

EPIDEMIC DISEASE AND NATIONAL SECURITY

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THE UNITED NATIONS Security Council's January 2000 meeting on AIDS marked the first time in the institution's history that it addressed a health issue. In his speech to the Security Council, then-vice president Al Gore called for a "new, more expansive definition" of security that includes emerging and reemerging infectious diseases (IDs) like acquired immune deficiency syndrome (AIDS).¹ That same month, a National Intelligence Estimate on the security implications of global infectious diseases concluded that "these diseases will endanger U.S. citizenry at home and abroad, threaten U.S. armed forces deployed overseas, and exacerbate social and political instability in key

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1. The White House, Office of the Vice President, "Remarks prepared for delivery by Vice President Al Gore, United Nations Security Council Opening Session," 10 January 2000, www.whitehouse.gov/ONAP/pub/vp_sc2.html (8 July 2000). Since 1996, the Clinton administration had argued that "[e]merging infectious diseases present one of the most significant health and security challenges facing the global community." The White House, Office of Science and Technology Policy, "Fact Sheet: Addressing the Threat of Emerging Infectious Diseases," 12 June 1996, www.fas.org/irp/offdocs/pdd_ntsc7.htm (10 September 1999). The policy was announced in response to National Science and Technology Council, Committee on International Science, Engineering, and Technology, Working Group on Emerging and Re-emerging Infectious Diseases, "Global Microbial Threats in the 1990s," www.whitehouse.gov/WH/EOP/OSTP/CISSET/html/ciset/html (10 September 1999). Also, see Al Gore, "Emerging Infections Threaten National and Global Security," www.state.gov/www/global/oes/health/task_force/article.htm (6 August 2001), reprinted from *American Society for Microbiology News* 62, no. 9 (1996): 448–49. Clinton's was not the first U.S. administration to explore the link between security and public health. In October 1988, a Department of Defense (DoD) working group had issued a report that, among other things, examined the effects of the Human Immunodeficiency Virus (HIV) that causes AIDS on U.S. security. The document is reprinted as "Economic and Demographic Trends and International Security: A U.S. Analysis," *Population and Development Review* (September 1989): 587–99.

countries and regions in which the United States has significant interests.²² Thirteen months later, Colin Powell, the Secretary of State for a new administration that initially had dismissed the link between health and security and eliminated the position of Special Advisor for International Health Affairs on the National Security Council, also described Africa's AIDS crisis as a U.S. national security concern.³

These pronouncements echo a decade of books and essays that warn of the dangers of IDs and call for "a fundamental reconceptualization of standard definitions of national and international security."⁴ Nevertheless, the promise of systematic analysis of the link between IDs and security remains largely unfulfilled.⁵ Most scholars and practitioners who explore the link between disease and security do so from within the "human security" tradition, which seeks to expand the concept of security beyond the state to include basic human needs like health. Their arguments remain at the margins of the security literature, however, because their appeal to human security does not resonate with more traditional approaches to national and international security, which focus on physical threats to the state. As Daniel Deudney writes, "Not all threats to life and property are threats to security. Disease, old age, crime and accidents routinely destroy life and property, but we do not think of them as 'national security' threats or even threats to 'security'.... If everything that causes a decline in human well-being is labeled a 'security' threat, the term loses any analytical usefulness and becomes a loose synonym of 'bad'."⁶

2. National Intelligence Council (NIC), "The Global Infectious Disease Threat and Its Implications for the United States," NIE 99-17D, January 2000, www.cia.gov/publications/nie/report/nie99-17d.html (17 November 2000). David F. Gordon is the principal author of this document.

3. Jeffrey Sachs, "The Best Possible Investment in Africa," *New York Times*, 10 February 2001, A15.

4. Andrew T. Price-Smith, "Ghosts of Kigali: Infectious Disease and Global Stability at the Turn of the Century," *International Journal* 54, no. 3 (summer 1999): 432. Popular and academic works on IDs include Laurie Garrett, *Betrayal of Trust: The Collapse of Global Public Health* (New York: Hyperion, 2000); Laurie Garrett, *The Coming Plague: Newly Emerging Diseases in a World Out of Balance* (New York: Farrar, Straus, and Giroux, 1994); David P. Fidler, *International Law and Infectious Diseases* (Oxford: Clarendon Press, 1999); David P. Fidler, "The Return of 'Microbialpolitik,'" *Foreign Affairs* (January/February 2001): 80–81; Arno Karlen, *Man and Microbes: Disease and Plagues in History and Modern Times* (New York: G. P. Putnam's Sons, 1995); Andrew T. Price-Smith, *The Health of Nations: Infectious Disease, Environmental Change, and Their Effects on National Security and Development* (Cambridge: MIT Press, 2002); Richard Preston, *The Hot Zone* (New York: Random House, 1994); and Stephen Peter Rosen, "Strategic Implications of AIDS," *The National Interest*, no. 9 (fall 1987): 64–73.

5. A recent exception is P. W. Singer, "AIDS and International Security," *Survival* 44, no. 1 (spring 2002): 145–58.

6. Daniel Deudney, "The Case Against Linking Environmental Degradation and National Security," *Millennium* 19, no. 3 (1990), 463–64. Deudney makes this comment about attempts to link the environment and security. Also, see Marc A. Levy, "Is the Environment a National Security Issue?" *International Security* 20, no. 2 (fall 1995): 35–62.

Historians should find such reasoning puzzling, since epidemic disease has shaped human history, generally, and military conflict, in particular.⁷ Thucydides describes how, during the Peloponnesian Wars, disease demoralized the Athenian people, undermined the political leadership, and weakened the army, preventing it from achieving key military objectives.⁸ More than 2,300 years later, the 1918 influenza epidemic killed 25 million people, including 500,000 Americans. The Spanish flu struck 294,000 allied troops in the fall of 1918 alone. Nearly 23,000 died, and the disease caused significant, if short-lived problems on both the allied and German sides.⁹ It seems clear, in short, that catastrophic IDs like AIDS can and have threatened national security.

This article asks whether, when, and how epidemic disease endangers national security, rather than assuming that anything that undermines the nation's health automatically challenges its security. In what follows, first, I attempt to move beyond efforts to persuade nations and individuals to broaden their concept of security to include basic human needs, including freedom from disease, by investigating the two main causal mechanisms by which IDs can threaten *national* security: (1) IDs may contribute to violent conflict by altering the balance of power among states, fostering foreign policy conflicts, or creating economic and political instability; and (2) IDs can alter the outcome of international conflicts either deliberately, through the use of biological weapons or the targeting of public health, or inadvertently, by eroding military readiness.

Second, I briefly examine whether these processes threaten the national security of the United States and conclude that IDs do not challenge U.S. security as directly or to the extent that many scholars and practitioners currently claim. Certainly, there are important security elements and consequences of AIDS and other catastrophic infectious diseases. At the same time, however, these security implications are often limited relative to the other consequences of epidemic disease. The most direct disease threat to the United States today comes from its vulnerability to biological weapons attack. Because this threat is so apparent, it has been and will be possible, if far from simple, to mobilize public support to meet it. It will be significantly more difficult to rally Americans against two less direct, longer term threats—to the health of armed forces and,

7. See, esp., Frederick F. Cartwright, *Disease and History* (New York: Thomas Y. Crowell, 1972); Jared Diamond, *Guns, Germs, and Steel: The Fates of Human Societies* (New York: Norton, 1997); William H. McNeill, *Plagues and Peoples* (New York: Anchor Books, 1998); and Hans Zinsser, *Rats, Lice and History* (Boston: Little, Brown for the Atlantic Monthly Press, 1935).

8. Thucydides, *History of the Peloponnesian War*, trans. Rex Warner, rev. ed. (London: Penguin Books, 1972), 151–56 (Bk. 2, 47–55). The disease was probably smallpox. Zinsser, *Rats, Lice and History*, 119–27.

9. Alfred W. Crosby, *America's Forgotten Pandemic: The Influenza of 1918* (Cambridge: Cambridge University Press, 1989), 11, 157–66.

most significantly, to the social, economic, and political stability of certain key regions—especially Russia—that also challenge American security. Particularly in the aftermath of 9/11, perhaps the greatest indirect and long run threat that IDs like AIDS pose to U.S. security is their potential to undermine democratic transition and fuel anti-Americanism and terrorism. This connection, however, is a tenuous and distant one, and it will be relatively difficult to seek support for aid to countries ravaged by IDs on the basis of U.S. security concerns alone.

Third, I examine the question of whether it matters that scholars and policy officials make a rhetorical link between epidemic disease and national security if the empirical relationship between the two variables is weak. Numerous students of international health draw this connection to gain attention and resources to fight infectious disease. As P. W. Singer notes, “Conceptualizing AIDS as a security threat, thus is not just another exercise in expounding on the dangers of the disease.... [I]t strengthens the call for serious action against the menace of AIDS. It is not just a matter of altruism, but simple cold self-interest.”¹⁰ By overdrawing the link between ID and security, however, public health and human security advocates may sabotage their own attempts to motivate developed nations to fight AIDS in Africa and elsewhere. Students of global health might take a lesson from earlier analyses of the relationship between the environment and national security: Linking an urgent issue to security may raise awareness, but it likely also will hinder much of the cooperation that human security and public health advocates seek and that the disastrous humanitarian and development effects of IDs demand.¹¹ Appealing to the national interest of advanced industrialized states like the United States to justify a massive commitment to international disease control will likely fail, because the true security implications of IDs for the United States remain limited and indirect. Such a strategy then relieves westerners of any moral obligation to respond to health crises beyond their own national borders, unless or until those crises directly and immediately impact national security.

The article is divided into four sections. The first part examines the severity of the global ID problem today. The second part compares different definitions of security—human and national or international—by which to measure whether and to what extent epidemic disease threatens security. The third part examines the relationship between IDs and national security, defined as protection of the state from physical threats. The fourth part reviews the implications

10. “AIDS and International Security,” 158.

11. See Deudney, “Case Against Linking Environmental Degradation and National Security,” 466–69. For a related argument about health, see Eoin O’Brien, “The Diplomatic Implications of Emerging Diseases,” in *Preventive Diplomacy: Stopping Wars before They Start*, ed. Kevin M. Cahill (New York: Basic Books and the Center for International Health and Cooperation, 1996), 254.

of the argument and revisits the issue of why it matters whether we view AIDS and other IDs as security threats or primarily as health and development challenges.

CATASTROPHIC INFECTIOUS DISEASE IN THE MODERN WORLD

HUMAN HISTORY is replete with stories of epidemic infections. These epidemics tend to follow a cyclical pattern, since they often produce immunity in survivors, and the microbes must await a new generation of hosts to infect. Alternatively, the disease-causing microbes migrate to geographically distant and immunologically vulnerable populations, producing a pandemic, or global outbreak. In this sense, AIDS is just one more disease—albeit a very deadly one—in a long line of devastating IDs. Until the early twentieth century, plague, smallpox, influenza, and other scourges decimated human populations around the globe. Many in the West thought that technological progress had halted the spread of these diseases and that they had been replaced with a second generation of diseases—the so-called diseases of affluence—including heart disease, diabetes, and cancer. Yet IDs remain a significant and growing threat. Their “third wave” includes newly emerging threats like AIDS as well as reemerging threats like plague, cholera, and tuberculosis (TB).¹²

Despite unprecedented progress in disease control, IDs remain a major killer. In 1998, 13.3 of the 53.9 million deaths worldwide—or 25 percent of all deaths—resulted from IDs. These illnesses accounted for 45 percent of all deaths in Southeast Asia and Africa. In the hour it takes to read this paper, more than 1,500 people worldwide will die of an ID; at least half will be under the age of five. To put these numbers in perspective, the World Health Organization (WHO) estimates that since 1945 three diseases alone—AIDS, TB, and malaria—have claimed 150 million lives, many times the approximately 23 million deaths from wars.¹³

As this last comparison suggests, a handful of diseases pose the greatest threat to human health. Almost 90 percent of all deaths and half of all premature deaths from IDs result from six diseases—AIDS, pneumonia, TB, diarrhoeal diseases, malaria, and measles.¹⁴ AIDS is spreading the most quickly and with

12. “Can AIDS Be Stopped?” *New York Review of Books*, 14 March 2002, www.nybooks.com/articles/15188 (5 March 2002).

13. The figure is for wars from 1945 to 1993. World Health Organization, “Removing Obstacles to Healthy Development, Report on Infectious Diseases” (Geneva: WHO, 1999), graph 1, chap. 1, graph 22. Available online at www.who.int/infectious-disease-report/ (7 August 2001).

14. WHO, “Removing Obstacles,” chap. 2.

the most catastrophic consequences. At the end of 2002, more than 42 million people worldwide were living with AIDS or the human immunodeficiency virus (HIV) that causes it, according to the Joint United Nations Programme on HIV/AIDS (UNAIDS) and the WHO. More than 5 million people were newly infected in 2002 alone. Short of a cure in the very near future, they will join the 26 million who have died since the start of the epidemic. HIV discriminates in its choice of victims: 95 percent of all people living with the virus reside in the developing world, and more than 29 million live in sub-Saharan Africa. Four countries, all in southern Africa, have infection rates above 30 percent; in Botswana 38.8 percent of adults are HIV-positive.¹⁵ In 1998, 200,000 Africans lost their lives to war, but more than 2 million died from AIDS.¹⁶

As devastating a disease as AIDS is, it is not the only pressing ID threat.¹⁷ Each year, more than 275 million people contract malaria, and 1.5 million die from it. Three thousand people, three out of four of them children, die from the illness each day. Malaria remains largely a disease of the developing world, but a third major scourge more clearly threatens north and south alike: Like many other diseases once thought to be on the verge of eradication, TB now infects eight million people a year, killing one-and-a-half million. It kills even more people who are infected with HIV. Nearly one-third of the earth's total population has latent TB infections, but TB is only the most widespread disease making its deadly comeback. Recent years also have witnessed numerous outbreaks of cholera, anthrax, yellow fever, and plague. In addition to these known killers, new ones continue to emerge. At least 30 new diseases have been identified over the last several decades, including Lassa fever, Ebola hemorrhagic fever, Marburg virus, Legionnaires' disease, hantavirus pulmonary syndrome, Nipah virus, Hepatitis C, new variant Creutzfeldt-Jakob disease (the human disease believed to be linked to bovine spongiform encephalopathy or mad cow disease), and of course HIV/AIDS.¹⁸

15. UNAIDS and WHO, *AIDS Epidemic Update* (Geneva: UNAIDS, December 2002).

16. UNAIDS, *Report on the Global HIV/AIDS Epidemic* (Geneva: UNAIDS, June 2000), 21, available online at www.unaids.org/ (7 August 2001).

17. The following figures are from WHO, "Removing Obstacles," chap. 2, graph 37, and graph 31; Scott R. Lillibridge, "Emerging Infectious Disease: Threats to Global Security," in *Preventive Diplomacy: Stopping Wars before They Start*, rev. ed., ed. Kevin M. Cahill (New York: Routledge and Center for International Health and Cooperation, 2000), 293; and Hiroshi Nakajima, "Global Disease Threats and Foreign Policy," *The Brown Journal of World Affairs* 4, no. 1 (winter/spring 1997): 319-32.

18. Garrett, *Coming Plague*; WHO, "Removing Obstacles," chap. 10 and graph 32. In 1995, CISET identified twenty-nine new diseases that had emerged and twenty that had reemerged since 1973. For extensive discussions of the emergence and reemergence of ID at this point in human history, see Laurie Garrett, "The Return of Infectious Disease," *Foreign Affairs* 75, no. 1 (January/February 1996): 66-79; NIC, "Global Infectious Disease Threat"; Nakajima, "Global Disease Threats"; and Price-Smith, *Health of Nations*, esp. chap. 5.

DEFINING SECURITY: HUMAN SECURITY VS. NATIONAL SECURITY

DIFFERENT TERMS—“human security” and “national security”—reflect disparate definitions and referents of security, as well as conflicting assessments of the significance of and appropriate response to IDs. Scholars and practitioners within the first tradition view catastrophic IDs as security problems by definition, since they threaten the lives of large numbers of people, while national security analysts and scholars gauge the degree of threat these diseases pose to the territorial integrity and political independence of the state. Members of the two schools talk past each other at nearly every turn, stymieing any serious engagement over whether and how IDs threaten security.

HUMAN SECURITY

Much of the recent surge in concern about IDs comes out of a desire to protect human security. This approach emphasizes the welfare of individuals or people collectively. As Roland Paris notes, “Human security is the latest in a long line of neologisms—including common security, global security, cooperative security, and comprehensive security—that encourage policymakers and scholars to think about international security as something more than the military defense of state interests and territory.”¹⁹ Most students of human security date the concept from 1994, when the United Nations Development Programme issued its annual *Human Development Report*, calling for

...another profound transition in thinking—from nuclear security to human security.

The concept of security has for too long been interpreted narrowly: as security of territory from external aggression, or as protection of national interests in foreign policy or as global security from the threat of a nuclear holocaust. It has been related more to nation-states than to people.... Forgotten were the legitimate concerns of ordinary people who sought security in their daily lives. For many of them, security symbolized protection from the threat of disease, hunger,

19. “Human Security: Paradigm Shift or Hot Air?” *International Security* 26, no. 2 (fall 2001): 87–102. Also, see Edward Newman, “Human Security and Constructivism,” *International Studies Perspectives* 2, no. 3 (August 2001): 239–51; Emma Rothschild, “What is Security?” *Daedalus* 124, no. 3 (summer 1995): 53–98; Mejid Tehranian, ed., *Worlds Apart: Human Security and Global Governance* (London: I. B. Tauris, 1999), esp. chap. 2; and Caroline Thomas and Peter Wilkins, eds., *Globalization, Human Security, and the African Experience* (Boulder: Lynne Rienner, 1999), esp. chap. 1.

unemployment, crime, social conflict, political repression and environmental hazards.²⁰

Theoretically, the human security approach harkens back at least as far as Barry Buzan's distinction between individual and national security and his view of the state as a threat to individual security.²¹ Rothschild traces the understanding of security as an individual good to the late Enlightenment period.²² From these arguments, flow many contemporary analyses of so-called non-traditional security threats like epidemic disease.

Public health advocates and students of IDs often champion increased mobilization against diseases that threaten security in the broad sense of human well-being. Indeed, these arguments often invoke the concept of "health security."²³ Implicitly or explicitly, health security advocates view IDs as threats to human security because of the enormous loss of life they cause.²⁴ As Gore argued in his January 2000 UN speech, "the heart of the security agenda is protecting lives—and we now know that the number of people who will die of AIDS in the first decade of the 21st century will rival the number that died in all the wars in all the decades of the 20th century."²⁵

Linking disease and security is a means of highlighting a dire problem, capturing scarce resources, and accelerating national, international, and transnational responses.²⁶ Peter Piot, executive director of UNAIDS, explains public health advocates' tendency to invoke the security term this way: "Whether we conceptualize AIDS as a health issue only or as a development and human security issue is not just an academic exercise. It defines how we respond to the epidemic, how much is allocated to combating it, and what sectors of govern-

20. United Nations Development Programme, *Human Development Report 1994* (New York: Oxford University Press), 22.

21. Barry Buzan, *People, States & Fear: The National Security Problem in International Relations* (Chapel Hill: University of North Carolina Press, 1983), esp. chap. 1.

22. "What is Security?"

23. The first use of this term I find is in "International Health Security in the Modern World: The Sanitary Conventions and the World Health Organization," *Department of State Bulletin*, 16 November 1947, 953–58. For contemporary examples, see Lillibridge, "Emerging Infectious Disease"; and esp. Price-Smith, *Health of Nations*.

24. See Peter Piot, "Global AIDS Epidemic: Time to Turn the Tide," *Science* 288, 23 June 2000, 2176–78; Dennis Pirages, "Microsecurity: Disease Organisms and Human Well-Being," *Washington Quarterly* 18, no. 4 (fall 1995): 5–12; Price-Smith, "Ghosts of Kigali"; and Laura Reed and Majid Tehranian, "Evolving Security Regimes," in Tehranian, *Worlds Apart*, 23–53.

25. "Remarks, United Nations Security Council Opening Session."

26. Rothschild outlines the ways different "principles of security" have been used to contest existing policies and influence the distribution of power and wealth. "What is Security?" 58–59.

ment are involved in the response.”²⁷ In short, “sometimes national security says it all.”²⁸

Sometimes, however, national security may say too much. The literature on environmental security suggests that arguments for linking security and disease have at least three flaws. First, they invite the question of whether *any* serious health, environmental, economic, or other problem automatically constitutes a security threat. They provide no guidance on how to make trade-offs among different security values, such as health and military defense, or between health security and other presumably nonsecurity values, such as conservation, environmental preservation, or economic development.²⁹ Second, that the study of IDs has remained on the fringes of the international relations field despite countless calls for the two areas to be joined suggests that the security community remains cool to the idea of human security.³⁰ From their positions on the margins, advocates of human security are unlikely to influence debates about national security. Unless a link is drawn between epidemic disease and national security, not human security, security elites will pay little attention. Third, it is not clear what is gained by linking epidemic disease and human security, rather than relying on public health, development, or humanitarian arguments.

Indeed, public health advocates’ appeal to the high politics of security may have unwanted effects. It implies, first, that human health is less important than, and can be justified only in terms of its impact on, security. Moreover, these arguments contain an internal contradiction that may impede health cooperation. To paraphrase Deudney’s claims about efforts to link the environment and security, human security advocates usually argue that it is necessary to challenge the utility of thinking in purely national terms if we are to deal effectively with issues like AIDS, but they then turn around and appeal to nationalism to achieve their goals.³¹ Finally, equating health with security may imply that a national military response to public health crises is needed, when

27. Piot, “Global AIDS Epidemic,” 2177. Also, see Peter Piot, “AIDS and human security,” Statement by Peter Piot, UNAIDS Executive Director, United Nations University, Tokyo, Japan, 2 October 2001, www.unaids.org/whatsnewpercent5Cspeechespercent5Cengpercent5Cpiot021/00tokyo.htm (14 November 2001).

28. David E. Sanger, “Sometimes National Security Says It All,” *New York Times*, Week in Review, 7 May 2000, 3.

29. Marc A. Levy makes this argument about environmental threats to security: “Is the Environment a National Security Issue?”, 35–62. Also, see Paris, “Human Security,” 94.

30. In fact, Deudney points out, the concept is not widely embraced outside certain progressive circles. “Case Against Linking Environmental Degradation and National Security,” 469.

31. Deudney, “Case Against Linking Environmental Degradation and National Security,” esp. 468. Also, see Levy, “Is the Environment a National Security Issue?” esp. 44–46.

the goal of health for all might be served better by independent international, or transnational organizations.³²

NATIONAL SECURITY

If some public health advocates embrace the mantle of human security because they believe it will secure scarce resources for their cause, it stands to reason that national security would make an even more effective rallying cry. Indeed, a small group of practitioners and scholars addresses the impact of IDs on national security, more narrowly and conventionally defined.³³ Security, in this sense, refers to the preservation of the state—its territorial integrity, political institutions, and national sovereignty—from physical threats. This definition of national security is consistent with another common definition, “the study of the threat, use, and control of military force,”³⁴ although it also allows for nonmilitary or nontraditional threats to the state.³⁵ Physical threats to the state may emanate from either or both of two sources. Traditionally, the security field has focused on external threats largely because security studies developed in the United States, which has faced few serious internal threats. Area specialists and students of comparative politics, who may study military defense issues in nondemocratic or developing states, are more likely to concentrate on internal threats to governments and states.

Since the end of the cold war, numerous students of national and international security have sought to expand the boundaries of the field to include

32. On this point, see O'Brien, “Diplomatic Implications of Emerging Disease,” 254.

33. I use the terms “national security” and “international security” interchangeably. The latter term largely replaced the former by the 1980s, but the content of the field remained much the same, the study of military threats to the state. See David A. Baldwin, “Security Studies and the End of the Cold War,” *World Politics* 48, no. 1 (October 1995): 125. Some students of security claim that “[t]raditional conceptions of ‘national security’ are concerned with the well-being of the state,” whereas “[t]he concept of ‘international security’ explicitly acknowledges that the security of one state is connected with the security of others.” Jonathan Ban, “Health, Security, and U.S. Global Leadership,” Special Report 2, *Health and Security Series* (Chemical and Biological Arms Control Institute, 2001), 5. Also, see International Crisis Group, “HIV/AIDS as a Security Issue,” ICG Report, Washington/ Brussels, 19 June 2001. These definitions are not mutually exclusive, however, since the latter simply emphasizes a long recognized aspect of the former.

34. Stephen M. Walt, “The Renaissance of Security Studies,” *International Studies Quarterly* 35, no. 2 (June 1991): 211–39. For other discussions, see Baldwin, “Security Studies”; Joseph S. Nye Jr. and Sean M. Lynn-Jones, “International Security Studies: A Report of a Conference on the State of the Field,” *International Security* 12, no. 4 (spring 1988): 5–27; and Richard Smoke, “National Security Affairs,” in *Handbook of Political Science*, vol. 8, *International Politics*, ed. Fred I. Greenstein and Nelson W. Polsby (Reading, Mass.: Addison-Wesley, 1975), 247–362.

35. In this sense, I combine Paris’s “national security” and “redefined security” categories. “Human Security,” 98.

nontraditional threats like terrorism, civil war and ethnic conflict, economic threats, crime, drugs, cyberterrorism, and disease. What binds these disparate topics together and allows scholars to examine the security dimensions of each is that they can all threaten territorial integrity, national institutions, or sovereignty. “[T]he referent is still in many ways the state...although the [nature of the] challenge—and the response—may have changed.”³⁶

Most of the voices raised in support of expanding the concept of security to encompass IDs belong to the human security school, but a number also couch their arguments in more conventional national security rhetoric.³⁷ On 25 March 1998 U.S. ambassador Wendy R. Sherman told a Department of State Open Forum, “[Infectious diseases] endanger the health of Americans and our national security interests.”³⁸ In a 1996 speech to the National Council for International Health, Gore similarly noted, “Today, guaranteeing national security means more than just defending our borders at home and our values abroad or having the best-trained armed forces in the world. Now it also means defending our nation’s health against all enemies, foreign and domestic.”³⁹ A 1998 USAID report on the impact of AIDS on national militaries likewise concluded, “the HIV/AIDS pandemic now represents a direct threat...to national and international security and peace in many parts of the world.”⁴⁰

These claims avoid many of the problems of the human security school by considering how IDs threaten the state, but they often suffer from two other problems. First, as many public health advocates note, traditional security language has difficulty capturing the nature of a transnational threat like IDs. Health threats like catastrophic ID, however, need not be threats to national security to warrant decisive action. They only become security threats when

36. Newman, “Human Security and Constructivism,” 246. Newman includes this “new security” as a variant of human security. For post-cold war attempts to examine nontraditional threats to national security, see Thomas Homer-Dixon, *Environment, Scarcity and Violence* (Princeton: Princeton University Press, 1999); Ethan Kapstein, *The Political Economy of National Security: A global perspective* (Columbia: University of South Carolina Press, 1992); Jessica Tuchman Mathews, “Redefining Security,” *Foreign Affairs* 68, no. 2 (spring 1989): 162–77; Norman Myers, “Environment and Security,” *Foreign Policy*, no. 74 (spring 1989): 23–41; and Phil Williams and Stephen Black, “Transnational Threats: Drug Trafficking and Weapons Proliferation,” *Contemporary Security Policy* 15, no. 1 (April 1994): 127–51.

37. For a work that does both, see International Crisis Group, “HIV/AIDS as a Security Issue,” ICG Report, Washington/ Brussels, 19 June 2001.

38. Wendy R. Sherman, “Emerging Infectious Diseases Are a National Security Challenge to the United States,” Remarks Before the Open Forum on Emerging Infectious Diseases, Department of State Open Forum, Washington, D.C., 25 March 1998, www.state.gov/www/policy_remarks/1998/980325_sherman_diseases.htm (6 August 2001).

39. Gore, “Emerging Infections Threaten National and Global Security.”

40. USAID, “Military Populations” AIDS Briefs, 22 May 1998, www.usaid.gov/regions/afr/hhraa/aids_briefs/military.htm (14 August 2001). For other examples, see Sir George Alleyne, “Health and National Security,” *Bulletin of the Pan-American Health Organization* 30, no. 2 (June 1996): 158–63; and WHO, “Removing Obstacles,” graph 22.

they threaten the territory, institutions, or sovereignty of the state. Second, the causal relationships between ID and security remain ill-defined, mostly because proponents of this link, like their colleagues in the human security camp, often make the connection largely for rhetorical purposes.⁴¹ Many link national security to human security without considering whether all threats to individuals necessarily threaten the security of states and whether those that do necessarily threaten all states. For example, the head of the Pan American Sanitary Bureau notes, "Attention to health and well-being, which goes beyond concern about the international spread of disease, will be key for ensuring the global security that is essential to the security of modern states."⁴² The referent of security by the end of the sentence is the state, but it is not clear why the threat to the health and well-being of individuals—described at the beginning of the sentence—automatically translates into a threat to the physical security of the state. Section III addresses this issue by examining key causal relationships between epidemic disease and national security, defined as preservation of the state, its institutions, and sovereignty.

CATASTROPHIC INFECTIOUS DISEASE AND NATIONAL SECURITY:
THE CAUSAL LINKS

FOR THE FORESEEABLE future, IDs will continue to claim more lives than war and to jeopardize the security of many states. The relevant questions are what states and under what conditions. The heart of the link between IDs and national security concerns the effect of catastrophic disease on violent conflict.⁴³ IDs may be thought of as "war-starters" and "war-outcome determinants."⁴⁴ That is, they may threaten national security in either or both of two ways—by contributing to the outbreak of violent conflict or by deliberately or inadvertently influencing the outcome of conflict. Viewed in this way, IDs present a humanitarian problem of staggering proportions, but they do not always

41. Important, if partial, exceptions include Alleyne, "Health and National Security"; Garrett, "Return of Infectious Disease"; Price-Smith, "Ghosts of Kigali"; and Price-Smith, *Health of Nations*.

42. Alleyne, "Health and National Security," 162. Piot makes a similar point in "Global AIDS Epidemic," 2177.

43. Actually, the relationship between IDs and security is a reciprocal one, since the search for security through war, militarization, or defense spending can also influence the emergence and spread of ID. I discuss this in Susan Peterson, "The Forgotten Horseman of the Apocalypse: Epidemic Disease and National Security" (unpub. ms., 4 September 2001).

44. Donald Burke, Frederic D. Daniell, and John Lowe, "Berlin Seminar," *AIDS and Society: International Research and Policy Bulletin* 4 (July/August 1993), 4; United States, Department of State, "United States International Strategy on HIV/AIDS," July 1995, 40–41.

or automatically pose a security threat. For the United States and most western states, and with the exception of biological weapons, IDs pose only indirect and long-term threats, around which it will be difficult to mobilize public support.

EPIDEMIC DISEASE AND THE OUTBREAK OF MILITARY CONFLICT

Catastrophic ID may contribute to the outbreak of military conflict within or between states, although it is relatively unlikely to be a war-starter on its own. In theory, there are at least three paths by which IDs may provoke war—by influencing the relative balance of power among adversaries, generating disputes between nations over appropriate health and human rights policies, and engendering domestic instability. In practice, the last of these presents the most significant threat, but only to some states. For the United States, ID-induced conflict poses only an indirect and long run security threat.

Balance of power. The first hypothesized relationship between disease and war holds that catastrophic ID may alter the balance of power among competitors. Realist scholars of international politics maintain that shifts in the relative capabilities of states can precipitate war, particularly when national leaders perceive that the balance is shifting against them.⁴⁵ Some students of environmental security similarly suggest that severe environmental threats can disturb the international balance of power and increase the risk of military conflict, including preventive war.⁴⁶ A preventive war may be particularly likely during or following an ID outbreak if one nation remains relatively immune to the disease. One can imagine, for example, that the diminished size of native North American populations might have led Europeans to anticipate an easy victory in their attempt to conquer and settle the continent. The earliest European “discoverers” introduced epidemic diseases that killed as many as 95 percent of North American Indians between 1492 and the late 1600s, when European settlers arrived in significant numbers.⁴⁷ There is little evidence, however, that these ID-induced power shifts played a role in the timing or outbreak of this or any other historical war of conquest. European conquerors did

45. See especially Robert Gilpin, *War & Change in World Politics* (Cambridge: Cambridge University Press, 1981); and Stephen Van Evera, *Causes of War: Power and the Roots of Conflict* (Ithaca: Cornell University Press, 1999), esp. chap. 4.

46. David A. Wirth, “Climate Chaos,” *Foreign Policy*, no. 74 (spring 1989): 10.

47. Diamond, *Guns, Germs, and Steel*, 78. Also see Donald Joralemon, “New World Depopulation and the Case of Disease,” *Journal of Anthropological Research* 38, no. 1 (spring 1982): 108–27, reprinted in *Biological Consequences of European Expansion, 1450–1800*, ed. Kenneth F. Kiple and Stephen V. Beck (Aldershot, Hampshire: Ashgate, 1997), 71–90.

not know when they set out for the Americas that they carried deadly diseases that would prove more lethal than their swords.

This incentive for war is less likely to emerge in the contemporary international system because of several differences between this and earlier periods. The major epidemics of our time strike entire regions, like sub-Saharan Africa, or strike simultaneously on different continents with little respect for national political boundaries. Partly, this is because high-speed travel and trade have exposed national populations to numerous epidemic diseases and conveyed immunity on diverse populations. Additionally, technological changes mean that the contemporary balance of power depends on numerous factors other than the size of a state's military or general population, factors like weapons of mass destruction, advanced aircraft, and missile technology. Unlike other diseases, moreover, AIDS kills all its victims rather than conferring immunity on survivors. Nearly all individuals, therefore, are equally vulnerable to the disease if they are exposed to it via the dominant routes of transmission—sexual activity, blood or blood product exchange, transmission from mother to child during pregnancy, or intravenous (IV) drug use that involves sharing contaminated needles. These reasons would suggest that ID outbreak is relatively unlikely to prompt a preventive war.

Unlike individuals, however, nations are not equally vulnerable. Differences in resources, state strength, the organization of society, and the relationship between state and society influence the way states respond to epidemics.⁴⁸ Weak, resource-poor states are particularly susceptible to AIDS and other IDs, which may undermine political and economic stability and social cohesion. Below, I discuss the likelihood that this process will produce civil conflict. It is unlikely, however, given the reasons already discussed, that it will produce a preventive war between states.

Foreign policy conflict. In theory, ID outbreaks may prompt disputes among states over appropriate policy responses in a number of areas, including freedom of movement for people and goods. Nineteenth-century leaders employed quarantine as their primary instrument of ID control. In the first decade of the AIDS epidemic, despite a half century of human rights advances, some people again viewed quarantine as a reasonable reaction to a frightening new scourge. Cuba instituted mandatory testing and compulsory isolation of its HIV-positive population in sanatoriums, and in 1987 the West German minister of the interior ordered border police to turn back any foreigner suspected of carrying HIV.⁴⁹ The United States, which continues to deny entry to HIV-

48. Homer-Dixon *Environment, Scarcity and Violence*, Price-Smith, *Health of Nations*.

49. On nineteenth century quarantine policy, see Neville M. Goodman, *International Health Organizations and Their Work* (Edinburgh: Churchill Livingstone, 1971), chaps. 2–3. On Cuba,

positive immigrants and visitors, bowed to international pressure in the 1990s and allowed waivers for short-term trips to visit family, receive medical treatment, conduct business, or attend scientific or health conferences. Another foreign policy dispute revolves around the issue of intellectual property rights. Major pharmaceutical companies and the U.S. government advocate protection of patents on AIDS drugs and oppose the production in other countries of inexpensive, generic versions of these medications.⁵⁰

Nevertheless, states are unlikely to come into conflict with other states over such health-related foreign policy disputes for at least two reasons. First, and somewhat paradoxically, disease may theoretically reduce the likelihood of such conflicts arising. As disease increases, a society may devote a greater proportion of national budgets and human resources to disease control. Some states already weakened by disease may not want to bear the additional costs of lost trade and military conflict and so may respond to epidemics by turning inward to deal with this and related domestic issues.⁵¹ Second, disease actually may facilitate international cooperation. In the nineteenth century, for instance, disparate national quarantines produced international collaboration, not military conflict. States recognized the trade benefits of standardizing quarantine policies and met regularly to hammer out regulations on disease prevention and control. The current dispute over AIDS therapies suggests a similar lesson: Pharmaceutical corporations negotiate with foreign governments and companies to make their medications available at significantly lower prices in developing than in developed countries, while preserving their patents. David Gordon argues that, in the long run, the ID threat will “further energize the international community and most countries to devote more attention and resources to improved ID surveillance, response, and control capacity.”⁵²

Social effects. The final hypothesized relationship between IDs and war suggests the greatest threat to national security: By causing severe economic, political, and social effects, epidemic disease can produce domestic instability, civil war, or civil-military conflict, or it may lead a state to lash out against another state. “There is a growing realization that national security depends in great measure on domestic stability, which is in turn heavily influenced by

see Marvin Leiner, *Sexual Politics in Cuba: Machismo, Homosexuality, and AIDS* (Boulder: Westview, 1994), chap. 5. The German example is from Rosen, “Strategic Implications,” 72.

50. For example, see Carl Mortished, “AIDS Drugs Price War Threatens Big Firms,” *Times* (London), 16 July 2001, Business section.

51. Thanks to Andrew Cortell for discussion of this issue. For the argument that multinational disease control efforts may reduce or prevent violent conflict, see Peter J. Hoetz, “Vaccine Diplomacy,” *Foreign Policy* no. 124 (May/June 2001): 68–69; and Ban, “Health, Security, and U.S. Global Leadership,” 9.

52. NIC, “Global Infectious Disease Threat,” 28.

human development—embracing economic, environmental, health, and political concerns.”⁵³

In many states, particularly in sub-Saharan Africa, IDs like AIDS produce devastating consequences for all economic actors, from the household and firm to the industry and state.⁵⁴ At the household level, ID effects are dramatic: Income declines precipitously when bread-winners sicken and die, health care and burial costs mount, savings are depleted, surviving children leave school to work or care for sick relatives, food consumption drops, malnutrition and poverty worsen, and medical expenditures soar. UNDP estimates that AIDS lowers the income of affected households by 80 percent; food consumption drops 15–30 percent; and primary school enrollments decline 20–40 percent.⁵⁵ In Thailand, rural families affected by AIDS spend the equivalent of an average annual income on treatment during the last year of an AIDS patient’s life, while in Nigeria subsistence farmers spend as much as 13 percent of their total household income on malaria treatment.⁵⁶

Because AIDS is spread largely by sexual behavior, it strikes people in their economically most productive years, with ruinous consequences for numerous sectors of the economy. Agriculture may be hardest hit with the most catastrophic results, given its importance in the economies of most developing countries. A 2001 UN Food and Agriculture Organization study estimates that by year’s end AIDS will have claimed 26 percent of the agricultural work force in the ten most affected African nations.⁵⁷ In Zimbabwe, for instance, the output of largely subsistence communal agriculture has dropped 50 percent in the last five years, leading some experts to warn of a food crisis in the near fu-

53. Alleyne, “Health and National Security,” 159.

54. For efforts to examine disease effects on these different actors or levels of the economy, see Desmond Cohen, “The Economic Impact of the HIV Epidemic,” Issues Paper No. 2 (UNDP HIV and Development Programme, 1992), www.undp.org/hiv/publications/issues/english/issue02e.htm (5 March 2002); Desmond Cohen, “Socio-Economic Causes and Consequences of the HIV Epidemic in Southern Africa: A Case Study of Namibia,” Issues Paper no. 31 (UNDP HIV and Development Programme, 1998), www.undp.org/hiv/publications/issues/english/issue31e.htm (5 March 2002); ICG, “HIV/AIDS As a Security Issue,” 9–14; Price-Smith, *Health of Nations*, chap. 3; Andrew T. Price-Smith, “Praetoria’s Shadow: The HIV/AIDS Pandemic and National Security in South Africa,” Special Report 4, *Health and Security Series* (Chemical and Biological Arms Control Institute; and UNDP, “HIV/AIDS Implications for Poverty Reduction,” UNDP Policy Paper (Background Paper prepared for the United Nations Development Programme for the UN General Assembly Special Session on HIV/AIDS, 25–27 June 2001), available online at www.undp.org/hiv (7 August 2001).

55. “HIV/AIDS Implications for Poverty Reduction,” 2.

56. UNAIDS, *Report on the Global HIV/AIDS Epidemic*, 27; WHO, “Removing Obstacles,” chap. 3. When adults die from any cause in Zimbabwe, small farm output drops by approximately 45 percent, but when AIDS is the cause of death output declines by 61 percent. UNDP, “HIV/AIDS Implications for Poverty Reduction,” 10.

57. Cited in ICG, “HIV/AIDS as a Security Issue,” 11.

ture.⁵⁸ Price-Smith notes that both demand- and supply-side shocks induced by IDs will compromise productivity in agriculture and other economic sectors, including education, mining, tourism, and health.⁵⁹

Sectors dependent on skilled workers and professionals may be particularly hard hit. AIDS disproportionately attacks the middle and professional classes in a society—its teachers, scientists, technicians, and managers—and may prompt surviving elites to flee. Individual businesses bear much of the cost of AIDS in the form of lost work time and benefits. In South Africa, 7.2 percent of total salary costs involve AIDS expenses.⁶⁰ One Kenyan company reports a 500 percent increase in funeral expenses and 1,000 percent increase in the cost of health care between 1989 and 1997.⁶¹ With life expectancy plummeting, many companies hire two or more workers for every one job.⁶²

AIDS, and IDs more generally, crush national economies, which face labor shortages and diminished productivity. Life expectancy at birth has fallen to about 34 in Sierra Leone, 48 in South Africa, and 42 in Uganda.⁶³ The U.S. Bureau of the Census estimates that life expectancy in Botswana in 2010 without AIDS would have been nearly 75; with AIDS it will be less than 30.⁶⁴ In Zimbabwe and Zambia, as well, life expectancy in 2010 will be half of what it would have been without AIDS—in Zimbabwe, 35 rather than 70, and in Zambia, 30 instead of 60.⁶⁵ By 2010, there will be 71 million fewer people in South Africa because of AIDS.⁶⁶ This decline is producing alarming demographic trends: Because AIDS most often strikes women in their child-bearing years and HIV may be transferred from a pregnant woman to her child *in utero*, mortality rates among children are soaring. In Kenya, child mortality has risen more than 20 percent since 1986 and now exceeds its level of more than two decades ago. Men and women in their 20s and 30s, a decade or more after they have become sexually active, are dying of AIDS at astonishing rates. Nearly 90 percent of all fifteen-year-old boys in Botswana will become HIV-infected at some point in their lives; the figure is more than 65 percent in South Africa and nearly 70 percent in Zimbabwe. There soon will be more adults in their 60s and 70s than in their 40s or 50s in these societies

58. UNAIDS, *Report on the Global HIV/AIDS Epidemic*, 33.

59. *Health of Nations*, 91–103.

60. UNDP, “HIV/AIDS Implications for Poverty Reduction,” 9.

61. UNAIDS, *Report on the Global HIV/AIDS Epidemic*, 33.

62. Robert E. Fritts, ret. ambassador, U.S. Department of State, personal conversation with author, November 2000.

63. World Health Organization, *The World Health Report 2000: Health Systems: Improving Performance* (Geneva: World Health Organization, 2000), 157–63; WHO, “Removing Obstacles,” chap. 2.

64. Cited in UNDP, “HIV/AIDS Implications for Poverty Reductions,” 8.

65. Cohen, “Socio-economic Causes and Consequences,” 10.

66. UNDP, “HIV/AIDS Implications for Poverty Reductions,” 7.

because of AIDS deaths.⁶⁷ The lost generation is the economically most productive segment of society and the one that in most countries supports the oldest, youngest, and most vulnerable members.

These trends are devastating the national economies of sub-Saharan Africa. In high prevalence countries, AIDS will cut GDP growth rates by 0.5 to 1.0 percent a year.⁶⁸ Channing Arndt and Jeffrey D. Lewis forecast that South African GDP will be 17 percent lower in 2010 with AIDS than it would have been without the disease, and an alternative measure that they call “non-health, non-food absorption” will be 22 percent lower. Even after accounting for AIDS-induced population decline, per capita GDP in South Africa will be 8 percent lower in 2010 with AIDS than without it.⁶⁹ These findings are consistent with John T. Cuddington’s claims that AIDS may reduce Tanzania’s GDP in 2010 by 15–25 percent compared to what it would have been without AIDS. Despite a population size that is 20 percent smaller than in a world without AIDS, per capita GDP is still projected to decline by as much as 10 percent.⁷⁰

Not surprisingly, AIDS promise dire social and political consequences. It has become commonplace to note that AIDS is producing a generation of orphans: As many as 11 percent of children in some African states had lost one or both parents by 1997, compared with about 2 percent before the AIDS era.⁷¹ This means that millions of children already have been orphaned, and that number will reach the tens of millions in the next decade. This generation—which is likely to be homeless, poor, hungry, uneducated, increasingly desperate, and decreasingly bound by social norms and laws—presents a challenge to political stability, particularly in societies where criminal opportunities and weapons are readily available.

AIDS orphans are a vulnerable group, and may be recruited into military activities or into crime with promises of food, alcohol and drugs, as well as need for “family”. In chilling words, a recent CIA report on the threat of HIV/AIDS to national security concluded that AIDS “...will produce a

67. UNAIDS, *Report on the Global HIV/AIDS Epidemic*, 21–26.

68. Desmond Cohen, “The HIV Epidemic and Sustainable Human Development,” Issues Paper no. 29 (UNDP HIV and Development Programme, 1998), www.undp.org/hiv/publications/issues/english/issue29e.htm (5 March 2002).

69. Channing Arndt and Jeffrey D. Lewis, “The Macro Implications of HIV/AIDS in South Africa,” Africa Region Working Paper Series, no. 9 (World Bank, Africa Region Public Expenditures Effectiveness Project, November 2000). For further discussion of the national costs of malaria and AIDS, see Price-Smith, *Health of Nations*, 109–16.

70. “Modeling the Macroeconomic Effects of AIDS, with an Application to Tanzania,” *The World Bank Economic Review* 7, no. 2 (1993): 173–89.

71. UNAIDS, *Report on the Global HIV/AIDS Epidemic*, 28.

huge and impoverished orphan cohort unable to cope and vulnerable to exploitation and radicalization.”⁷²

One major foundation of any political system, education, is being devastated. More than one-third of children orphaned by AIDS drop out of school.⁷³ The disease also depletes the supply of teachers. In South Africa, as many as one-third of teachers are HIV positive. In Zambia, the number is 40 percent, and in Swaziland, 70 percent.⁷⁴ A recent World Bank study of Malawi asserts that roughly 40 percent of education personnel in that country will die from AIDS.⁷⁵ In the Central African Republic, 107 of 173 schools have closed recently because of a lack of teaching staff. As many teachers in that country died between 1996 and 1998 as retired. They died an average of ten years before the minimum retirement age of 52, and 85 percent of those who died were HIV positive.⁷⁶ Over all, Africa will lose ten percent of its educators to AIDS by 2005, setting the continent back a century in education levels.⁷⁷ AIDS erodes a state’s technical and managerial capacity by incapacitating and killing government personnel at the same high rates at which it strikes other skilled workers and elites. In September 2000, Zimbabwe’s president, Robert Mugabe, took the unusual step of announcing that AIDS had claimed three of his cabinet ministers and many traditional tribal chiefs.⁷⁸ In South Africa, the spokesman for Presidents Nelson Mandela and Thabo Mbeki died at age 36 of what is generally regarded to be an AIDS-related illness.⁷⁹ The human costs of AIDS reach every level of the polity. Eighty-six percent of all employee deaths at the Kenya Revenue authority in 1998 and 75 percent of all police deaths in 1996–98 were AIDS related.⁸⁰ More than one-fourth of South African police forces

72. UNDP, “HIV/AIDS Implications for Poverty Reductions,” 12. HIV/AIDS has already been blamed for much of the recent violence in Zimbabwe, violence perpetrated by “alienated youths [who] form their own political organizations well beyond the boundaries of constitutional politics or democratic parties.” “Another Nail in Zimbabwe’s Coffin,” *Africa News Service*, 5 December 2000, cited in Lyndy Heinecken, “Strategic Implications of HIV/AIDS in South Africa,” *Conflict, Security & Development* 1, no. 1 (April 2001): 113.

73. UNDP, “HIV/AIDS Implications for Poverty Reductions,” 9.

74. ICG, “HIV/AIDS as a Security Issue,” 16.

75. This is in addition to the regular attrition through retirement, relocation, and death from other causes. Cited in Desmond Cohen, “The HIV Epidemic and the Education Sector in sub-Saharan Africa,” Issues Paper no. 32 (UNDP HIV and Development Programme, 1999), www.undp.org/hiv/publications/issues/english/issue32e.htm (5 March 2002).

76. UNAIDS, *Report on the Global HIV/AIDS Epidemic*, 29.

77. ICG, “HIV/AIDS as a Security Issue,” 16.

78. “Mugabe Announces that AIDS had Killed Ministers,” Panafican News Agency Wire Service, 7 September 2000.

79. Kurt Shillinger, “Mbeki Aide’s Death Renews HIV Debate,” *Boston Globe*, 31 October 2000, A8.

80. ICG, “HIV/AIDS as a Security Issue,” 10, 14–15.

are probably now infected.⁸¹ In Botswana, a lawyer relays his frustration with a legal system that cannot function properly because of the loss of court officials, and in Uganda political decentralization is hampered because AIDS has decimated local government in some regions.⁸²

How might these political and economic effects produce violent conflict? Price-Smith offers two possible answers: Disease “magnif[ies]...both relative and absolute deprivation and...hasten[s] the erosion of state capacity in seriously affected societies. Thus, infectious disease may in fact contribute to societal destabilization and to chronic low-intensity intrastate violence, and in extreme cases it may accelerate the processes that lead to state failure.”⁸³ Disease heightens competition among social groups and elites for scarce resources. When the debilitating and deadly effects of IDs like AIDS are concentrated among a particular socio-economic, ethnic, racial, or geographic group, the potential for conflict escalates. In many parts of Africa today, AIDS strikes rural areas at higher rates than urban areas, or it hits certain provinces harder than others. If these trends persist in states where tribes or ethnic groups are heavily concentrated in particular regions or in rural rather than urban areas, AIDS almost certainly will interact with tribal, ethnic, or national differences and make political and military conflict more likely. Price-Smith argues, moreover, that “the potential for intra-elite violence is also increasingly probable and may carry grave political consequences, such as coups, the collapse of governance, and planned genocides.”⁸⁴

The likelihood that IDs will produce violent conflict by generating these social effects depends on at least three factors. Homer-Dixon and Price-Smith offer the first two.⁸⁵ First, other stressors like environmental degradation or scarcity may interact with and exacerbate IDs. Second, the strength of the state before the onset of epidemic disease strongly influences the extent to which IDs produce these social, political, and economic effects and thereby provoke military conflict. “There is a logically positive association between state capac-

81. Price-Smith, “Praetoria’s Shadow,” 24.

82. Desmond Cohen, “Responding to the Socio-Economic Impact of the HIV Epidemic in Sub-Saharan Africa: Why a Systems Approach is Needed” (UNDP HIV and Development Programme, March 1999), www.undp.org/hiv/publications/issues/english/issue34e.htm (5 March 2002).

83. *Health of Nations*, 121. Thomas Homer-Dixon makes a similar argument about environmental degradation. The social and economic effects of environmental stresses weaken the capacity of the state and its relationship to society, reducing its ability to respond creatively to environmental problems and heightening the possibility of violent conflict. Homer-Dixon, *Environment, Scarcity, and Violence*.

84. *Health of Nations*, 124.

85. See Homer-Dixon, *Environment, Scarcity, and Violence*; and Price-Smith, *Health of Nations*, esp. 121.

ity and state adaptation because greater initial capacity means that there are more human, economic, and technical resources within the state to mobilize to deal with various crises.... Thus states that have lower state capacity when IDs afflict them generally suffer much greater losses than states with high initial capacity.”⁸⁶ The states of sub-Saharan Africa are doubly doomed: Lacking the state capacity to assemble an effective defense against IDs, they are then hit with epidemics that they lack the financial and technical resources to fight.

Third, whether AIDS or other IDs generate severe economic and political effects leading to violent conflict also may depend on prevailing beliefs about religion, society, and medicine. Populations judge their governments’ responses to health crises according to their dominant social beliefs. In the nineteenth century, where and when the theory prevailed that disease was contagious, quarantine was the preferred policy response to disease outbreak. Where and when the idea prevailed that disease was acquired through bad air and filth, rather than contagion, people demanded sanitary reform instead.⁸⁷ Religious traditions, like Christianity and some forms of Buddhism, that explain human suffering and comfort survivors, may placate individuals and at least temporarily insulate governments against charges that they are not responsive to the health needs of their peoples.⁸⁸ In the Middle East and North Africa, social values in predominantly Islamic countries may limit the spread of HIV, but they also inhibit the prevention, reporting, and treating of sexually transmitted diseases, and they likely shield the government.⁸⁹ Moral stigma may perform a similar function. Syphilis reached epidemic dimensions in the First World War, for example, because the stigma surrounding it led to poor medical management.⁹⁰ A similar shame continues to mark AIDS sufferers, leading many governments to delay and populations to tolerate inaction.

This provides yet another reason that IDs will continue to pose the most serious threat to developing states. With western industrialization came secularization and scientific advancement. In the 1980s, nonetheless, social beliefs posed a significant obstacle to AIDS control and prevention in some developed countries because of bias against the homosexual population, which suffered disproportionately from the disease. These prejudices, as well as prevailing beliefs about sexuality, continue to hinder progress in some segments of western society. The problem is likely to be even more serious in less developed

86. Price-Smith, “Ghosts of Kigali,” 434.

87. See Goodman, *International Health Organizations and Their Work*, chap. 2.

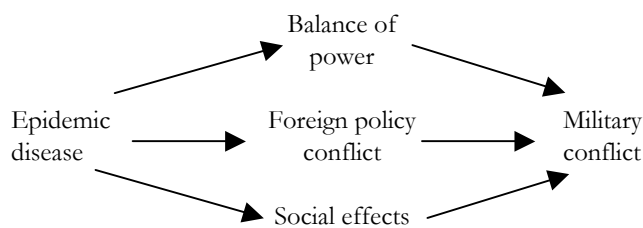
88. McNeill argues that such religions developed in countries where disease was prevalent. *Plagues and Peoples*, 149–50.

89. NIC, “Global Infectious Disease Threat,” 3–4.

90. McNeill, *Plagues and People*, 289.

states, where traditional customs like wife inheritance and genital mutilation spread AIDS directly and where the role of women and the stigma surrounding AIDS create intolerance and silence that allow the disease to spread unchecked. In a highly publicized case in December 1998, neighbors beat to death a volunteer for a South African AIDS organization for bringing shame on their community by publicly acknowledging that she was HIV-infected.⁹¹ In June 2001, in a three-day special session on AIDS, the UN General Assembly passed a Declaration of Commitment, a global AIDS plan that includes specific goals and time frames. The final document explicitly addressed “harmful traditional and customary practices,” but not before agreement was nearly scuttled and language about high risk populations was deleted because Islamic nations opposed wording that would obligate them to help gay men, one of the high risk groups.⁹²

Figure 1
EPIDEMIC DISEASE AND MILITARY CONFLICT



Not all the causal pathways identified in figure 1 threaten national security. There can be little doubt, however, that ID seriously threatens national security, traditionally defined, when large numbers of people die, national economies crumble, and social structures and political institutions weaken and fail, particularly when these factors generate violent conflict. Many sub-Saharan states that are resource-poor and institutionally weak face such threats unless other states, international institutions, or nongovernmental organizations (NGOs) provide significant financial, medical, and administrative assistance. That IDs threaten security in these states, however, does not necessarily or automatically compromise U.S. security.

91. UNICEF, *The Progress of Nations 1999* (New York: UNICEF, 1999), 17.

92. Jennifer Steinhauer, “U.N. Redefines AIDS as Political Issue and Peril to Poor,” *New York Times*, 28 June 2001, A4.

U.S. NATIONAL SECURITY

Indeed, none of the mechanisms illustrated in figure 1 immediately or directly threatens U.S. security. Large numbers of Americans die each year from IDs. In fact, the number of deaths from IDs in the United States doubled between 1980 and 1999.⁹³ These numbers, however, pale in comparison to those in sub-Saharan Africa and other regions, and they do not threaten the state in the way they do in other countries. As Price-Smith points out, “the United States has less to fear from the direct threat of infectious disease (or other environmentally induced health threats) to its population than do developing countries with much lower endogenous capacity.”⁹⁴ This does not mean, of course, that the United States can afford to bury its head in the sand.

Epidemic disease may exacerbate domestic conflict in key states where vital U.S. interests are at stake. In Russia, for instance, HIV rates have risen dramatically in the past two years and are poised to explode. The 1999 infection rate in Moscow was three times that of all previous years combined.⁹⁵ In fact, AIDS is spreading more quickly in Russia than in any other country in the world. According to a 2002 National Intelligence Council (NIC) estimate, between one and two million Russians (or 1.3–2.5 percent of the adult population) is currently infected, and that number is expected to increase to 5–8 million (or 6–11 percent) by 2010.⁹⁶ Much of this increase is fueled by IV drug use, commercial sex, and, especially, the prison system, in which inmates may be held for up to two years before being charged and in which more than a million convicts are periodically released through amnesty programs. As Nicholas Eberstadt notes, “Russia’s prison system, in other words, functions like a carburetor for HIV—pumping a highly concentrated variant of the infection back through the general population.”⁹⁷

In June 2001, Russia’s first deputy minister of health, Gennadi Onishchenko, called AIDS “a direct threat to the nation’s security.”⁹⁸ This may be true for several reasons. First, AIDS will exacerbate Russia’s projected population decrease. In less than 25 years, it is estimated, Russia’s population will decline by 12–13 million, even if the nation faces only a mild HIV/AIDS

93. Erica Barks-Ruggles, “The Globalization of Disease: When Congo Sneezes, Will California Get a Cold?” *Brookings Review* 19, no. 4 (fall 2001): 30–33.

94. Price-Smith, *Health of Nations*, 138.

95. UNAIDS, *Report on the Global HIV/AIDS Epidemic*, 18.

96. “The Next Wave of HIV/AIDS: Nigeria, Ethiopia, Russia, India, and China,” ICA 2002-040, September 2002, 8. David F. Gordon is the principal author.

97. “The Future of AIDS,” *Foreign Affairs* 81, no. 6 (November/ December 2002): 26. Also see NIC, “Next Wave,” 11–12.

98. David E. Powell and Heidi A. Kostin, “Rapid Spread of AIDS in Russia Imperils a Generation,” *Boston Globe*, 10 February 2002.

epidemic. In the face of the more severe epidemic now feared, that decline will reach 25 million, with a concurrent drop of 11 million in Russia's working-age population.⁹⁹ By 2050, it is estimated, the population of the "superpower" may plummet by as much as one-third to 95–100 million people.¹⁰⁰ The director of the Federal Research Center for AIDS Prevention in Moscow, Vadim Pokrovskii, sums up the problem this way: "In Africa, there are high birth rates, but in Russia the birth rate is low. If we have a rate of only three percent infected, population would fall by six percent.... In Russia, AIDS is scarier than in Africa. There the population is replaced. In Russia it will not be."¹⁰¹

Second, and closely related, AIDS is likely to cause severe economic problems. A recent World Bank study predicts that HIV/AIDS will reduce annual economic growth in Russia by one percent by 2020.¹⁰² While Russia's GNP per person of working age could be expected to increase by 50 percent by 2025 without HIV/AIDS, the disease will significantly reduce worker output and decimate the working-age population. The result, Ebertadt projects, is that under even the mildest epidemic-scenario now predicted, Russia's future GNP will remain stagnant through 2025.¹⁰³

Finally, these demographic and economic problems, combined with the disease's effect on military readiness, may undermine political stability in Russia. The chairman of the Defense Ministry's Medical Commission reports that 37 percent of all draft-age men in Russia cannot serve because of serious health problems. Fifty-five percent of those drafted can perform only limited duties because of poor health. In 2001, over 2,000 servicemen were dismissed from the Russian Army for being HIV-positive.¹⁰⁴ In the not too distant future, in short, AIDS could further erode Russia's ability to staff a conventional army and potentially lead Moscow to rely more on a deteriorating nuclear force to maintain its great power status.

99. Eberstadt, "Future of AIDS," 37. Eighty-seven percent of new HIV infections in Russia occur among 15 to 30 year olds. Lisa McAdams, "Looming AIDS Crisis in Russia to Have Profound Impact on Society," *Voice of America*, 27 November 2002, available from Center for Defense Information, *Russia Weekly*, no. 233, www.cdi.or/russia/233-2-pr.cfm (29 January 2003).

100. Ban, "Health, Security, and U.S. Global Leadership," 35.

101. Peter Graff, "INTERVIEW—AIDS in Russia 'scarier than Africa' yet ignored," Reuters.

102. Cited in NIC, "Next Wave," 24.

103. "Future of AIDS," 40–41.

104. Powell and Kostin, "Rapid Spread of AIDS in Russia Imperils a Generation." Also, see NIC, "Global Infectious Disease Threat," 34; and David L. Heyman, Executive Director for Communicable Diseases World Health Organization, Statement before the Committee on International Relations, U.S. House of Representatives, 29 June 2000, www.who.int/infectious-disease-report/dlh-testimony/testmo.pdf (24 September 2001).

China is in the early stages of a similar HIV/AIDS explosion. Reported infections were 67.4 percent higher in the first six months of 2001 than for the same period in 2000, and the rate of infection among Chinese drug users is ten times as high today as it was in 1995.¹⁰⁵ Seven of China's 22 provinces already are experiencing full-blown epidemics, while nine more face similar fates in the near future.¹⁰⁶ According to a recent United Nations study, current trends indicate that 20 million Chinese will be HIV-positive by 2010.¹⁰⁷ The problem is especially acute, because many Chinese blame their government for the AIDS crisis. Until recently, government officials have refused to acknowledge the epidemic publicly. More importantly, government actions helped spread AIDS throughout central China. There, government-owned or -operated blood collection centers paid poor farmers to donate blood. Blood of the same type was pooled and centrifuged to separate out the plasma. The leftover red blood cells then were pooled and reinjected into the donors, preventing anemia and allowing donors to give blood more frequently. Not surprisingly, there have been a growing number of protests against the government by farmers trying to publicize their plight.¹⁰⁸

HIV/AIDS will have serious human and economic costs in China, but it is relatively unlikely to cause the kind of widespread disruption that could jeopardize China's regional status. The spreading epidemic could curtail the international investment that has helped fuel China's economic growth. As the recent NIC study notes, however, China has several things going for it that Russia does not. First, although domestic AIDS spending remains low, the Chinese government has recently taken great strides in acknowledging the extent of the epidemic, seeking assistance, and organizing a public health response. Second, the sheer size of China's population will mute the epidemic's impact. Even an infected population of fifteen million would represent just two percent of the adult population of China.¹⁰⁹

Another nuclear-armed state, India, also faces a looming epidemic. Infection rates remain low—7 of 1,000 adults are HIV-positive. Five to eight million people in India, however, currently live with the disease, and that number is expected to rise to 20–25 million (3–4 percent of the adult population) by 2010.

105. Elisabeth Rosenthal, "China Now Facing an AIDS Epidemic, a Top Aide Admits," *New York Times*, 24 August 2001, A10.

106. Bates Gill, Jennifer Chang, and Sarah Palmer, "China's HIV Crisis," *Foreign Affairs* 81, no. 2(March/April 2002): 96–110; quote from 97.

107. Rosenthal, "China Now Facing an AIDS Epidemic." According to NIC estimates, 10–15 million (1.3–2 percent of Chinese adults) will be infected by 2010. "Next Wave," 8.

108. Rosenthal, "China Now Facing an AIDS Epidemic"; and Elisabeth Rosenthal, "Spread of AIDS in Rural China Ignites Protests," *New York Times*, 11 December 2001.

109. NIC, "Next Wave," 20, 24.

In some areas of northeast India, more than 70 percent of the mostly male IV drug-using population is infected, suggesting that infection rates in the general population may soon soar.¹¹⁰ Public awareness of AIDS remains low, but the Indian government responded relatively early to the epidemic, creating the National AIDS Control Organization in 1986, and India possesses a relatively strong public health infrastructure. As in China, moreover, the NIC estimates that the effects of India's epidemic will be lessened by being diffused among a large population.¹¹¹ For the present, significant unrest in Russia, India, or China remains a distant and remote possibility for American policy makers and the public, even though it is becoming increasingly obvious that Russia, in particular, faces a severe ID threat in the near future. If scholars and policy makers are to draw a credible link between ID and U.S. national security, it is here that they should look.

Nevertheless, the more immediate threat is to sub-Saharan Africa, and it is here that scholars and practitioners have focused their attention by arguing that U.S. security is linked to stability in Africa. In February 2001, Secretary of State Powell announced that the AIDS epidemic in Africa is a national security issue.¹¹² In May of the same year, Powell told South African students, "Africa matters to America," citing \$30 billion in U.S.-African trade.¹¹³ In the aftermath of the events of 9/11, the West in general and the United States in particular have a heightened security interest in Africa. Disease can contribute to instability and violence. Indeed, high infant mortality—which exists in sub-Saharan Africa largely because of IDs—is strongly correlated with the likelihood of state failure in partial democracies.¹¹⁴ Failed states may breed anti-western sentiment and even terrorism.¹¹⁵ Alternatively, they may influence domestic actors in the United States to pressure their government to intervene on humanitarian grounds. Once U.S. troops are committed, whether alone or as part of a multi-lateral force, U.S. security is clearly engaged.

These security concerns likely will not seem terribly compelling to Americans for at least three reasons. First, they may appear relatively remote possi-

110. UNAIDS, Report on the global HIV/AIDS epidemic, 12–13; NIC, "Next Wave," 8.

111. "Next Wave," 24.

112. Sachs, "Best Possible Investment in Africa," A1.

113. "Powell: U.S. committed to Africa's economic growth," CNN.com, 25 May 2001, www.cnn.com/201/WORLD/africa/05/25/powell.speech/index.htm (4 February 2002). For the text of Powell's speech, see Secretary Colin L. Powell, "Remarks at the University of Witwatersrand," Johannesburg, South Africa, U.S. Department of State, 25 May 2001, www.state.gov/secretary/rm/2001/3090.htm.

114. NIC, "Global Infectious Disease Threat," 32.

115. For a recent statement of this argument, see "Blair urges action on Africa," BBC News, 6 February 2002, news.bbc.co.uk/1/hi/english/uk_politics/newsid_1803000/1803567.stm. (6 February 2002).

bilities, particularly at a time when the United States is dealing with immediate and direct security threats. Second, even if Americans think about the longer run, there are more obvious candidates for state-sponsored terrorism or state failure than the states of sub-Saharan Africa, particularly the Islamic states of the Middle East and North Africa. Third, regardless of current interest in Africa, that continent has never figured heavily in U.S. security and foreign policy calculations. Americans see few material or strategic interests at stake, particularly in sub-Saharan Africa. As Helen Epstein and Lincoln Chen state, "In 1999, the UN Security Council declared AIDS in Africa an international security issue, because it further destabilizes already politically fragile African nations. How much, however, does this really matter to the West, particularly the United States? The postwar history of the West's relationship with Africa suggests that when millions of Africans die, or when African states collapse, Western leaders often look away."¹¹⁶ Secretary Powell's own words confirm this. In February 2000, less than a year before assuming office, he said, "While Africa may be important, it doesn't fit into the national strategic interests, as far as I can see them."¹¹⁷

It seems obvious, in short, that epidemic disease can contribute to violent conflict, particularly by engendering domestic instability, and in that way can threaten the national security of affected states. At present, however, most ID-induced unrest poses at most an indirect and medium to long term threat to U.S. security, suggesting that a rhetorical linkage to national security may not be the most effective way of inspiring public and political support for AIDS-ravaged Africa. Russia, where IDs may pose the most immediate threat to U.S. interests, is receiving relatively little attention in discussions of disease threats to U.S. national security.

EPIDEMIC DISEASE AS A DETERMINANT OF WAR OUTCOME

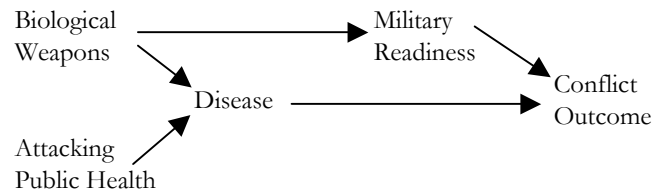
Even when disease plays little role in the outbreak of war, it can influence the course and outcome of military conflict. In theory, IDs can be "war-stoppers" or "war-outcome-determinants," contributing to one side's victory and another's defeat, depending on their differential impact on the adversaries. As figure 2 suggests, disease can influence the outcome of contemporary conflict in at least three ways: the deliberate dissemination of biological agents; the targeting by conventional means of public health; and the unintentional impact of epidemic disease on military readiness.

116. "Can AIDS Be Stopped?"

117. Alex Duval Smith, "AIDS, Trade and War Top Powell's African Agenda," *The Independent* (London), 25 May 2001, 20.

Figure 2

DISEASE AND THE OUTCOME OF MILITARY CONFLICT



Biological weapons and disease. Biological warfare has been described as “public health in reverse” because of its potential to disperse deadly infectious agents.¹¹⁸ Because biological weapons potentially pose direct security threats to the United States and other countries, because they are not new threats, and because they fit more easily within traditional definitions of security, attempts to link disease and security in this way should resonate with the American public and policy makers.

Biological weapons are living organisms, most commonly self-replicating micro-organisms—including bacteria, viruses, fungi, and rickettsia—deliberately disseminated to cause disease and death in humans or animals.¹¹⁹ Since 1972, 144 parties to the Biological Toxins and Weapons Convention have agreed not to develop, produce, stockpile, acquire, or retain biological weapons. At least eleven states nevertheless have some sort of biological weapons program. These efforts produce or are capable of producing numerous IDs. As Americans are all too aware, anti-human biological weapons agents include *bacillus anthracis* (anthrax), which produces fever, severe respiratory problems, shock, pneumonia, and death within days of exposure.¹²⁰ Anthrax is not a particularly effective agent, however, since it is not contagious and, in many cases, is susceptible to treatment. Smallpox is extremely contagious, by contrast, and spreads through the inhalation of virus droplets. It can incubate for more than 12 days before sickening its victims for up to several weeks with

118. Jonathan B. Tucker, “The Biological Weapons Threat,” *Current History* 96, no. 609 (April 1997): 167.

119. They also may include nonliving, non-self-replicating agents that are either secreted by living organisms or synthetically produced to be similar to agents secreted by living organisms. See Malcolm Dando, *The New Biological Weapons: Threat, Proliferation, and Control* (Boulder: Lynne Rienner, 2001), esp. 18.

120. Information on the effects of anthrax and smallpox is taken from “Biological Weapons Agents,” Chemical and Biological Weapons Nonproliferation Project, Henry L. Stimson Center, www.stimson.org/cwc/bwagent.htm (10 November 2000).

vomiting, lesions, fever, and in 35 percent of stricken people, death. In 1980, after the WHO announced that smallpox had been eradicated, stocks of the disease were destroyed and, officially, samples exist only in the Centers for Disease Control (CDC) in Atlanta and the State Centre for Research on Virology and Biotechnology in Siberia. For this reason, until very recently, there was no commercially available supply of smallpox vaccine.¹²¹

Anti-animal and plant pathogens also make potent biological weapons.¹²² Diseases like Newcastle disease, bovine spongiform encephalopathy (“mad cow disease”), avian influenza, swine fevers, anthrax, brucellosis, and—among the most contagious and most costly—foot-and-mouth disease can disrupt cattle, hog, and poultry production. In the process, such agroterrorism can cause significant threats to the agricultural sector, disrupt trade and, in extreme cases, provoke famine. As Dorothy Preslar has noted, terrorism against agricultural targets may pose a greater threat than against human targets because it “[i]s not as repugnant to prevailing sensibilities; [c]annot easily be proved intentional...; [c]an be instigated without violating international arms control agreements; [and w]ill incite neither a crushing military response nor [an] international man-hunt.”¹²³ Crop diseases may be introduced to spread famine and disrupt the economy. Because they are highly sensitive to humidity, temperature, and sunlight and they cannot circulate airborne as far or as fast as many human and animal diseases, however, crop diseases would be more difficult to disseminate.¹²⁴

Unlike nuclear and chemical weapons, biological agents are relatively simple and inexpensive to manufacture and easy to conceal. They can be made in facilities otherwise devoted to legitimate medical and pharmaceutical research at a fraction of the cost of other weapons. One government analyst has calculated that a penny’s worth of anthrax is the equivalent in lethality of \$1,500 of

121. Fifteen million doses of the vaccine stored at the CDC were scheduled to be destroyed when the last remaining smallpox virus was destroyed. Routine civilian immunization against smallpox halted nearly two decades ago, and human immunity to the disease is thought to fade within 15 years of vaccination. After 9/11, the U.S. government ordered large quantities of smallpox vaccine for the first time in decades. More recently, the government confirmed that existing doses could be diluted safely and that a private company had unexpectedly found 70-90 million doses. Justin Gillis, “Smallpox Vaccine Supply Could Be Stretched,” *Washington Post*, 29 March 2002, A10.

122. These diseases may also pose security threats when they occur naturally rather than secondary to a terrorist attack.

123. Dorothy B. Preslar, “The Role of Disease Surveillance in the Watch for Agroterrorism or Economic Sabotage,” November 2000, www.fas.org/ahd/bwconcerns/agroterror.htm (16 April 2002).

124. Anne Kohnen, “Responding to the Threat of Agro-terrorism: Specific Recommendations for the United States Department of Agriculture,” BCSIA Discussion Paper 2000-29, ESDP Discussion Paper 2004-04, John F. Kennedy School of Government, Harvard University, October 2000, 10.

nuclear power.¹²⁵ It can be difficult to stabilize biological agents, but relatively easy to deliver them to their targets. They can be sprayed efficiently as respirable aerosols from a truck or small plane. Only ten grams of anthrax spores spread over one square mile would kill as many people as would a metric ton of sarin gas.¹²⁶ As Garrett notes, “Enough anthrax spores to kill five or six million people could be loaded into a taxi and pumped out its tailpipe as it meandered through Manhattan.”¹²⁷

Despite strong prohibitions against biological weapons and warfare, ID has been used as a weapon of war throughout history. Greek, Roman, and Persian armies tossed dead bodies in enemy wells to poison the water supply. In the fourteenth century, the Black Plague spread to Europe—where it ultimately claimed as much as one-third of the population—from what is now Ukraine, after Tartar soldiers catapulted their own plague victims over the fortress walls as weapons against their Italian foes.¹²⁸ The British employed smallpox in their fights against native Americans in the 1754–63 French and Indian War and against U.S. troops in the Revolutionary War.¹²⁹ During their southern campaign in the Revolutionary War, the British used infected African slaves, whom they had enticed to fight the Americans with the promise of freedom, as weapons of war.¹³⁰ During the Second World War, the Japanese Imperial Army’s Unit 731 developed biological weapons to disperse anthrax, typhoid, cholera, plague, and at least a dozen other IDs and tested these weapons on Chinese civilians.¹³¹ More recently, Stefan Elbe argues, African armies have used HIV/AIDS as a psychological, and perhaps even biological, weapon.¹³²

Although the risk of biological warfare is modest, it remains one of the most significant and immediate security threats that disease poses for the West, par-

125. Michael T. Osterholm and John Schwartz, *Living Terrors: What America Needs to Know to Survive the Coming Bioterrorist Catastrophe* (New York: Delacourt Press, 2000), 8.

126. Tucker, “Biological Weapons Threat,” 168.

127. Garrett, “Return,” 76.

128. Tucker, “Biological Weapons Threat,” 169; J. M. Roberts, *History of the World* (New York: Oxford University Press, 1993), 413.

129. For example, see John Duffy, “Smallpox and the Indians in the American Colonies,” *Bulletin of the History of Medicine* 25, no. 4 (1951): 340, reprinted in Kiple and Beck, *Biological Consequences of the European Expansion*, 249.

130. See Elizabeth A. Fenn, *Pox Americana: The Great Smallpox Epidemic of 1775–82* (New York: Hill and Wang, 2001).

131. See Peter Williams and David Wallace, *Unit 731: The Japanese Army’s Secret of Secrets* (London: Hodder and Stoughton, 1989); Sheldon H. Harris, *Factories of Death: Japanese Biological Warfare, 1932–45, and the American Cover-Up* (New York: Routledge, 1994); and Nicholas D. Kristof, “Unmasking Horror—A Special Report; Japan Confronting Gruesome War Atrocity,” *New York Times*, 17 March 1995, A1.

132. “HIV/AIDS and the Changing Landscape of War in Africa,” *International Security* 27, no. 2 (fall 2002): 167–71. Also, see Singer, “AIDS and International Security.”

ticularly the United States.¹³³ These weapons pose two distinct challenges. First, a state's pursuit of biological weapons capabilities could provoke preventive war by other states fearful of that power. Concerns about Iraq's budding biological, chemical, and nuclear capabilities provoked the 1981 Israeli attack on an Iraqi nuclear reactor, helped fuel two wars against Iraq, and prompted the decade of inspections and air strikes between the two Persian Gulf Wars. Second, biological agents could be used as weapons of war or terrorism. State use remains relatively unlikely, however, given normative prohibitions against the use of biological weapons and the deadliness of other available weapons. Despite its extensive biological and chemical weapons program, for example, Iraq did not use these weapons during the 1991 Persian Gulf War and, as of this writing, has not used them in the current conflict. At present, moreover, most states lack the capability to launch a successful biological weapons attack. Non-state actors and some rogue states are more likely to use these weapons of the weak against a domestic population, government, or other target. Certainly, there is no shortage of states or terrorist groups with grievances to air, and these actors will care less, if at all, about international public opinion. That Osama bin Laden actively sought to acquire weapons of mass destruction supports Richard Falkenrath's claim that the rise of religious and anti-American terrorist groups will weaken the bias against causing mass fatalities and using nuclear, chemical, or biological weapons to do so.¹³⁴

Biological weapons pose a substantial and direct threat to U.S. national security. On the one hand, the United States presents the most likely target for such terrorist attacks, even if the overall likelihood of such an attack remains small. On the other hand, key states that the United States considers strategically important might acquire, use, or become a target of biological weapons and indirectly threaten U.S. interests. The U.S. government recognized this potential, for example, when it designated \$100 million to defuse the biological weapons threat from the former Soviet Union by converting former weapons

133. There have been 121 incidents involving the use of biological agents in the last four decades. Jeremy Laurance, "U.S. on Alert for Smallpox Terror Attack," *Independent on Sunday* (London), 22 April 2001, 2. In addition to extensive scientific, medical, and public health literatures on biological weapons, see Richard K. Betts, "The New Threat of Weapons of Mass Destruction," *Foreign Affairs* 77, no. 1 (January/February 1998): 26–41; Malcolm R. Dando, *Biological Warfare in the 21st Century: Biotechnology and the Proliferation of Biological Weapons* (London: Brassey's, 1994); Peter R. Lavoy, James J. Wirtz, and Scott D. Sagan, *Planning the Unthinkable: How New Powers Will Use Nuclear, Biological, and Chemical Weapons* (Ithaca: Cornell University Press, 2000); Joshua Lederberg, ed., *Biological Weapons: Limiting the Threat* (Cambridge: MIT Press, 1999); John D. Steinbruner, "Biological Weapons: A Plague Upon All Houses," *Foreign Policy*, no. 109 (Winter 1997–98): 85–113; Tucker, "Biological Weapons Threat."

134. Richard A. Falkenrath, "Confronting Nuclear, Biological and Chemical Terrorism," *Survival* 40, no. 3 (autumn 1998): 43–65.

facilities and employing scientists previously involved in the Soviet biological warfare program.¹³⁵

Given the immediate and direct nature of the threat, and especially following the 2001 anthrax attacks, it should be relatively easy (compared with efforts to link economic instability in Africa to U.S. security) to link biological weapons to American national security in the public mind and therefore to mobilize domestic support for antiterrorist and counterterrorist activities. In 1998, President Clinton announced that he expected a biological or chemical attack within the next five years. The following year, R. James Woolsey, director of Central Intelligence under Clinton, described biological terrorism as the “single most dangerous threat to [U.S.] national security in the foreseeable future.”¹³⁶ More recently, Secretary of Health and Human Services, Tommy Thompson, responded to the anthrax threats by announcing that “[p]ublic health is a national security issue.”¹³⁷ Scholars may differ on the perceived likelihood of attack, but few would deny that disease—when used deliberately as a weapon of war—poses a significant threat to national security. Indeed, it has long been recognized as such and included in planning for war and homeland defense.

Targeting public health. Biological agents are not the only way to deliberately disseminate disease during war. Armed forces have often targeted civilians—and civilian health—as part of a deliberate military strategy, and the use of this tactic seems only to have risen since the end of the cold war. What Jack Chow calls “‘humanitarian’ warfare—aggression through the control and denial of vital human needs—now complements or even substitutes for direct force.”¹³⁸ Two tactics of humanitarian warfare, in particular, link ID and national security. What Chow calls “war by starvation” emphasizes the political and strategic value of food. In Sudan, Somalia, and Ethiopia, soldiers and warlords have struggled to control the food supply as a means of increasing their military and political power. This deliberate use of starvation inevitably spreads IDs, given the link between malnutrition and disease. What Chow terms “war by privation” is somewhat broader and includes “deliberate cutoffs of food,

135. See Michael Dobbs, “Soviet-Era Work on Bioweapons Still Worrisome: Stall in U.S. Dismantling Effort Could Pose Proliferation Threat,” *Washington Post*, 12 September 2000, A1. For information on the Soviet Union’s extensive biological warfare program, see Ken Alibek (with Stephen Handelman), *Biohazard: The Chilling True Story of the Largest Covert Weapons Program in the World* (New York: Delta/Random House, 1999).

136. Quoted in *Contagion and Conflict: Health as a Global Security Challenge*, A Report of the Chemical and Biological Arms Control Institute and the CSIS International Security Program (Washington, D.C.: Center for Strategic and International Studies, 2000), 37–38.

137. Sheryl Gay Stolberg, “Health Secretary Testifies About Germ Warfare Defenses,” *New York Times*, 4 October 2001, B7.

138. “Health and International Security: U.S. Policy on World Health,” *Washington Quarterly* 19, no. 2 (spring 1996): 63–77. The authors of the CSIS report, “Contagion and Conflict,” call this “community warfare.” See chap. 2.

water, medicine and heat.”¹³⁹ In Sudan, for instance, government troops routinely target hospitals.¹⁴⁰ In Kosovo, Yugoslav president Slobodan Milosovic targeted medical care as far back as 1989–90 when he ordered the firing of thousands of Albanian professionals, closing 75 percent of all state-run medical facilities. This contributed to 170 epidemics between 1990 and 1998. In fighting in 1998, ethnic Albanians were prevented from receiving or forced to pay for medical care that ethnic Serbs received free, and numerous hospitals and out-patient clinics were deliberately destroyed. After the NATO bombing campaign began, government troops and paramilitary units destroyed 90 more country-based health care clinics run by the Mother Teresa Society. Providing medical assistance to members of the Kosovo Liberation Army was labeled terrorism, and doctors were harassed routinely for providing medical aid to people in areas of conflict.¹⁴¹

The United States determined that it had strategic interests in Kosovo worth fighting for, so Serbian engagement in war by privation influenced U.S. national security. When the United States becomes militarily involved for humanitarian reasons in areas with little or no strategic value, humanitarian warfare also may threaten its ability to meet its military objectives. In this case, however, the threat is an indirect one and one that is already captured in traditional considerations of military strategy and tactics.

Military readiness. Even when disease is not deliberately used, it can alter the evolution and outcome of military conflict by eroding military readiness and morale. As Jared Diamond notes, “All those military histories glorifying great generals oversimplify the ego-deflating truth: the winners of past wars were not always the armies with the best generals and weapons, but were often merely those bearing the nastiest germs to transmit to their enemies.”¹⁴² During the European conquest of the Americas, the conquistadors shared numerous lethal microbes with their native American foes, who had few or no deadly diseases to pass on to their conquerors. When Hernando Cortez and his men first attacked the Aztecs in Mexico in 1520, they left behind smallpox that wiped out half the Aztec population. Surviving Aztecs were further demoralized by their vulnerability to a disease that appeared harmless to the Europeans, and on their next attempt the Spanish succeeded in conquering the Aztec nation.¹⁴³ Spanish conquest of the Incan empire in South America followed a similar

139. Chow, “Health and International Security.”

140. CSIS, “Contagion and Conflict,” 29.

141. CSIS, “Contagion and Conflict,” 30–31.

142. Diamond, *Guns, Germs, and Steel*, 197.

143. By 1618, Mexico’s population had fallen from 20 million to 1.6 million. McNeill, *Plagues and Peoples*, 19–20; Diamond, *Guns, Germs, and Steel*, 210.

pattern: In 1532 Francisco Pizarro and his army of 168 Spaniards defeated the Incan army of 80,000. A devastating smallpox epidemic had killed the Incan emperor and his heir, producing a civil war that split the empire and allowed a handful of Europeans to defeat a large, but divided enemy.¹⁴⁴ In modern times, too, pandemic infections have affected the ability of military forces to prosecute and win a war. The German Army chief of staff in the First World War, General Erick Von Ludendorf, blamed Germany's loss of that war at least partly on the negative effects of the 1918 influenza epidemic on the morale of German troops.¹⁴⁵ In the Second World War, similarly, malaria caused more U.S. casualties in certain areas than did military action.¹⁴⁶ Throughout history, then, IDs have had a significant potential to decimate armies and alter military history.

Still, IDs' impact in the contemporary international system may be somewhat different. Unlike other diseases, AIDS has an incubation period of ten years or more, making it unlikely that it will produce significant casualties on the front lines of a war. It will still, however, deplete force strength in many states. On average, 20–40 percent of armed forces in sub-Saharan countries are HIV-positive, and in a few countries the rate is 60 percent or more. In Zimbabwe, it may be as high as 80 percent.¹⁴⁷ In high incidence countries, AIDS significantly erodes military readiness, directly threatening national security. Lyndy Heinecken chillingly describes the problem in sub-Saharan Africa:

AIDS-related illnesses are now the leading cause of death in the army and police forces of these countries, accounting for more than 50% of in-service and post-service mortalities. In badly infected countries, AIDS patients occupy 75% of military hospital beds and the disease is responsible for more admissions than battlefield injuries. The high rate of HIV infection has meant that some African armies have been unable to deploy a full contingent, or even half of their troops, at short notice.... [In South Africa, because] participation in peace-support operations outside the country is voluntary, the S[outh] A[frican] N[ational] D[efence] F[orce] is grappling with the problem of how to ensure the availability of sufficiently suitable candidates for deployment at short notice. Even the use of members for internal crime prevention and border control, which subjects them to adverse conditions or stationing in areas where local in-

144. "If it had not been for the epidemic, the Spaniards would have faced a united Empire." Diamond, *Guns, Germs, and Steel*, 67–81, quoted at 77.

145. Crosby, *America's Forgotten Pandemic*, 27.

146. Agency for International Development, *Malaria: Meeting the Global Challenge* (Boston: Oelgeschlager, Gunn & Hain, 1985) 4.

147. Heinecken, "Strategic Implications of HIV/AIDS in South Africa," 109. Also, see Elbe, "HIV/AIDS and the Changing Landscape of War in Africa."

frastructure is limited, presents certain problems. Ordinary ailments, such as diarrhoea and the common cold, can be serious enough to require the hospitalization of an immune-compromised person, and, in some cases, can prove fatal if they are not treated immediately.¹⁴⁸

Armed forces in severely affected states will be unable to recruit and train soldiers quickly enough to replace their sick and dying colleagues, the potential recruitment pool itself will dwindle, and officers corps will be decimated. Military budgets will be sapped, military blood supplies tainted, and organizational structures strained to accommodate unproductive soldiers.

HIV-infected armed forces also threaten civilians at home and abroad. Increased levels of sexual activity among military forces in wartime means that the military risk of becoming infected with HIV is as much as 100 times that of the civilian risk. It also means that members of the armed forces comprise a key means of transmitting the virus to the general population; with sex and transport workers, the military is considered one of the three core transmission groups in Africa.¹⁴⁹ For this reason, conflict-ridden states may become reluctant to accept peacekeepers from countries with high HIV rates.

Rather than contributing directly to military defeat in many countries, however, AIDS in the military is more likely to have longer term implications for national security. First, IDs theoretically could deter military action and impede access to strategic resources or areas. Tropical diseases erected a formidable, although obviously not insurmountable, obstacle to colonization in Africa, India, and Southeast Asia. French and later American efforts to open the Panama Canal, similarly, were stymied until U.S. mosquito control efforts effectively checked yellow fever and malaria. Second, in many countries AIDS already strains military medical systems and their budgets, and it only promises to divert further spending away from defense toward both military and civilian health. Third, AIDS in the military promises to have its greatest impact by eroding a government's control over its armed forces and further destabilizing the state. Terminally ill soldiers may have little incentive to defend their government, and their government may be in more need of defending as AIDS siphons funds from housing, education, police, and administration. Finally, high military HIV/AIDS rates could alter regional balances of power. Perhaps 40–50 percent of South Africa's soldiers are HIV-infected. Despite the disease's negative impact on South Africa's absolute power, Price-Smith notes, AIDS may increase that nation's power relative to its neighbors, Zimbabwe and

148. Heinecken, "Strategic Implications of HIV/AIDS in South Africa," 109–11. Also, see Price-Smith, "Praetoria's Shadow," 18–22.

149. USAID, "Military Populations"; Heinecken, "Strategic Implications of HIV/AIDS in South Africa," 109.

Botswana, with potentially important regional consequences.¹⁵⁰ AIDS poses obvious threats to the military forces of many countries, particularly in sub-Saharan Africa, but it does not present the same immediate security problems for the United States. The authors of a Reagan-era report on the effects of economic and demographic trends on security worried about the effects of the costs of AIDS research, education, and funding on the defense budget,¹⁵¹ but a decade of relative prosperity generated budget surpluses instead. These surpluses have evaporated, but concerns about AIDS spending have not reappeared and are unlikely to do so for the foreseeable future, given the relatively low levels of HIV-infection in the United States. AIDS presents other challenges, including prevention education and measures to limit infection of U.S. soldiers and peacekeepers stationed abroad, particularly in high risk settings, and HIV transmission by these forces to the general population. These concerns could limit U.S. actions where American interests are at stake.¹⁵²

AIDS' effects on the militaries of key states also could erode vital U.S. interests by undermining allies' military readiness or friends' and foes' political stability. As discussed above, Russia will be among the states hardest hit with potentially serious consequences for the international balance of power. AIDS may not prevent the U.S. military from fighting and winning wars, in short, but they still impact U.S. national security. They do not, however, and for the foreseeable future will not, degrade security in the direct ways or to the extent that many health security advocates suggest.

MISSTATING THE THREAT

AT THE START OF the twenty-first century, human beings face what may be the worst plague in history, a disease so devastating that it has already surpassed in absolute terms the most notorious epidemics of earlier generations. In response, politicians, health professionals, and scholars plead with the West to recognize the threat this modern plague presents to human security. They attempt to persuade nations and individuals to broaden their thinking about security to encompass basic needs like health. From there, it is often only one small rhetorical step to the argument that AIDS and other IDs threaten national and international security. Intellectually, however, that step is much

150. Price-Smith, "Praetoria's Shadow," 19, 31.

151. "Economic and Demographic Trends," 598.

152. In 2000, the Security Council adopted its first resolution on a health issue, asking member states to initiate AIDS testing and prevention programs among their peacekeeping forces.

steeper. It must include a serious analysis of whether and how epidemic IDs challenge national security, more narrowly construed as the preservation of the state's territory, institutions, and sovereignty.

Using this definition, we see that epidemic disease outbreak can endanger national security. First, it may generate violent conflict by creating significant domestic economic and political instability. Second, epidemic disease historically has altered the outcome of international conflicts, and this remains possible today. Biological agents—including epidemic IDs—can be weapons of war and thereby directly and immediately threaten security. Combatants may deliberately target public health and spread disease to weaken and demoralize an enemy population. Or IDs can reduce military readiness in the hardest hit countries. For many states, particularly in sub-Saharan Africa, ID-induced civil unrest and declining military power directly threaten security, but these pose only long term threats to the United States. ID-induced instability in Russia may pose a less distant challenge to U.S. interests, but that threat has received scant attention to date. For other states, IDs spread by war may add another level to the security threats inherent in violent conflict but, again, this remains a distant threat to the United States. Only biological weapons pose a significant, immediate, and direct threat to the nation's security for the foreseeable future.

The most catastrophic contemporary disease and the first lethal pandemic disease in the lifetimes of most readers of this paper, HIV/AIDS poses the greatest humanitarian crisis of this or perhaps any generation, but it does not now pose a significant security threat to most developed states. A humanitarian and even a security threat to southern Africa does not necessarily threaten other states' security unless southern Africa is of vital interest to them. So far, the United States has been wary of such arguments, choosing instead to rely on humanitarian justifications for its brief and often late incursions into places like Somalia and Rwanda. As the United States relies more on West African states like Nigeria and Angola for oil, the balance between humanitarian and security concerns may shift more toward the latter.¹⁵³ This still seems a distant likelihood, however, as the United States continues to focus its efforts on stabilizing its major source of imported oil, the Middle East.

Why should it matter whether policy makers and scholars overdraw the link between IDs and security? Security provides a relatively poor rationale for addressing health threats like AIDS. From a national security perspective, in fact, AIDS poses a far smaller threat to most states than it does from almost any other viewpoint, including health, human rights, economic and political

153. On the projected impact of AIDS in Nigeria, see NIC, "Next Wave."

development, and social and economic justice. It is not clear, moreover, that anything is gained by adopting the rhetoric of national security to address IDs.

Ironically, at least two things may be lost. First, the appeal to national security relieves states without major public health threats of any moral obligation to respond to health crises of monumental proportions in the developing world, since it suggests that only national security concerns can justify significant expenditures on disease control. Historically, narrow self-interest has not motivated a sustained commitment to international health cooperation. In the nineteenth century, when epidemic disease in less developed states provoked divergent national quarantine policies within Europe and endangered gains from trade, European states negotiated common quarantine standards and made significant strides in international disease control. By the mid-twentieth century, however, developed states had acquired powerful medical, pharmaceutical, and public health weapons to fight epidemic disease in their own countries and had lost interest in helping the developing world transition to better health. Narrow self-interest is no more likely to promote the sustained commitment that will be necessary to fight AIDS in Africa and elsewhere. Even in the shorter run, in fact, public opinion is more likely to support foreign aid that serves humanitarian than strategic ends. As David H. Lumsdaine notes about twentieth-century foreign aid practices, "The principle of help to those in great need implicit in the very idea of foreign aid led to steady modification of aid practices, which focused then more on the needs of the poor and moved them away from donor interests."¹⁵⁴

Second, policymakers' and scholars' attempts to whip up support for ID control by making it a national security issue may generate security dilemmas. The more some states accept and attempt to paint epidemic disease as a security threat, the greater the chance that national disease-control and antiproliferation policies aimed at biological weapons will arouse suspicion in other states. Paradoxically, international organizations and NGOs then may be called upon to play a greater role in global health efforts, as the purely national and bilateral efforts of states become increasingly suspect. In this regard, it may be more fruitful to view disease and health issues as concerns for U.S. foreign policy deserving of multilateral responses, rather than as narrow security threats requiring bilateral policy responses that may provoke suspicion.¹⁵⁵

154. *Moral Vision in International Politics: The Foreign Aid Regime, 1949–1989* (Princeton: Princeton University Press, 1993), 5, 43, quoted at 5.

155. For a work that views disease as a foreign policy, rather than a security, concern, see Jordan S. Kassalow, "Why Health is Important to U.S. Foreign Policy," (New York: Council on Foreign Relations and Milbank Memorial Fund, 2001).

If well-intentioned people seek to rally support among western governments for anti-AIDS efforts in Africa, portraying disease as a security issue may be exactly the wrong strategy to employ. Rather, the world must face AIDS for what it is and will be for the foreseeable future—a health tragedy of unprecedented and staggering proportions that cries out for international and transnational humanitarian assistance, not for the garrisoning of states behind national boundaries and national security rhetoric.