnham) (asserting an imperative need for legislation prohibiting false reports regarding biological agents to deter the large amount of resources and money being spent by the government to respond to these hoaxes).

269. *See supra* notes 8-11 and accompanying text (discussing ramifications of the increasing number of hoaxes pertaining to biological agents).

270. *See id.*

271. *See House Bioterrorism Hearings, supra* note 2, at 15-16 (statement of James Reynolds).

272. *See id.* at 14.

273. *See id.* at 15.

tions. Furthermore, those who create hoaxes about biological weapons, thereby causing cities to spend vast sums of money to respond, should face criminal prosecution. Congress should criminalize the possession of harmful and lethal pathogens and toxins that could be used as biological weapons in amounts not justified by legitimate purposes and should criminalize hoax perpetration regarding these agents.

