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Microbialpolitik: Infectious Diseases and International Relations

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MICROBIALPOLITIK: INFECTIOUS DISEASES AND INTERNATIONAL RELATIONS[1]

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INTRODUCTION

After decades of neglect, infectious diseases have re-emerged as a field of inquiry in the areas of public health, science, and politics. Increasingly, the world has come to comprehend the threat of emerging infectious diseases.[2] This renewed concern about infectious diseases has been expressed in both provocative scientific discourse[3]

2. *See* WORLD HEALTH ORG., WORLD HEALTH REPORT 1996: FIGHTING DISEASE, FOSTERING DEVELOPMENT 1 (1996) [hereinafter WORLD HEALTH REP. 1996].

3. *See, e.g.*, EMERGING VIRUSES (Stephen S. Morse ed. 1993); Emerging Infectious Diseases (visited July 13, 1998) <http://www.cdc.gov/ncidod/EID/index.htm> (presenting each issue of the peer reviewed journal published by the

and popular culture.[4] Among the many themes in the growing literature on emerging infectious diseases are the recognition of the global scope of these problems, and the need for international cooperation to address them. The argument that emerging infectious diseases are global problems demanding international solutions is usually made from the scientific and public health perspectives. Some writers have raised the importance of infectious diseases as a foreign policy issue,[5] signifying a need to examine emerging infectious diseases not only as a public health and scientific problem, but also as an international political problem. Not much literature exists, however, that analyzes emerging infectious diseases from the perspective of international politics.[6] This article makes an initial attempt to provide an analytical framework in which to examine emerging infectious diseases as a challenge for international relations. Given the important public health and scientific challenges that emerging infectious diseases pose, it is quite fitting that the majority of the work in this area has been done within the disciplines

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National Center for Infectious Diseases of the United States Centers for Disease Control and Prevention).

4. *See, e.g.*, ROBIN COOK, TOXIN (1998) (fiction centered around foodborne disease); NICOLS FOX, SPOILED: THE DANGEROUS TRUTH ABOUT A FOOD CHAIN GONE HAYWIRE (1997) (non-fiction book about foodborne infectious diseases); JOHN S. MARR & JOHN BALDWIN, THE ELEVENTH PLAGUE: A NOVEL OF MEDICAL TERROR (1998) (fiction about biological terrorism); RICHARD PRESTON, THE COBRA EVENT (1998) (fiction about biological terrorism); RICHARD PRESTON, THE HOT ZONE (1994) (non-fiction book about Ebola outbreak in Reston, Virginia primate research facility); RICHARD RHODES, DEADLY FEASTS: TRACKING THE SECRETS OF A TERRIFYING NEW PLAGUE (1997) (non-fiction book about threat of bovine spongiform encephalopathy); FRANK RYAN, THE FORGOTTEN PLAGUE: HOW THE BATTLE AGAINST TUBERCULOSIS WAS WON AND LOST (1993) (non-fiction account of re-emergence of tuberculosis).

5. *See, e.g.*, Laurie Garrett, *The Return of Infectious Diseases*, 75 FOREIGN AFF., Jan./Feb. 1996, at 66; Hiroshi Nakajima, *Global Disease Threats and Foreign Policy*, 4 BROWN J. WORLD AFF. 319 (1997).

6. For existing international relations and political analyses of emerging infectious diseases, see THE POLITICS OF EMERGING AND RESURGENT INFECTIOUS DISEASES (Jim Whitman, ed., forthcoming); David P. Fidler, *The Globalization of Public Health: Emerging Infectious Diseases and International Relations*, 5 IND. J. GLOBAL LEGAL STUD. 11 (1997) [hereinafter Fidler, *Globalization of Public Health*]; David P. Fidler, *Mission Impossible? International Law and Infectious Diseases*, 10 TEMP. INT'L & COMP. L.J. 493 (1996) [hereinafter Fidler, *Mission Impossible?*]; David P. Fidler, *Return of the Fourth Horseman: Emerging Infectious Diseases and International Law*, 81 MINN. L. REV. 771 (1997) [hereinafter Fidler, *Return of the Fourth Horseman*].

of public health[7] and epidemiology[8]—disciplines typically not associated with the general study of international relations. In addition, science is a universal language; so public health officials and scientists from different countries have a unifying energy in their inquiries. When the targets of study are pathogenic microbes that simply by-pass borders, perhaps it is easy for public health officials and scientists to emulate their quarry and move analytically from science to international public health policy.

As officials of the World Health Organization ("WHO") know, international health cooperation faces many difficulties. The "global problem-international cooperation" theme prevalent in emerging infectious diseases literature often does not directly confront the problems international health cooperation has had in the twentieth century. Much of the global crisis of emerging infectious diseases flows from fundamental failures in international health and other forms of interstate cooperation. The critical need for international cooperation to deal with the global problem of emerging infectious diseases is appropriate to stress again and again. Without building into the emerging infectious disease literature analytical frameworks that assist thinking about how international cooperation can best be crafted, the appeal to international cooperation and community in the face of a resurgent microbial world will begin to sound empty.

Thus, the multidisciplinary challenges that emerging infectious diseases present also include concepts and theories developed in the study of international relations. Moving in this direction may, at first glance, seem to relate two areas of study that are vastly different. As traditionally viewed, international relations involve the interaction of states and international organizations within the international system. Public health and epidemiology, on the other hand, address primarily

7. *See* INSTITUTE OF MEDICINE, THE FUTURE OF PUBLIC HEALTH 39 (1988) (defining public health as "the science and the art of (1) preventing disease, (2) prolonging life, and (3) organized community efforts for (a) the sanitation of the environment, (b) the control of communicable diseases, (c) the education of the individual in personal hygiene, (d) the organization of medical and nursing services for the early diagnosis and preventive treatment of disease, and (e) the development of the social machinery to ensure everyone a standard of living adequate for the maintenance of health").

8. *See* NEW SHORTER OXFORD ENGLISH DICTIONARY 836 (1993) (defining epidemiology as "[t]he branch of medicine that deals with the incidence and transmission of disease in populations").

the interaction between individuals and the microbial world. Connecting these two areas is not, however, to work at cross purposes because, as this article demonstrates, their confluence produces two important dynamics: (1) the effect infectious diseases have on international relations, and (2) the effect international relations have on the nature and spread of infectious diseases. Pathogenic microbes may ignore borders, but they do not move around the globe without having effects on international relations. Similarly, the nature and structure of international relations directly influences the rise and fall of infectious diseases in human history. I have coined the term *microbialpolitik* to describe the international politics produced as states attempt to deal with pathogenic microbes. *Microbialpolitik* can be thought of as the ordinary dynamics of international relations mixed with the special dynamics produced by the nature of the microbial world.

The framework set out in this article explores *microbialpolitik* by building on basic concepts from international relations theory: the state, the international system, the international society, and the global society. This analysis examines how infectious diseases affect each of these levels of international relations thinking. Once the composite picture of infectious diseases as an aspect of international relations develops, the international and global features of infectious diseases can be more clearly appreciated. Such an appreciation allows some tentative conclusions about dealing with emerging infectious diseases as a part of international relations. The framework provided in this article, though basic and skeletal, can perhaps serve as a starting point—or at least an encouragement—for further thinking about the increasingly important interdependence between the microbes and the Metternichs of the world.

I. INFECTIOUS DISEASES AND THE STATE

A. THE CONCEPT OF THE STATE AND INFECTIOUS DISEASE CONTROL

The study of international relations is an immense and often controversial area of inquiry. Generally speaking, international relations theory attempts to understand, explain, and predict human behavior beyond the borders of the state. International relations

theory also addresses the impact of interstate behavior on politics, economics, and culture within the state. For most of the history of the discipline, a central concept in international relations has been "the state."

In an era where numerous scholars proclaim that the processes of globalization are undermining sovereignty and threatening the very concept of the state, it may seem misguided to discuss the relationship between the state and infectious diseases at any length. I have gone to great lengths to explain the phenomenon of globalization of public health and its effect on state sovereignty.[9] The growing lack of state control that a state has over its public health situation in the global era should not be mistaken, however, for the death of the state either in practical or conceptual terms. Microbes bypass the trappings and substance of sovereignty, but their movements do not change the structure of international relations because states remain the primary actors, albeit weakened ones. The continued primacy of the state in the global infectious disease context is illustrated by the fact that "globalization jeopardizes disease control nationally by eroding sovereignty, while the need for international solutions allows sovereignty to frustrate disease control internationally."[10]

In addition, international theories, like Marxism, that have attempted to diminish the importance of the state and to elevate non-state forces to primary positions in international relations have failed to be realistic or normatively persuasive. While some commentators emphasize the growing power and influence of non-state actors in international relations,[11] others counter that these efforts to toss aside

9. *See, e.g.*, Fidler, *Globalization of Public Health*, *supra* note 6, at 14-18, 23-35; David P. Fidler, *Globalization, International Law, and Emerging Infectious Diseases*, 2 EMERGING INFECTIOUS DISEASES 77 (Apr.-June 1996) [hereinafter Fidler, *Globalization, International Law, and Emerging Infectious Diseases*]; Fidler, *Return of the Fourth Horsemen*, *supra* note 6, at 810-19;. *See also* Gill Walt, *Globalisation of International Health*, 351 LANCET 434 (1998); Derek Yach & Douglas Bettcher, *The Globalization of Public Health, I: Threats and Opportunities*, 88 AM. J. PUBLIC HEALTH 735 (1998).

10. Fidler, *Globalization, International Law, and Emerging Infectious Diseases*, *supra* note 9, at 83.

11. *See, e.g.*, Jessica Matthews, *Power Shift*, 76 FOREIGN AFF., Jan./Feb. 1997, at 50 (describing a power shift away from the traditional concept of the state due to changes in the structure of new and emerging non-state actors).

the state are misguided and misleading.[12] The continuing importance of the state in international relations does not, however, mean that non-state actors and forces play insignificant roles. When considering the international aspects of infectious diseases, one must recognize that non-governmental organizations, multinational corporations, and even individuals can influence events. I have argued elsewhere that "[i]n international relations terms, pathogenic microbes constitute nonstate actors with transnational power."[13] Even so, the impact of such nonstate actors, including pathogenic microbes, continues to be filtered largely through the policies, ambitions, and fears of states.

B. DEVELOPMENT OF INFECTIOUS DISEASE CONTROL AS A NATIONAL INTEREST

The historical relationship between the state and infectious diseases is fascinating and important. Infectious diseases plagued human societies long before the development of territorial states during the European Renaissance. Prior to the coming of the modern state system, infectious diseases shaped the destiny of great empires, as illustrated by the devastation wrought by pathogenic microbes on Periclean Athens and the Roman Empire.[14] After the modern states system emerged, infectious diseases helped shape the destinies of states great and small. Most fundamentally, this shaping can be seen in the emergence of infectious disease control as a "national interest" of states. In the rest of Part I, I analyze what it means for a state to pursue infectious disease control as a national interest.

To describe infectious disease control as a national interest means that the state believes infectious diseases represent a threat to values and interests important to that polity for domestic and/or international reasons. The transformation of societies from feudal structures to territorial states did not, of course, alter the nature of the

12. *See, e.g.*, Anne-Marie Slaughter, *The Real New World Order*, 76 FOREIGN AFF., Sept./Aug. 1997, at 183.

13. Fidler, *Return of the Fourth Horseman*, *supra* note 6, at 811-12.

14. *See, e.g.*, WILLIAM H. MCNEILL, PLAGUES AND PEOPLES 69-131 (1977) (analyzing the confluence of the civilized disease pools of Eurasia between 500 B.C. and 1200 A.D.); FREDERICK F. CARTWRIGHT, DISEASE AND HISTORY 5-28 (1991) (analyzing disease in the ancient world); HANS ZINSSER, RATS, LICE AND HISTORY 105-49 (1963) (analyzing the diseases of the ancient world).

microbial world. It did, however, transform the milieu in which pathogenic microbes existed because the territorial state system developed a unique dynamic that directly affected the conditions for the spread of infectious disease. The emerging territorial state inherited from late-medieval governmental structures the concept "that the preservation of society from disease was a fundamental duty of government."[15] The most immediate precursors of the modern territorial state—the Italian city-states of the fourteenth and fifteenth centuries—developed, at differing rates of intensity, public measures to deal with diseases, especially plague.[16] In the Italian city-states, a long line of policy innovations developed under which government authorities attempted to protect civic health. Paul Slack writes:

> The first health commissions, the first boards of health, were set up in the face of epidemic disease, in Venice and Florence in 1348; and they developed into permanent magistracies monitoring and regulating civic health: in Milan in the early decades of the fifteenth century, in Venice in 1486, in Florence in 1527. The first isolation of shipping occurred in the Italian Adriatic colony of Ragusa in 1377, and the quarantine of suspect maritime commerce developed from there. In 1374 there were bans and controls on commerce overland also, in Milan and Mantua, the beginnings of more rigid regulation in the following century. In 1374, in Milan again, the *contacts* of those infected, as well as the sick themselves, were isolated, and between 1450 and 1470 many of the city states of northern Italy set up isolation hospitals, *lazzaretti*, in further attempts to prevent contagion. In the end, a whole armoury was in place which could be adapted for use against other epidemic threats as well as plague.[17]

These Italian innovations spread throughout the rest of Europe as the modern state system developed.[18]

The impact of infectious diseases on the policies of the early states appears clearly in the history of the Italian city-states and the adoption of Italian-style policies throughout Europe. What is less

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15. Paul Slack, *Introduction*, *in* EPIDEMICS AND IDEAS: ESSAYS ON THE HISTORICAL PERCEPTION OF PESTILENCE 1, 12 (Terence Ranger & Paul Slack eds., 1992).

16. *See id.* at 15.

17. *Id.* at 16.

18. *See id.* at 15-16 (noting that Italian city-state disease control policies spread over most of Western Europe).

obvious is the impact of the development of the state on infectious diseases. As the feudal order broke up into territorial sovereigns, political power concentrated in ways that allowed the development of centralized regulation of public health within relevant territorial borders. This concentration of power, along with the establishment of administrative and bureaucratic infrastructures for governing, allowed governments to adopt and implement disease control measures in a systematic way.

Thinking of infectious disease control as a national interest corresponds with the modern territorial states' widespread adoption of disease control measures. It is important to note, however, that infectious disease control serves diverse national interests rather than representing an isolated interest. First, public health measures reflect or embody many of a state's most basic principles and beliefs regarding the role of government, the nature of civil society, and the value of individual life. Historically, many of the beliefs embodied in disease control laws reflected superstitions, social prejudices, or fears that characterized societies' attempts to deal with diseases and epidemics in near-complete scientific ignorance. In contemporary times, the analyses demonstrating the inadequacy of national public health systems to deal with emerging infectious diseases contain multifaceted assumptions and hopes about government, society, and individual life that form important aspects of infectious disease control as a national interest.

Seeing infectious disease control as a national interest extends beyond concerns about the nature of domestic society. The fear of diseases coming from other countries or regions of the world that has been prevalent in the adoption of disease measures by European states reflects attitudes and prejudices about foreign states and peoples. Infectious disease measures historically have served as demarcations by which "we" protect ourselves from the diseases of "others." Contemporary notions of the "global village" attempt to counter such demarcations because they ignore microbial reality to serve narrow conceptions of the national interest.

A second way that infectious disease control relates to the concept of the national interest is the connection between infectious diseases and a state's economic power and well-being. States have long felt the economic impact of epidemics and have acted to control diseases

and limit the economic burden diseases impose. Historically, actions such as quarantine affected states' perceptions of their economic interests. Quarantine, for example, imposed increasingly unacceptable costs on great maritime powers, especially Great Britain.[19] The search for international solutions for disease control, which began in the mid-nineteenth century, was motivated more by national economic interests—particularly trading interests—than by advances in understanding the nature of the microbial world.[20] The great debate between miasmists, who believed that diseases were caused locally by filth and foul air,[21] and contagionists, who believed that diseases were transmitted directly from person to person,[22] that occurred in the nineteenth century can be interpreted as a debate between national interests contending for economic power and influence.[23] In contemporary international relations, the nexus between trade and infectious disease control remains strong and controversial. Efforts by the United States and the European Union to protect their peoples from disease importation and to oppose health-related measures imposed by other states that harm their trade illustrate this connection.[24]

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19. *See* NEVILLE M. GOODMAN, INTERNATIONAL HEALTH ORGANIZATIONS AND THEIR WORK 36 (2d ed. 1971) (stating that "the vast and rapid development of trade and travel through the introduction of the steamship (about 1810) and the railway (about 1830) had rendered commercial interests intolerant of the losses and delays imposed on them in the name of quarantine at the ports of each country.").

20. *See* NORMAN HOWARD-JONES, THE SCIENTIFIC BACKGROUND OF THE INTERNATIONAL SANITARY CONFERENCES 1851-1938, at 11 (1975) (stating that "[i]f, in the old colonial days, it was true that 'trade follows the flag,' it was equally true that the first faltering steps towards international health cooperation followed trade").

21. *See* James Longrigg, *Epidemic, Ideas and Classical Athenian Society, in* EPIDEMICS AND IDEAS: ESSAYS ON THE HISTORICAL PERCEPTION OF PESTILENCE 21, 36 (Terence Ranger & Paul Slack, eds., 1992) (stating that the "traditional Hippocratic view was that epidemics were 'miasmatic' in origin, i.e., were caused by air polluted with some unhealthy exhalation").

22. *See* Brian Pullan, *Plague and Perceptions of the Poor in Early Modern Italy, in* EPIDEMICS AND IDEAS: ESSAYS ON THE HISTORICAL PERCEPTION OF PESTILENCE 101, 112-13 (Terence Ranger & Paul Slack, eds., 1992) (noting that contagion theories "saw the plague transported through human movement from infected to uninfected regions").

23. *See generally* HOWARD-JONES, *supra* note 20 (describing controversies between miasmic and contagion theories in the nineteenth century international sanitary conferences).

24. *See generally* David P. Fidler, *Trade and Health: The Global Spread of*

Infectious disease control also touches upon other important national interests, such as national security. Recently, it has become very popular to describe and analyze emerging infectious diseases as a threat to national security.[25] The connection between disease control measures and national security is much older than its recent popularity might suggest. In the late nineteenth century, European militaries implemented sanitary reforms in order to reduce the heavy toll infectious diseases imposed on fighting forces. The Prussian military so effectively implemented sanitary reforms that its forces suffered fewer deaths from infectious diseases than deaths directly on the battlefield during the 1870-71 Franco-Prussian War—the first time in European military history that infectious diseases did not kill more soldiers than actual battlefield combat.[26] The Prussian achievements were so impressive that they inspired similar reforms across Europe.[27] The application of new scientific understandings to military sanitation and medicine produced tremendous benefits in terms of military power.[28]

As armed forces gradually developed the capability and infrastructures to keep infectious disease under control through sanitary reform in the late nineteenth and early twentieth centuries, infectious diseases began to pose a different threat to national security in the form of biological weapons. In 1925, states prohibited the use of biological weapons in armed conflict.[29] As experts have perceived a growing threat from the proliferation of biological weapons in the international system,[30] infectious disease control

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Diseases and International Trade, 40 GERMAN Y.B. INT'L L. 300 (1997).

25. *See, e.g.*, National Science & Tech. Council Comm. on Int'l Science, Eng'g, & Tech. Working Group on Emerging & Re-Emerging Infectious Diseases, *Infectious Diseases—A Global Health Threat* 11 (1995); George Alleyne, *Health and National Security*, 30 BULL. PAN AM. HEALTH ORG. 158 (1996); Nakajima, *supra* note 5, at 319; Garrett, *supra* note 5, at 66.

26. *See* JOHN F. HUTCHINSON, CHAMPIONS OF CHARITY: WAR AND THE RISE OF THE RED CROSS 126 (1996).

27. *See id.*

28. *See id.* at 348-49.

29. *See* Protocol for the Prohibitions of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriologocal Methods of Warfare, June 17, 1925, 26 U.S.T. 571, 94 L.N.T.S. 65, *reprinted in* 14 I.L.M. 49 (1975).

30. *See, e.g.*, R.P. Kaldec et al., *Biological Weapons Control: Prospects and Implications for the Future*, 278 JAMA 351 (1997); Joshua Lederberg, *Infectious Disease and Biological Weapons: Prophylaxis and Mitigation*, 278 JAMA 435

measures, such as surveillance, have taken on increased importance in terms of national security for many states.

Another way infectious disease policies manifest themselves as national interests is in a state's scientific and technological prowess. Once scientists—such as Louis Pasteur and Robert Koch—ushered in the scientific era of infectious disease control by proving the "germ theory" of disease to be correct, scientific advances against infectious disease became a matter of national pride. This pride manifested itself in both applying the fruits of scientific advances to yield healthier populations and developing national scientific, technological, and pharmaceutical power. Whether in the form of early Renaissance Italian city-states boasting of their civic health,[31] nineteenth century British miasmists denigrating continental contagionists,[32] or the rival American and French claims over AIDS research,[33] infectious disease policies have long been tied up with national images and identities, especially relating to science and technology.

C. PROBLEMS WITH INFECTIOUS DISEASE CONTROL AS A NATIONAL INTEREST

The various manifestations of infectious disease control as a national interest demonstrate that it is very important to states that adopt such policies. Two things must, however, be remembered. First, infectious disease control ebbs and flows as a national interest. Critiques of the complacency that has prevailed regarding public health in the United States, for example, demonstrate that the strength of this national interest has not remained constant over time.[34] Second, the weakness, inadequacy, or absence of public health in many countries, particularly developing countries, indicates

(1997); J.F. Sopko, *The Changing Proliferation Threat*, FOREIGN POL'Y, Winter 1996-97, at 3; Jonathan B. Tucker, *The Biological Weapons Threat*, CURRENT HISTORY, Apr. 1997, at 167.

31. *See* Slack, *supra* note 15, at 19.

32. *See* GOODMAN, *supra* note 19, at 41.

33. See ROBERT GALLO, VIRUS HUNTING: AIDS, CANCER, AND THE HUMAN RETROVIRUS 205-16 (1991) (describing the competition between American and French scientists over AIDS research).

34. *See, e.g.*, Ruth L. Berkelman et al., *Infectious Disease Surveillance: A Crumbling Foundation*, 264 SCIENCE 368 (1994); INSTITUTE OF MEDICINE, *supra* note 7, at 19.

that infectious disease control does not, or cannot, register very highly in their formulations of their national interests. As a result, state commitment to controlling infectious diseases is very uneven in the international system. The rise of the territorial state may have spurred on the development of infectious disease policies through post-feudal Europe, but the spread of the state as *the* form for organizing human populations in the world has not produced a similar uniformity in interest and resources devoted to infectious disease control.

The development of the state in post-feudal Europe provided power concentrations and administrative infrastructures that allowed European governments to adopt systematic disease control policies. In the twentieth century, the waxing and waning of national interest in infectious disease control policies in developed states demonstrates that the mere existence of the state does not ensure adequate disease-fighting measures or resources. Infectious disease control as a national interest must be kept alive and vigilant. This was not the case in the post-antibiotic era as public health systems in many developed countries atrophied under the influence of premature triumphalism and complacency. Similarly, the creation of new states in the period of decolonization did not automatically create strong national interests in infectious disease control in developing countries. Cultural, political, and economic factors combined to weaken infectious disease policies in developing countries. Much of the literature on emerging infectious diseases identifies weaknesses in the national public health systems of developed and developing countries as factors in the global crisis and advocates strengthening national public health infrastructures.[35] In essence, these are arguments for elevating infectious disease control in the hierarchy of the national interests of states.

When thinking about elevating infectious disease control as a national interest in states, the differences between developed and developing countries loom prominently. In Europe and North America, infectious disease control developed as a national interest more or less indigenously. These states had the political, economic,

35. *See* Fidler, *Return of the Fourth Horseman*, *supra* note 6, at 788-94 (discussing complacency and the breakdown of public health systems as factors in the emerging infectious disease crisis).

and scientific resources to engage in public health reforms that brought infectious diseases under control. In many developing countries, the national interest in infectious disease control has been exogenously created by international health organizations.

The WHO played a large role in trying to embed infectious disease control as a national interest in developing countries through the "health transition" strategy.[36] Under this strategy, the WHO attempted to provide developing states with scientific, medical, and public health assistance so that these states could develop effective domestic public health programs. This strategy did not, however, prove successful. WHO's Director-General argued in the mid-1970s that "the most signal failure of the World Health Organization, as well as of Member States, has undoubtedly been their inability to provide the development of basic health services."[37]

Twenty years later, not much has changed. Since the beginning of the Health for All strategy in 1977, the gap between rich and poor countries has widened and public spending on health in developing countries has declined.[38] History teaches us that the creation and maintenance of a serious national interest in disease control is a very difficult matter in one country let alone in many countries located in different regions and influenced by diverse political, economic, cultural, religious, and historical experiences.

When confronted with the difficulty of embedding infectious disease control as a national interest, the temptation is to opine that solutions must be international or global in character. While there is substance in such opinions, they tend to obscure a crucial confluence of facts: all disease ultimately is local in impact, and humanity still remains divided into sovereign states. This confluence creates the need to concentrate efforts on building, or rebuilding, national

36. *See* LAURIE GARRETT, THE COMING PLAGUE: NEWLY EMERGING DISEASES IN A WORLD OUT OF BALANCE 31 (1994) (noting that the health transition strategy posited that "as nations moved out of poverty and the basic food and housing needs of the populations were met, scientists could use the pharmaceutical and chemical tools at hand to wipe out parasites, bacteria, and viruses.").

37. *See* Kurt Waldheim, *Health in a World Perspective*, *in* HEALTH AND DEVELOPMENT 3 (Kevin M. Cahill ed., 1976) (quoting the assessment of Dr. Mahler).

38. *See* Allyn L. Taylor, *Making the World Health Organization Work: A Legal Framework for Universal Access to the Conditions for Health*, 18 AM. J. L. & MED. 301, 302 (1992).

interests in infectious disease control in all states in the world. What the leaders of early Renaissance Italian city-states recognized is still true in the late twentieth century: the government bears the duty to preserve public health, and this duty can only be fulfilled through systematic organization and the application of public resources and institutions. For better or worse, focusing on infectious disease control as a national interest will remain critical to emerging infectious disease strategies.

The "national interest" challenge for public health contains both vertical and horizontal elements. The vertical challenge is to incorporate and deepen the commitment of each state to infectious disease control within its own territory. The horizontal challenge is to harmonize the commitment to fighting infectious diseases in states throughout the world. The stark difference between developed and developing countries in the formation of national interests in controlling infectious diseases confronts both the vertical and horizontal challenges with serious obstacles in connection with developing states. The failure of past WHO attempts to embed infectious disease control in the national interests of developing states casts a dark shadow across the need to build or rebuild national interests in infectious disease control in all states of the world.

II. INFECTIOUS DISEASES AND THE INTERNATIONAL SYSTEM

A. THE CONCEPT OF THE INTERNATIONAL SYSTEM AND INFECTIOUS DISEASE CONTROL

An international system is a system of states "founded when two or more states have sufficient contact between them, and have sufficient impact on one another's decisions, to cause them to behave—at least in some measure—as parts of a whole."[39] A defining feature of the international system is that the contacts and impacts among states take place without the existence of a supreme authority—a "command of the sovereign"—to keep states in line. Thus, the pursuit of national interests by states often leads to conflicts in the international system that have to be settled through

39. HEDLEY BULL, THE ANARCHICAL SOCIETY 9-10 (1977).

violence, capitulation, or cooperation. The international system began to form, of course, when territorial states developed in post-feudal Europe. The adoption of disease control measures, such as quarantine, by early states had effects in the international system because quarantine measures imposed burdens on trade and travelers from other countries. From the very beginning, infectious disease control has been part of the dynamics of the international system.

The relationship between infectious disease control and the international system is complicated, yet important, to discuss in detail. This relationship has three basic components: (1) how the international system has aided the spread of pathogenic microbes, (2) how the international system has affected state efforts to protect public health, and (3) how the spread of microbes has affected the international system.

B. THE INTERNATIONAL SYSTEM AFFECTS INFECTIOUS DISEASES

Two defining features of the international system—trade and war—have long been identified as factors in the spread of infectious diseases. It is important to remember, however, that trade and war spread microbes long before the modern international system developed, as evidenced by the ravages diseases inflicted on the Athenian and Roman empires. William McNeill argued, for example, that Asia, Europe, and the Middle East became essentially one germ pool through trade and travel before the modern European state system emerged.[40] Trade and war between sovereign states can be seen merely as a continuation of patterns begun in ancient times. The question becomes whether there were any features of the international system that amplified the disease-spreading potential of trade and war.

Many international relations theorists have identified something called the "competition dynamic" in the international system. Under the competition dynamic, the anarchical nature of the international

40. *See* MCNEILL, *supra* note 14, at 69-131 (analyzing the confluence of civilized disease pools of Eurasia between 500 B.C. and 1200 A.D.). *See also* JARED DIAMOND, GUNS, GERMS, AND STEEL: THE FATE OF HUMAN SOCIETIES 205 (1997) (arguing that a bonanza for infectious diseases "was the development of world trade routes, which by Roman times effectively joined the populations of Europe, Asia, and North Africa into one giant breeding ground for microbes").

system forces states to compete with each other for power, influence, and ultimately survival. The competition dynamic helps explain why states go to war and seek to increase their economic power through international trade. The most striking historical evidence that the brutal logic of the competition dynamic dramatically affected the spread of infectious diseases is the manner in which it encouraged Europeans to discover and conquer new territories in the ages of discovery and colonialism. The expansion of European power politics in the New World exposed natives to European microbes, killing them by the tens of thousands because they were immunologically unprepared for the diseases common to the Eurasian germ pool.[41] Infectious diseases proved the most devastating weapon the Europeans carried into the New World as "[f]ar more Native Americans died . . . from Eurasian germs than on the battlefield from European guns and swords."[42]

The competitive pressures of the international system in Europe produced the geographic expansion of the international system as most regions of the world came under the control or influence of the European great powers. As the international system expanded, the Eurasian germ pool slowly became a global germ pool. Through the dynamics of the international system, trade and war accomplished globally what they had accomplished in ancient times in the Eurasian region—the spread of infectious diseases.

The dynamics of the international system also facilitated the spread of infectious disease control measures in post-feudal Europe. Starting with the Italian city-states of the early Renaissance, sovereigns competed with each other in terms of disease control measures. The adoption of disease policies throughout Europe between the fourteenth and nineteenth centuries "rested on competition between the rulers of relatively small European states, first cities and then nations."[43] In the twentieth century, the

41. *See* DIAMOND, *supra* note 40, at 210-11.

42. *Id.* at 210.

43. Slack, *supra* note 15, at 19. Slack also writes in connection with the Italian city-states that "[h]ere were small states rivalling one another to excel their neighbours in their care for the welfare of their citizens and in their success in keeping out the neighbours' infections." *Id. See also* GOODMAN, *supra* note 19, at 31 (noting that "[b]etween the fourteenth and nineteenth centuries nearly all civilized countries of the world adopted some form of quarantine control").

international system has not, however, created similar pressures on developing states, which have not competed with any states in connection with infectious disease control.

C. INFECTIOUS DISEASES AFFECT THE INTERNATIONAL SYSTEM

While the structure and dynamics of the international system have affected both the spread of infectious diseases and the measures to combat them, infectious diseases have also had an impact on the international system. National disease measures, such as quarantine, formed part of the interaction between states from the beginning of the international system, but centuries passed before quarantine measures became the subject of international attention starting in the mid-nineteenth century. Prior to the first International Sanitary Conference in 1851, national disease control measures were not topics for international diplomacy. Although quarantine created disease-related contacts and interactions between states, disease control did not rise to the level of *systemic* concern prior to the mid-nineteenth century. As the volume and speed of international trade increased in the nineteenth century, states became more concerned about the costs national quarantine systems imposed on their foreign commerce.[44] National disease control measures were beginning to cause serious friction in the international system that great powers, such as Great Britain, were increasingly unwilling to tolerate.[45] In 1851, states—primarily European—began what became a long line of international sanitary conferences and treaties that elevated infectious diseases to a matter of importance in the international system.

Contributing to the elevation of infectious diseases to systemic importance in international relations were European reactions to cholera epidemics that swept through Europe in the nineteenth century. These cholera epidemics forced governments to realize the limitations of quarantine as a disease control measure and to question the adequacy of their overall national sanitary policies. The increased volume and speed of international trade and travel, combined with

44. *See* GOODMAN, *supra* note 19, at 36.

45. *See id.* at 36-37. "As the leading maritime country, Great Britain's fears for her own protection against imported epidemics were gradually outweighed by her desire to relieve her maritime trade from these burdensome shackles." *Id.*

the inadequacy of national public health systems, made European states vulnerable to disease importation.[46] In the early years of the European state system, states dealt with such vulnerability by imposing quarantine and other national measures. The beginning of formal international cooperation on disease control in the mid-nineteenth century demonstrated that states no longer believed national measures were sufficient to deal with the threat.[47] In other words, the national interest in disease control came to reflect a need for international cooperation—for attacking the problem systemically in international relations rather than just nationally within the state. As Goodman succinctly stated, "the obvious need for collaboration in health . . . was forced on governments not by idealists or cranks but by hard-headed men anxious to get things done that needed doing."[48]

The frequent international sanitary conferences, international sanitary conventions, and international health organizations held, signed, or created in the period between 1851 and the formation of the WHO provides evidence of states' attempts to grapple with the problems diseases caused in the international system.[49] International health diplomacy during this one hundred-year period was both intense and long-lived. Probing this history reveals, however, that making infectious disease control an international systemic concern was not a smooth endeavor. The lack of an accurate scientific understanding of microbes, for example, presented a great barrier to international health cooperation through much of the latter half of the nineteenth century. Only after the "germ theory" of disease was proven scientifically correct in the late nineteenth century did international cooperation on infectious diseases produce concrete results in the form of treaties, and later, international health organizations.

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46. *See* Fidler, *Globalization of Public Health*, *supra* note 6, at 25.

47. *See id.* at 24.

48. GOODMAN, *supra* note 19, at 18.

49. For a history of the many international sanitary conferences, see HOWARD-JONES, *supra* note 20; for a history of international health organizations, see GOODMAN, *supra* note 19.

D. SCIENTIFIC DISCOVERIES CHANGE INTERNATIONAL COOPERATION ON INFECTIOUS DISEASE CONTROL

Scientific progress changed the general nature of international health cooperation as diplomacy moved away from the dominant strategy of harmonizing quarantine regulations to a broader range of objectives, including surveillance, information sharing, and basing public health measures on scientific knowledge. In addition, better scientific understanding of pathogenic microbes allowed European states to improve their national public health systems, rendering them less vulnerable to epidemics from imported germs. Scientific progress had countervailing effects on the relationship between diseases and the international system: it provided the information needed to put international health cooperation on a scientific footing, allowing trade effects from national public health measures to be reduced; but it also reduced the vulnerability of states to infectious diseases spread through travel and trade because of strengthened national sanitary measures. Science, thus, facilitated treatment of infectious diseases as an issue in international relations and simultaneously reduced the importance of infectious disease control as a matter of international systemic concern.

Further scientific progress in the latter half of the twentieth century, particularly in the form of vaccines and antibiotics, gradually removed infectious disease control as an important issue in the international system.[50] With effective tools in hand, the WHO focused on applying them locally, which meant concentrating on public health activities *within* states.[51] Developed states no longer felt vulnerable to disease importations and consequently had a reduced national interest in effective international health cooperation. Developing states needed international health cooperation, but in different ways than the French or British in the mid-nineteenth century. Post-colonial states were neither frustrated by the burdens

50. *See* Fidler, *Globalization of Public Health*, *supra* note 6, at 29 (arguing that "the national interest of developed states in the international control of infectious diseases was weakened by the impact, and perceived future impact, of adequate public health systems and antimicrobial pharmaceuticals.").

51. *See id.* at 29-30 (explaining that "[f]rom a public health perspective, the international system would have states more or less self-sufficient in public health matters cooperating internationally to supplement the sovereign state's control over infectious diseases.").

national quarantine measures imposed on their foreign trade, nor fearful of epidemics from imported diseases. Developing states needed help building national public health systems so that they could apply the fruits of science within their borders. Unfortunately, the WHO's attempts to build public health systems in developing states largely failed.

This historical evidence strongly indicates that infectious disease control as a matter of concern for the international system depends to a large extent on powerful states having a strong need for international cooperation. In other words, infectious disease control becomes a matter of international systemic activity when (1) national infectious disease measures impose costs on the foreign trade of developed states, and (2) developed states cannot protect their public's health without the cooperation of other states. Infectious disease control as an international systemic concern depends, therefore, on infectious disease control existing as a strong national interest in leading states. But, infectious disease control as a national interest does not appear to depend on infectious disease control being on the agenda of international systemic interaction because developed states lost interest in international cooperation once they applied public health reforms and antimicrobials nationally.

E. RE-EMERGENCE OF SYSTEMIC CONCERN ABOUT INFECTIOUS DISEASES

The emerging infectious disease crisis demonstrates, however, that infectious disease control as a national interest and as a matter of concern for the international system are *interdependent.* The development of the European states' national interests in infectious disease control resulted from their interactions—trade and travel—with other states and peoples through the international system. Thus, international systemic concerns provide a foundation for a state's national interest in infectious disease control. If the international systemic interest dissipates, then the national interest in infectious diseases atrophies too. The reason why infectious disease control as national interest and as international systemic concern are interdependent is found in the catalyst international relations provides to the mobility of pathogenic microbes. The international system has created a global germ pool, vastly extending the

possibilities for microbial traffic. A proper understanding of the interactions between pathogenic microbes and the international system produces the conclusion that a state's national interest in infectious disease control depends on that state's engagement with other states systemically on control of microbial traffic.

This dynamic of *microbialpolitik* can only be broken if (1) infectious diseases are eradicated, or (2) public health measures and antimicrobials retain their potency. Despite notable successes, as in the case of smallpox, campaigns to eradicate diseases have mostly failed. Maintaining the efficacy of public health systems depends, to a large extent, on accurate perceptions of the threat of infectious diseases, including the ever-present threat of microbial traffic in international relations. In fact, as the growing worries about the development of antimicrobial resistance demonstrate,[52] the spread of antimicrobial use and misuse throughout the international system should have *increased* rather than decreased the importance of infectious disease control as a concern of the international system.

The history of *microbialpolitik* teaches us that (1) to have a strong national interest in infectious disease control, a state must also see such control as a matter of concern for the international system, and (2) to be engaged in infectious disease control in the international system, a state needs infectious disease control to be an important national interest. The emerging infectious disease crisis partly arises from the failure of states and their political, scientific, and public health leaders to appreciate the interdependence of the national interest and the international system that is a central feature of *microbialpolitik*.

52. On the growing global problem of antimicrobial resistance, see INSTITUTE OF MEDICINE, ANTIMICROBIAL RESISTANCE: ISSUES AND OPTIONS (1998). For analysis of domestic and international legal problems created by the development of antimicrobial resistance, see David P. Fidler, *Legal Challenges Posed by the Use of Antimicrobials in Food Animal Production*, 1 MICROBES AND INFECTION (1999) (forthcoming), and David P. Fidler, *Legal Issues Associated with Antimicrobial Drug Resistance*, 4 EMERGING INFECTIOUS DISEASES 169 (1998).

III. INFECTIOUS DISEASES AND INTERNATIONAL SOCIETY

A. THE CONCEPT OF INTERNATIONAL SOCIETY AND INFECTIOUS DISEASE CONTROL

The impact of science on concepts of infectious disease control in both the national interests of states and in the international system produced the gradual development of a relationship between infectious diseases and international society. International society "exists when a group of states, conscious of certain common interests and common values, form a society in the sense that they conceive themselves to be bound by a common set of rules in their relations with one another, and share in the working of common institutions."[53] An international society presupposes the existence of an international system, but an international system can exist without the presence of an international society.[54]

Infectious disease control emerged as a common interest of states in the second half of the nineteenth century and thus became an international systemic concern. With the negotiation of international sanitary conventions and the establishment of international health organizations, states bound themselves to a common set of rules and to sharing in the working of common institutions. Under the influence of international health law and organizations, infectious disease control became more than the self-interested freeing-up of trade and keeping foreign-origin diseases at bay. Science revealed some of the mystery of the microbial world, including the ease with which diseases spread around the globe. States perceived the need to formulate rules and create institutions that would allow them to act in concert, in order to meet this common threat. Although states elevated infectious disease control to the international systemic level in the latter half of the nineteenth century, the process was reactionary and inefficient. European states would suffer an epidemic, convene an international sanitary conference, fail to agree to a treaty, go home, and start the process again after the next epidemic. Early on, individuals involved in this reactionary process

53. *See* BULL, *supra* note 39, at 13.
54. *See id.* at 13-14.

believed that international health cooperation had to be institutionalized to provide an on-going regime of interstate cooperation and coordination. The "first serious attempt to establish an international health organization" took place in 1874 at the Fourth International Sanitary Conference in Vienna.[55] This early effort, and subsequent later ones, advocated making infectious disease control a common value of international society because it was only through common rules and institutions that states could adequately address disease problems.

B. SCIENCE AND INTERNATIONAL SOCIETY

Science contributed to the elevation of infectious disease control from the international systemic to the international societal level. Scientific discoveries taught states, for example, that international surveillance, rather than national quarantine, was the more appropriate strategy in addressing disease problems. A properly functioning international surveillance system requires rules, institutions, and resources that could not be provided by continuing to handle disease threats in a decentralized, ad hoc manner as had been done through the latter half of the nineteenth century. The nature of the microbial world demanded that states conceive themselves bound together in pursuit of a common cause and accordingly create rules and institutions to support this pursuit.

Science was also important in the creation of an international society approach to infectious diseases in posing a major obstacle to state efforts to use infectious disease policies as instruments of power politics. While the pathogenic nature of cholera, for example, was hotly debated, national public health policies were driven largely by political and economic considerations. Once scientists showed that cholera did not spread through trade in manufactured goods, national measures restricting or burdening trade in such goods on public health grounds lacked legitimacy. Scientific progress blunted the utility of traditional diplomatic machinations used in international relations. International health law came to reflect the teachings of science, and international health organizations became the advocates

55. GOODMAN, *supra* note 19, at 59.

for deepening and widening the application of science-based public health measures nationally and internationally.

C. THE HUMANITARIAN NATURE OF INTERNATIONAL SOCIETY WORK ON INFECTIOUS DISEASES

The work of international health organizations also developed a humanitarian outlook.[56] The international systemic interactions of the latter half of the nineteenth century were based on raw self-interests—trade and fear of disease importation. As infectious disease control became a matter of international societal concern, international health organizations began to address the need to improve human health in poor countries. Health became part of the concept of human dignity that international society should promote and attempt to achieve globally. The Preamble of the WHO Constitution captures this historical shift in declaring that "[t]he enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic, or social condition."[57] The concept of health broadened as well to encompass more than just the absence of disease; the WHO Constitution defined health as the "state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."[58] In many respects, the expansive definition of health and the concept of the human right to health suggested that states conceived of themselves as bound not only to cooperate amongst themselves systemically, but also to serve the greater human society. Dealing with the effects of the global germ pool had become a mission of the family of nations.

D. PROBLEMS WITH INTERNATIONAL SOCIETY EFFORTS ON INFECTIOUS DISEASES

Tracing the movement of infectious disease control from the international system level to the international society level proves easier than analyzing the importance and substantive nature of this shift. The obvious question is whether infectious disease control

56. *See id.* at 19 (asserting that in international health it is necessary to observe the precept: "My field is humanity").

57. WHO CONST. preamble.

58. *Id.*

really became embedded in international society. Skepticism flows from earlier observations that scientific advances reduced the developed states' national interests in international health cooperation and in their concern about infectious diseases as an international systemic issue. Armed with advanced public health systems and arsenals of antimicrobials, developed states had neither a burning national interest in, nor prominent international systemic problems with, infectious disease control. The commitment to the common rules of international health law and the common institutions in the form of international health organizations was shallow, particularly in the post-1945 period. The evidence for this observation comes in seven specific forms. First, the WHO has not created an adequate international surveillance capability, which was one of the most important lessons science taught public health experts.[59] Second, the only set of binding international legal rules on infectious disease control—the International Health Regulations first adopted in 1951—have largely been considered a failure in their main objectives of maximizing the protection against the spread of infectious diseases and minimizing interference with world traffic.[60] Third, the WHO has failed to give any discernible shape to the much heralded "human right to health," leaving this concept subject to confusion and ridicule.[61] Fourth, the WHO member states have been very willing to expand the scope of WHO activities without providing adequate funds to accomplish them.[62] Fifth, the WHO itself has fallen badly into disrepute among member states and even

59. *See* Fidler, *Return of the Fourth Horseman*, *supra* note 6, at 791-92 (noting inadequacy in global surveillance network for infectious diseases).

60. *See id.* at 843-49 (analyzing ineffectiveness of the International Health Regulations).

61. For analysis of the human right to health, see LAWRENCE O. GOSTIN & ZITA LAZZARINI, HUMAN RIGHTS AND PUBLIC HEALTH IN THE AIDS PANDEMIC 27-30 (1997); S. D. Jamar, *The International Human Right to Health*, 22 SOUTHERN U. L. REV. 1 (1994); Virginia A. Leary, *Implications of a Right to Health*, *in* HUMAN RIGHTS IN THE TWENTY-FIRST CENTURY: A GLOBAL CHALLENGE 481 (K.E. Mahoney & P. Mahoney, eds., 1993); P. A. Molinari, *The Right to Health: From the Solmenity of Declarations to the Challenges of Practice*, 40 INT'L DIG. HEALTH LEG. 41 (1998); Taylor, *supra* note 38, at 309-10, 316-25.

62. *See* Leon Gordenker, *The World Health Organization: Sectoral Leader or Occasional Benefactor?*, *in* U.S. POLICY AND THE FUTURE OF THE UNITED NATIONS 167, 175-76 (Roger A. Coate, ed., 1994) (asserting that the WHO must continuously grapple with insufficient resources).

within the eyes of many WHO staff members.[63] Sixth, developed states became complacent not only about international health issues, but also their own domestic public health systems. Seventh, developing countries, by and large, never made the "health transition" envisioned for them in WHO programs, which brought into stark relief the extent of the WHO's failure as an international health organization.

More generally, the global crisis in emerging infectious diseases has exposed the shallowness of the international society's commitment to infectious disease control in the latter half of the twentieth century. Ironically, but in keeping with historical precedent, international efforts to deal with emerging infectious diseases were catalyzed by concerned states watching out for their national interests rather than by the WHO as the leader of international society's vigilance about infectious diseases. Public agencies in the United States—notably the Institute of Medicine and the Centers for Disease Control and Prevention ("CDC")—took the lead in drawing attention to the global threat of emerging infectious diseases. The numerous American responses and initiatives to emerging infectious diseases through bilateral, regional, and international channels might contain the perspective that this threat is too important to leave to the WHO.

E. AN EFFECTIVE INTERNATIONAL HEALTH ORGANIZATION IS REQUIRED

Much as interdependence characterizes the relationship between the national interest and the international system, we can identify interdependence between infectious disease control as an international systemic concern and as a subject of international society's attention. International society's interest and activity regarding infectious disease originate in the scientific understanding of the nature of the microbial world. As the implications of germ theory became clear, states realized that effective systemic activity on infectious diseases required not only international health law but also international health organizations.

63. *See, e.g.*, Fiona Godlee, *WHO Reformed Global Health: Radical Restructuring is the Only Way Ahead*, 314 BRITISH MED. J. 1359, 1359-60 (1997).

Harmonization of national public health measures, such as quarantine, was a necessary but not sufficient response to the threats posed by microbial traffic in the international system. The nature of the microbial world combined with the structure and dynamics of the international system forced states to create common rules and common institutions to deal with global microbial traffic. As developed states lost interest in infectious disease control as a concern of the international system, those common rules and common institutions suffered, weakening infectious disease control as an objective of international society.

A strong international society response to global microbial traffic depends on a strong international systemic interest in infectious disease control. As the emerging infectious disease crisis also demonstrates, an effective international systemic commitment to dealing with emerging infectious diseases requires states to create and operate the common rules and institutions that characterize international society.

In *microbialpolitik*, the interdependence of the international system and international society on infectious disease control also means that the national interest of a state is interdependent with international society in dealing with pathogenic microbes. The nature of the microbial world and the dynamics of microbial traffic place the state, international system, and international society in a delicate web of mutual dependence.

IV. INFECTIOUS DISEASES AND GLOBAL SOCIETY

A. THE CONCEPT OF GLOBAL SOCIETY AND INFECTIOUS DISEASE CONTROL

In contrast to international society, "global society" can be defined as a society made of individuals and other non-state entities all over the world that conceive of themselves as part of a single community and work nationally and transnationally to advance their common interests and values. Individuals rather than states are the key engines for global society. Although the transnational bonds between people characterize the global society concept, this concept also represents a dynamic in which individuals and non-governmental organizations

seek to influence both the policies and behaviors of states—as creators of national interests and organizers of the international system—and international organizations—as embodiments of international society. In the discourse on emerging infectious diseases, the concept of the "global village" appears frequently.[64] Behind this cliché stands the perception that the reality of the microbial world combined with the accelerating processes of globalization force us to behave like a global community and not just a society of states. Thus, the challenge of emerging infectious diseases reaches down from the governmental level to the private sphere. The traditional governmental duty to preserve public health expands to become a duty imposed also on corporations, non-governmental organizations, and individuals. Infectious disease control must, in short, become a priority of global society.

B. INFORMATION TECHNOLOGIES AND GLOBAL SOCIETY'S EFFORTS ON INFECTIOUS DISEASES

There is evidence that a global society has developed in connection with infectious disease control. This development has been sparked by the revolution in information technologies, such as the Internet and electronic mail. Electronic initiatives in the field of infectious diseases may be setting in motion a new process on a global scale. Frederick Murphy asserted that with viral diseases, "[t]he scope and scale of this communications revolution supported by e-mail and the Internet is incredible. So is its global unifying capacity."[65] While the WHO and states also view new information technologies as very helpful in their respective efforts,[66] these technologies have also opened up tremendous opportunities for private, non-governmental, and transnational initiatives on infectious disease problems.

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64. *See, e.g., Emerging Infections: A Significant Threat to the Nation's Health: Hearings Before the Senate Committee on Labor and Human Resources*, 104th Cong. 20 (1995) (testimony of Dr. James W. Leduc) (using the term "global village").

65. Frederick A. Murphy, *Problems with Surveillance and Control of Viral Diseases with Special Reference to the Developing World* (visited June 26, 1998) <http://www.uct.ac.za/microbiology/icvomurp.html>

66. *See* Fidler, *Return of the Fourth Horseman*, *supra* note 6, at 825-26 (noting the stress global action plans place on new information technologies in improving infectious disease surveillance).

Privately-led projects using information technologies are connecting individuals all over the world in cooperative efforts against infectious diseases. A widely-recognized example of such a private project is SatelLife, "an international not-for-profit organization employing satellite, telephone and radio networking technology to serve the health communication and information needs of countries in the developing world."[67] Eoin O'Brien has called SatelLife "one of the most significant forces against the threat of microbial plague."[68] O'Brien elaborates:

> This system provides, for the first time in human history, a means for doctors to communicate directly with each other from the remotest parts of the world. Moreover, and most importantly, a doctor in a poor tropical country faced with a bewildering illness, such as tomorrow's Ebola, can communicate his fears to colleagues without the restrictions that he would formerly have had to face using a communications system subject to official governmental clearance.[69]

Another well-known private initiative is the Federation of American Scientists' Program for Monitoring Emerging Diseases ("ProMED"), which is designed "to create a global system of early detection and timely response to disease outbreaks."[70] A key component of the ProMED effort is ProMED-mail, which is a privately-moderated, free electronic mail list, started in 1994, that now has over 15,000 direct subscribers in more than 150 countries and thousands more via the Internet who report and discuss outbreaks of emerging infectious diseases of humans, animals, and plants.[71] ProMED-mail's director, Jack Woodall, identifies a potential sea change in global infectious disease management when he reports that "[t]he experience of operating ProMED-mail over

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67. *SatelLife* (visited June 27, 1998) <http://www.healthnet.org>.

68. Eoin O'Brien, *The Diplomatic Implications of Emerging Diseases, In* PREVENTIVE DIPLOMACY: STOPPING WARS BEFORE THEY START 244, 248 (Kevin Cahill ed., 1996).

69. *Id.* at 249.

70. *The Program for Monitoring Emerging Diseases* (visited June 27, 1998) <http://www.healthnet.org/programs/promed.html>.

71. *See* Jack Woodall, *Outbreak Meets the Internet: Global Epidemic Monitoring by ProMED-mail*, 1 SIM QUARTERLY: NEWSLETTER OF THE SOCIETY FOR THE INTERNET IN MEDICINE (June 1997), <http://www.cybertas.demon.co.uk/simq/issue1/papers.html> (hereinafter, Woodall, *Outbreak Meets the Internet)*; Interview with Jack Woodall, director of ProMED-mail (Jan. 8, 1998).

nearly three years has shown that the public, interactive, unofficial reporting of outbreaks can be faster than through official channels, yet be reliable and responsive to the needs of healthcare providers in epidemic locales."[72] ProMED-mail has even become a protagonist of a fictional medical thriller, in which the authors claim that "ProMED-mail may be our best hope should fact follow fiction."[73]

The success of SatelLife and ProMED-mail demonstrate that new information technologies empower non-governmental actors in the realm of infectious disease control, which is a radical break from the past when governments and international organizations dominated infectious disease activities. New information technologies have made global society real, vibrant, and influential in connection with infectious disease control.

C. GLOBAL SOCIETY HAS BECOME PART OF *MICROBIALPOLITIK*

While the development of global society efforts on infectious disease control is itself impressive, it is also important to note, too, how this global society existing in cyberspace is becoming part of the international politics of infectious diseases. Concepts of the human community have existed in the history of infectious diseases for a long time, but SatelLife and ProMED-mail have made these concepts live beyond their traditional and often empty rhetorical value. Governments and international organizations no longer have exclusive control over infectious disease information, and this change alters the traditional dynamics of *microbialpolitik.*

In terms of national interest, state incentives not to report disease outbreaks are undermined by the likelihood that the world will find out through ProMED-mail.[74] More positively, many national public health agencies, such as the CDC, regularly follow and use ProMED-mail in carrying out their responsibilities.[75]

At the international system level, excessive state reactions to disease outbreaks in other countries can be challenged in cyberspace

72. *See* Woodall, *Outbreak Meets the Internet*, *supra* note 71.

73. MARR & BALDWIN, *supra* note 4, at *preface.*

74. *See* Fidler, *Mission Impossible?*, *supra* note 6, at 502.

75. *See* Woodall, *Outbreak Meets the Internet*, *supra* note 71, para. 8 (listing public health agencies subscribing to ProMED-mail).

as lacking scientific foundation or as violating international law.[76] In terms of international society, the WHO faces competition in providing timely and accurate information on infectious disease events and in upholding the common rules and institutions addressing infectious disease control. Jack Woodall believes that ProMED-mail has proven to be faster than the WHO's global reporting system without sacrificing the reliability of the information disseminated.[77] The WHO and other international health organizations, such as the Pan American Health Organization ("PAHO") and the International Office of Epizootics, also subscribe to and use ProMED-mail.[78] Local doctors in developing countries can now access more information and advice from ProMED-mail than from their national public health agencies or WHO experts, reducing their isolation, "information poverty," and vulnerability to national or intergovernmental politics. ProMED-mail has, for example, proven successful in responding to requests for information and assistance during disease outbreaks.[79]

In addition, new information technologies let doctors in developing countries educate the rest of the world about disease outbreaks. Jack Woodall relates the story of a local physician in Brazil who provided the laboratory diagnosis for a disease outbreak in an Amazonian province via ProMED-mail.[80] Dr. Woodall reflected on this episode: "Who would have imagined that, in one of the remotest regions of the world, a physician would be on e-mail, and able to react to the news media reports of a mysterious outbreak with a definitive diagnosis?"[81] In the era of emerging infectious diseases, information technology allows global society to join the

76. *See, e.g.*, David P. Fidler, *PRO/AH> Cholera, Impact on Commercial Fishing-E.Africa (02)* (visited June 29, 1998) <http://www.healthnet.org/programs/promed-hma/9801/msg00122.html> (challenging the European Union's December 1997 import ban on fresh fish from East Africa as a violation of the International Health Regulations and the World Trade Organization's Agreement on the Application of Sanitary and Phytosanitary Measures).

77. *See* Woodall, *Outbreak Meets the Internet*, *supra* note 71 (discussing ProMED-mail's speed and reliability in reporting infectious disease outbreaks).

78. *See id.* (listing international health organizations subscribing to ProMED-mail).

79. *See id.* (providing examples of rapid reaction to reports of outbreaks and general epidemic questions).

80. *See id.* (discussing an outbreak of Delta hepatitis in Brazil).

81. *Id.*

state, the international system, and international society as a factor in the dynamics of *microbialpolitik.*

D. LIMITS OF GLOBAL SOCIETY

While the emergence of global society in infectious disease control is exciting, this excitement is tempered by an understanding of the limits of this global society. In analyzing the use of the Internet for the detection and control of epidemics, PAHO recently argued that many barriers exist that hinder the optimal use of the Internet for health and infectious disease surveillance among its member states.[82] These barriers include "[s]ocioeconomic inequities[, s]hortage of integrated epidemiological systems . . .[, l]ack of a culture of [disease] prevention[, r]esistance to technological change[, g]eographic barriers to access[, and i]nadequate feedback from the central to intermediate and local levels."[83] This list contains problems that range from the technological, to the economic, to the cultural. Non-governmental projects, like ProMED-mail, have limited capabilities to address obstacles like socioeconomic inequalities and cultural resistance to technological progress. In addition, PAHO also emphasized that the "Internet is a support tool that helps in information exchange, not in the detection of epidemics."[84] In other words, new information technologies disseminate information gathered on the ground by traditional epidemiological surveillance. PAHO argues that it remains "necessary to strengthen epidemiological surveillance systems at the local level so that quality information can be provided in a timely manner."[85] This observation takes us directly back to the state and underscores the continuing importance of the establishment and maintenance of national public health infrastructures. Thus, the existence of national interests in states supporting infectious disease control becomes critical to the future of global society.

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82. *See* PAN AM. HEALTH ORG., *An International Meeting on Harnessing the Internet for Disasters and Epidemics-Strategies and Plan of Action- Detection and Control of Epidemics* (last modified Dec. 18, 1997) <http://www.paho.org/english/ped/ped-strategy.htm>.

83. *Id.*

84. *Id.*

85. *Id.*

The success and existence of ProMED-mail might, ironically, adversely affect the willingness of some states to improve domestic public health surveillance under the misguided notion that ProMED-mail will act as a substitute or surrogate. Although I am not aware of any evidence that suggests such a thing is happening, my speculation draws on the experience of the international Red Cross movement. John Hutchinson argued that the non-governmental, voluntary humanitarianism of the Red Cross movement became co-opted into European military structures because European governments found Red Cross charity a useful instrument in war.[86] Leading humanitarian figures, such as Florence Nightingale, refused to support the Red Cross movement because of fears that Red Cross involvement in caring for war wounded would allow governments to avoid having to shoulder the full burden and duty of caring for battlefield casualties.[87] Analogously, ProMED-mail should not be supported so that it can allow governments to avoid their responsibilities in the field of public health surveillance.

The impact of global society on the dynamics of the international system may also be questioned. It is not yet clear that the presence of tools like ProMED-mail will make state contacts and interactions centered on infectious diseases more rational and prudent. Some evidence exists that irrationality continues, and can be found reported and discussed on ProMED-mail.[88] As I have argued elsewhere, "[n]ew technologies have emerged before without changing the dynamics of international infectious disease control."[89] Cyberspace may be no different.

What may have more influence on the dynamics of the international system than global society is international trade law, a much more traditional form of regulating the international system. Under the WTO's Agreement on the Application of Sanitary and Phytosanitary Measures,[90] WTO member states face both scientific

86. *See* HUTCHINSON, *supra* note 26, at 350.

87. *See id.*

88. *See* Fidler, *supra* note 76 (expressing reactions to the European Union's irrational import ban on fish from eastern Africa because of cholera outbreaks).

89. Fidler, *Mission Impossible?*, *supra* note 6, at 502.

90. Agreement on the Application of Sanitary and Phytosanitary Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1, *available in* <http://www.wto.org/wto/goods/spsagr.htm>.

and trade-related rules regarding their adoption and implementation of public health measures affecting international trade.[91] Where ProMED-mail might raise challenges to a state's behavior in cyberspace, challenges by states to the same behavior under the WTO dispute settlement mechanism focuses state attention more effectively because the process carries serious potential political and economic ramifications to core national interests in international trade.

Global society's efforts regarding infectious diseases also face problems caused by the activities of other non-state actors in international relations. Most of the literature on globalization focuses on the undermining of state sovereignty caused by the behavior of multinational corporations and business enterprises. These non-state actors compete in the global market, and themselves form a type of profit-driven global society. There is no such thing, therefore, as a universal global society. Instead, we have multiple global societies pursuing different objectives including health, profit, environmental protection, and human rights.

The global society on infectious diseases is neither the most prominent nor the most powerful; it must compete with other transnational interests for influence in the international society, international system, and the state. Further, the effects of the operation of the global market on state sovereignty and state resources often undermine the ability of a state to make infectious disease control more of a national interest. As I have argued elsewhere, "the development of the global market has intensified economic competition and increased pressure on governments to reduce expenditures, including the funding of public health programs, leaving states increasingly unprepared to deal with emerging disease problems."[92] Because the efforts of global society on infectious diseases ultimately depend on good national public health systems, economic globalization threatens global society's attempts to monitor infectious disease events and microbial traffic.

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91. *See* Fidler, *supra* note 24 (analyzing international trade law on health-protection measures).

92. Fidler, *Globalization, International Law, and Emerging Infectious Diseases*, *supra* note 9, at 78.

As suggested by PAHO's observation that new information technologies cannot replace traditional infectious disease surveillance, control, and prevention strategies, the development of global society in *microbialpolitik* does not undercut the need for international organizations and the role they play in maintaining international society's interest in infectious diseases. Non-governmental organizations are not in the position to undertake the heavy lifting required to strengthen the WHO's global surveillance capabilities or national public health capabilities around the world. As O'Brien has observed, "many developing countries have non-existent or inefficient public health services."[93] The magnitude of this problem also swamps the capabilities of any single developed country. The global crisis in emerging infectious diseases reinforces global society's need for a strong sense of international society in infectious disease control.

Global society's efforts on infectious disease control are ultimately dependent on the national interests of states, the international system, and international society. Global society most closely reinforces the missions of international society because it serves as a resource, or institution, for collecting and disseminating information and expertise on infectious diseases. Global society cannot, however, replace international society because, for example, ProMED-mail cannot perform the epidemiological surveillance required to monitor emerging infectious diseases. Surveillance falls to national governments and international health organizations. The success of ProMED-mail suggests, however, that the national interests of states and the common institutions of international society also depend on the continued functioning of global society because the existence of the global society on infectious diseases (1) constrains states in their public health behavior by reducing their incentives not to share in the working of the common rules and institutions of international society, and (2) educates states about the global challenge infectious diseases present. As an emerging feature of *microbialpolitik*, global society reinforces the mutual dependence of the state's national interest in infectious disease control, the international systemic need for cooperation, and the international societal need for common rules and institutions. In addition, global society becomes mutually

93. O'Brien, *supra* note 68, at 252.

dependent on the other levels as it evolves into another strand in the delicate web of microbial and political relationships that characterize *microbialpolitik.*

V. THE CHANGING NATURE OF *MICROBIALPOLITIK*

Analyzing infectious disease control at the state, international system, international society, and global society levels demonstrates that *microbialpolitik* has changed dramatically over the course of history. In early post-feudal Europe, infectious disease control was exclusively an internal matter for the state. Governments perceived a threat from disease importation and established policies such as quarantine to try to keep foreign germs out.

Although such policies had impact on interstate relations because quarantine affected trade and travel, infectious disease control did not become a matter of concern for the international system until the mid-nineteenth century, at which point primarily European states began a frustrating but persistent effort to ameliorate the trade frictions among states caused by quarantine and to find better ways of protecting their populations from disease importation. In this movement into the international system, international law joined domestic law as a tool of infectious disease control.

Scientific progress in the late nineteenth century not only furthered international systemic work on infectious diseases, but also provided the impetus for the establishment of international health organizations. These organizations represented the transition of infectious disease control into the realm of international society. More recently, new information technologies in the late twentieth century have made infectious disease control a concern of global society.

Using these basic concepts from international relations demonstrates that the commitment to infectious disease control at each of the levels changes over time and in response to economic shifts and scientific discoveries. In developed states, the national interest in infectious disease control weakened considerably in the twentieth century as improved public health systems and effective antimicrobials reduced the domestic incidence of infectious diseases. In developing states, a national interest in infectious disease control

rarely developed because of either poor political leadership or lack of economic resources and trained personnel.

State concern with infectious diseases as an international systemic problem was strong in the latter half of the nineteenth century, but waned in the twentieth century for the same reasons developed states' national interests in infectious disease control decreased in intensity during the same period. A key indicator of this trend can be found in comparing the intense international legal activities that took place among states from 1851 until World War II, with the lack of interest in international law on infectious disease control in the second half of the twentieth century.

Infectious disease control as an interest of international society grew in the first half of the twentieth century with the formation of a number of international health organizations and climaxed with the creation of the WHO in 1948. Member states of the WHO have not, however, proved diligent in keeping infectious disease control a strong commitment of international society as the WHO over time has become ineffective and inefficient.

Global society was not a strong feature of *microbialpolitik* prior to the late twentieth century. For centuries, the medical profession and scientific researchers maintained a transnational quality. International health organizations built transnational networks of public health experts, physicians, and scientists. These earlier transnational networks, however, never approached the scale and potential that today's global society enjoys because of new information technologies and cyberspace.

Over time, *microbialpolitik* has grown increasingly complex and multidimensional. As pointed out repeatedly before, infectious disease control as a concern of the state, international system, international society, and global society forms mutually dependent relationships that make contemporary *microbialpolitik* a complicated political, economic, scientific, medical, and technological web. This development is hardly surprising since today's world is more complicated than that of early post-feudal Europe. Unlike the leaders of fifteenth century Italian city-states, today we understand a great deal about the microbial world and realize that national measures alone cannot protect our people. Unlike the European diplomats and physicians that gathered at international sanitary conferences during

the latter half of the nineteenth century, today we know that harmonizing national quarantine measures through international law is inadequate to deal with microbial traffic in the international system. Unlike those dedicated servants in the halcyon days of international health organizations, today we understand the limits and dangers of over-reliance on notions of the international society. Unlike all previous ages, today we have access to information technologies unlike anything ever seen before, the possibilities of which are still unfolding.

At its core, *microbialpolitik* operates under the influence of four forces: (1) the nature of the microbial world, (2) the structure of the international system, (3) the changing dynamics of state interaction in the international system fueled by political, economic, and technological transformations, and (4) science. We start with a relationship that weighs heavily in favor of the microbes; while microbes recognize no borders, humanity remains divided into independent, sovereign states. All responses to microbial threats ultimately involve state action, making the need to have infectious disease control established as a national interest critical. Because no state can protect its interests from microbial threats without cooperation from other states, human responses to infectious diseases confront the structure of the international system. Cooperation must be painstakingly stitched together out of divergent national interests. Compared to the fluidity and efficiency of microbial change and transmission, the structure of the international system imposes a difficult, frustrating, and inefficient process on human responses to infectious diseases.

The international system, however, is not static; its dynamics change as the system changes because of political, economic, and technological pressures. In the nineteenth century, improved transportation technologies forced infectious disease control onto the international system's agenda by intensifying contacts between trade and quarantine measures. In different eras, scientific progress in understanding the microbial world both facilitated international cooperation and eroded interest in such cooperation. The emergence of developing states in the latter half of the twentieth century generated new problems for states trying to deal with infectious diseases internationally.

The structure and dynamics of the international system handicap humanity in its struggle with infectious diseases. Historically, science and the adoption of national and international science-based public health policies equalized the struggle. The benefits of science and science-based policies have not, however, been enjoyed equally throughout the international system. Much of humanity still remains vulnerable to infectious diseases without access to adequate public health services and the fruits of scientific progress. More ominously, the structure and dynamics of the international system directly contribute to the erosion of the potency of antimicrobial drugs. Antibiotics, for example, are routinely misused and abused in states all over the world. Science has produced positive changes in the nature of *microbialpolitik*, but *microbialpolitik* still poses threats to the effectiveness of scientific advances.

Recognizing the complex and multidimensional nature of contemporary *microbialpolitik* is important, but such recognition is only a beginning. Looking towards the future of *microbialpolitik* will involve realizing the daunting set of circumstances facing the state, international system, international society, and global society. Elsewhere I have constructed what I call the pathology for the globalization of public health in the era of emerging infectious diseases. This pathology has five parts: (1) international trade and travel act as effective channels for microbial traffic; (2) public health capabilities are deteriorating or nonexistent, and antimicrobial drugs are losing their effectiveness; (3) the internationalization of public health through international health organizations has largely failed; (4) unprecedented levels of deeply-rooted social, economic, and environmental problems that provide pathogenic microbes with fertile conditions have developed all over the world; and (5) the globalization of markets has weakened the state's ability to control its domestic economy and to address public health concerns and social, economic, and environmental problems.[94] The implications of this pathology of the globalization of public health in the era of emerging infectious diseases for the future of *microbialpolitik* are grim:

94. *See* Fidler, *Globalization of Public Health*, *supra* note 6, at 33-34 (setting forth the pathology of the globalization of public health).

> Because of market globalization, developing states fail or are unable to reduce the social, economic, and environmental problems that continue to benefit pathogenic microbes. As a result, the developing world remains a giant reservoir of microbial threats. The massive scale of international trade and travel—which shows no signs of declining—means that the developed world is constantly under threat from microbial importation from the developing world. Inadequate and deteriorating public health infrastructures in the developed world leave their populations vulnerable to disease importation. Further, the same social, economic, and environmental problems confront developed states as well (albeit on smaller scales), which promotes the emergence and reemergence of infectious diseases within the territories of developed states. The inadequate public health systems also increase the vulnerability of populations to indigenous EIDs. Travel and trade connections between developed countries can also create inter-developed states infectious disease threats. The globalization of markets also handicaps developed states, if not as profoundly as developing countries, in addressing social, economic, and environmental problems and in finding financial resources to commit to rebuilding public health capabilities. Efforts to combat this new globalization of public health through internationalization face all the problems created by social, economic, and environmental problems; by nonexistent, inadequate, or deteriorating public health capabilities; by the scale and speed of global traffic; by the limitations on political action created by the globalization of markets; by the historical failures of prior internationalization in this area; and by the difficulty that always exists in international relations in getting sovereign states to agree to effective cooperation. The globalization of public health in the era of EIDs represents a far more complex and daunting phenomenon than its nineteenth-century predecessor.[95]

VI. THE FUTURE OF *MICROBIALPOLITIK*

A. THINGS HAVE TO CHANGE

The global crisis in emerging infectious diseases has forced states, international organizations, and individuals to create and implement various plans and projects for addressing the latest microbial scare in human history. Implicit in these reform agendas is the idea that *microbialpolitik* cannot continue as it has for the last half-century. The framework used earlier in this article proves useful in analyzing these reform ideas because we find that these ideas in various ways

95. *Id.* at 34-35.

argue for strengthening infectious disease control at the state, international system, international society, and global society levels.

Complacency is a major theme in analysis of American public health policy in the last fifty years. Private commentators and government bodies assert that complacency must end and that the United States must once again make infectious disease control a national priority. Work is already underway to reconstitute infectious disease control as a national interest in both the United States and Europe.

Reforms at the international systemic level appear in the efforts to revise the International Health Regulations to make them reflect the challenges of emerging infectious diseases.[96] The international systemic goals of maximum protection against the international spread of infectious diseases with minimum interference to world travel and trade are being rejuvenated through a new set of international legal rules. In addition, the WTO's Agreement on the Application of Sanitary and Phytosanitary Measures now forms a critical part of the international law that regulates public health contacts and interactions in the international system.[97]

Changes are also afoot at the international society level as great hopes are pinned on the new regime of WHO Director-General Gro Bruntland.[98] Many see Bruntland's election as a potential turning point that will allow the WHO to regain the respect of member states and to promote more effectively infectious disease control as a common interest and value of international society. Director-General

96. *See* Fidler, *Return of the Fourth Horseman*, *supra* note 6, at 851-63 (analyzing WHO principles guiding the IHR revision effort). For official updates on the IHR revision process, see *Revision of the International Health Regulations: Progress Report, July 1998*, 73 WEEKLY EPIDEMIOLOGICAL RECORD 233 (1998); *Revision of the International Health Regulations—Progress Report, January 1998*, 73 WEEKLY EPIDEMIOLOGICAL RECORD 1, 17 (1998); *Revision of the International Health Regulations—Progress Report, July 1997*, 72 WEEKLY EPIDEMIOLOGICAL RECORD 1, 213 (1997); *Revision of the International Health Regulations—Progress Report, December 1996*, 72 WEEKLY EPIDEMIOLOGICAL RECORD 1, 9 (1997), *The Revision of the International Health Regulations*, 71 WEEKLY EPIDEMIOLOGICAL RECORD 233 (1996).

97. *See generally* Fidler, *supra* note 24, at 322-24 (analyzing the WTO Agreement on the Application of Sanitary and Phytosanitary Measures).

98. *See* Joan Stephenson, *Woman Physician is New Head of WHO*, 279 JAMA 491, 491 (1998) (stating that Gro Bruntland has promised to reform the WHO as its new director-general).

Bruntland stated that she intends to make emerging infectious diseases one of her priorities, reinforcing the optimism surrounding her appointment.[99]

Finally, many want to solidify the global society's role in the future of infectious disease control efforts by encouraging freer and wider flows of information between peoples of the world. O'Brien argues:

> [I]f civilization is poised to take one massive stride forward, . . . this step must surely be to dismantle the boundaries of communication so as to permit free dissemination of information. If the legions of microbes arraigned against man recognize no national boundaries, it is extreme folly for man to erect such boundaries, which restrict his ability to come to terms with the enemy.[100]

Thus, it appears that *microbialpolitik* in the future will operate at all the levels of the framework. Still, such an observation does little more than note that *microbialpolitik* is now a complicated, multidimensional, and global phenomenon. The more interesting and important issue, however, is trying to figure out whether, at this historical moment, *microbialpolitik* can be transformed from a dynamic that handicaps humanity in the fight against infectious diseases into one that helps humanity. This question immediately raises the concerns about the division of humanity into sovereign states interacting through the international system facing microbial threats that ignore borders and actually feed off opportunities such division creates for disease transmission.

B. RADICALLY RETHINKING *MICROBIALPOLITIK*

The historical problems that the structure and dynamics of the international system pose for infectious disease control may encourage us to consider radically rethinking the nature of international relations. In other words, should *microbialpolitik* in the future be based on a structure other than the state system? In his famous work, Hedley Bull identified five alternatives to the states

99. *See id.* (noting Director-General Bruntland is expected to mobilize the agency against emerging infectious diseases).

100. O'Brien, *supra* note 68, at 267-68.

system that are useful to discuss in connection with possible alternative visions of *microbialpolitik*.

Bull called the first alternative "a system but not a society," meaning that the international system would remain but international society would cease to be an element of international relations.[101] Harsh critiques of the WHO may imply that since 1945, *microbialpolitik* has been systemic only and not societal in any real sense. This would make the "system but not a society" option unattractive in the era of emerging infectious diseases. Further, microbial and political realities make the "system but not a society" option unwise to pursue. Politically, treatment of infectious disease control as a matter of international systemic concern flowed from the fears and economic interests of powerful states. This limited political scope ignored the truly global reach of pathogenic microbes. Historically, regulating systemic interactions through international law did little to improve the public health systems of poor, developing regions, which meant that these regions would always pose threats to international health through travel and trade. Systemic approaches reflected the national interests of a minority of states, while doing little to address the danger lurking in states that either did not or could not develop a national interest in infectious disease control.

Bull identified a second alternative path, referred to as "states but not a system."[102] This path is characterized by the existence of states with insufficient interactions among them to cause them to behave as parts of a whole.[103] Bull argued that "[t]he disappearance of the element of a system from the present pattern of universal politics could come about only as the consequence of the collapse of our present scientific, industrial and technological civilisation."[104] As globally applied science and technology represent critical weapons in the human confrontation with infectious diseases, the "states but not

101. *See* BULL, *supra* note 39, at 257. "There would be states, and interaction among them on a global basis, but the element of acceptance of common interests or values . . . would have disappeared." *Id.*

102. *See id.* at 260 (explaining that under this model, states would continue to exist, but might discontinue formation of a global system of states).

103. *See id.* (noting that this state of affairs would represent a return to a pre-nineteenth century scheme in which there is no single global states system).

104. *Id.*

a system" model is obviously ridiculous. Transposing Bull's arguments into the infectious disease context, we have to conclude that no vision of *microbialpolitik* "is realistic which does not take account for the existence of social, economic, diplomatic and strategic interaction on a global scale."[105]

World government represents the third alternative model to the state system.[106] We could run through the general arguments that make world government unrealistic; but, more specifically, the nature of the microbial threat may require the existence of separate states. As noted earlier, the concentration of power in territorial states created the conditions necessary for the creation of national public health systems. While the actual development of adequate public health systems in sovereign states has been uneven at best, the notion of a world government actually having the resources or political control necessary to construct a world public health system borders on the farcical.

As the fourth alternative to the state system, Bull proposed a neo-medieval system of segmented yet overlapping authority similar to that which characterized medieval Christendom.[107] The development of regional international organizations, the weakening of state sovereignty through the processes of globalization, the rise in importance of non-state actors such as multinational corporations and non-governmental organizations, and the technological unification of the world remake the states system into a more complex global framework not grounded primarily in state sovereignty and state interactions. The growing importance of global society to *microbialpolitik* might suggest that neo-medievalism constitutes a plausible alternative to the states system.

Upon closer examination, however, neo-medievalism provides no credible framework for *microbialpolitik*. First, neo-medievalism's distinctive dynamic is decentralization and dispersal of power and authority away from the states and into the hands of non-state actors. Our earlier analysis of global society developments in the area of infectious disease control demonstrates that non-state actors are not equipped to carry out proper epidemiological surveillance or

105. *Id.* at 261.
106. *See id.* at 261-62.
107. *See* BULL, *supra* note 39, at 264.

outbreak interventions. Nor are all non-state actors committed to improving global infectious disease control. The logic of infectious disease control historically has been centralization and concentration nationally in government-supported public health systems and internationally in international health organizations.

The fifth alternative model to the states system identified by Bull is a "world political system," which can be defined as "the world-wide network of interaction that embraces not only states but also other political actors, both 'above' the state and 'below' it."[108] The "world politics" view emphasizes intergovernmental and transnational interactions as key elements of the dynamics of international relations. Interstate relations, international organizations' activities, and transnational, non-governmental behavior factor into the complex process of world politics. The thrust behind this perspective is that "[t]he study of world politics should be concerned with the global political process as a whole, and this cannot be understood simply in terms of interstate politics in the strict sense."[109]

At first glance, the concept of a world political system seems to capture the multidimensional nature of contemporary *microbial-politik*. The national interests of states, interstate interactions, the work of international health organizations, the impact of transnational phenomenon like trade and travel, and the increasing participation of non-governmental entities in infectious disease control suggest that *microbialpolitik* is no longer an *international* political process but a *world* political process. In addition, the dangers posed to developed countries from the lack of adequate public health systems in developing states indicates that the developed states' national interests in public health must be globalized to include concern about public health in developing countries. As has often been said in the literature on emerging infectious diseases, the traditional distinction between national and international health no longer makes sense.[110]

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108. *Id.* at 276.

109. *Id.* at 277.

110. *See, e.g.*, Seth F. Berkley, *AIDS in the Global Village: Why U.S. Physicians Should Care About HIV Outside the United States*, 268 JAMA 3368, 3369 (1992) (stating that one reason American doctors should remain sensitive to the international spread of HIV is that global interdependence, modern transportation,

Although *microbialpolitik* appears to be a world political process, critical analysis reveals some problems with accepting this insight unconditionally. First, one might observe that *microbialpolitik* has always been a world political process because infectious diseases have spread geographically through transnational channels for centuries. Bull's argument that "it would be absurd to maintain that the existence of a political system involving other actors as well as states is in any sense a new or recent development"[111] applies to infectious diseases as well. Perhaps the real distinguishing feature of contemporary *microbialpolitik* is not the important role played by actors above and below the state but the geographic scope and intensity of both intergovernmental activities and transnational interactions.

Second, to describe contemporary *microbialpolitik* as a world political process or system makes it sound more structured than it is. Infectious diseases are a world political phenomenon, but little evidence exists that this phenomenon has forced the emergence of organized systemic or procedural responses. National interests in infectious disease control are unevenly held throughout the international system. International systemic interest in infectious diseases has languished for decades. International society's efforts to control infectious diseases have been weak and ineffective. Transnational forces exacerbate national and international problems caused by infectious diseases, and interest in infectious diseases in global society is a nascent development with limited potential.

Third, viewing *microbialpolitik* as a world political process or system highlights the globalization of public health confronting states and the need for international cooperation. The acknowledgment of these facts, however, does not mean the demise of the international system as the core structural feature of

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and international trade have rendered obsolete the difference between international and domestic health); George A. Gellert *et al.*, *The Obsolescence of Distinct Domestic and International Health Sectors*, 10 J. PUB. HEALTH POL'Y 421, 421 (1989) (asserting that changes in epidemiology and demographics have undermined historic bases for differentiating between domestic and international health in Western nations); James W. LeDuc, *World Health Organization Strategy for Emerging Infectious Diseases*, 275 JAMA 318, 318 (1996) (commenting that national health is increasingly becoming an international project).

111. *See* BULL, *supra* note 39, at 278.

microbialpolitik. Such a conclusion may be sobering given the obstacles and friction the structure and dynamics of the international system create for global infectious disease control. As in the context of the global environment, many people believe the state system is dysfunctional in connection with infectious diseases because it cannot provide what is needed to deal with pathogenic microbes on a global scale.

Surveillance is one example. O'Brien argues that "[p]erusal of the literature on recent epidemics of reemerging and new diseases would urge one . . . to recommend removing the bureaucrats from any part in the overall decision making of international disease surveillance processes, while recognizing their essential role in the infrastructure of any such system."[112] O'Brien believes that surveillance systems should be run by scientists and physicians independent of any national or intergovernmental authority because of the dynamics of effectuating national interests and operating intergovernmental organizations.[113] In other words, let us get global surveillance out of the politics of states and the international system. O'Brien's argument also contains, however, the recognition that states and international organizations must provide the infrastructure for global surveillance. This again places states and the international system at the heart of *microbialpolitik*.

In the infectious disease context, Bull's general observation that "the idea that the states system should be regarded as an obstacle . . . is an unhelpful one"[114] is valid. Plans for dealing with emerging infectious diseases must acknowledge that the international system provides the basis for the political organization of humanity and for the hopes that a more coherent global approach to infectious diseases can be crafted through it.

C. REALISTICALLY RETHINKING *MICROBIALPOLITIK*

If radical options centered on moving away from the structure and dynamics of the international system are unrealistic, what are the realistic strategies available for turning *microbialpolitik* from an ominous phenomenon to a more effective process? We begin with

112. O'Brien, *supra* note 68, at 254.
113. *See id.*
114. BULL, *supra* note 39, at 295.

the understanding that *microbialpolitik* now operates at four levels: the state, international system, international society, and global society. All strategies must incorporate and integrate these different levels. While one could argue that progress needs to be made at all these levels, the more important issue is how to make progress. The structure and dynamics of the international system are integral to this issue. Since the basic unit of the international system is the state, one approach would advocate stronger national interests in infectious disease control. Deeply-held national interests, widely dispersed throughout the international system, would provide a solid foundation for the international system, international society, and global society.

The "national interest first" strategy ignores, however, that too many states—especially in the developing world—have neither the political leadership nor the economic resources to make infectious disease control a serious national interest. These states' national interests in infectious disease control must be encouraged or even created through external pressures and inducements. Thus, we might more effectively target the international system or international society.

Upon reflection, however, the international system does not look like a strong choice. First, the international system is comprised of state contacts and interactions. States attempt to regulate these interactions to best suit their national interests. Thus, international systemic procedures are linked to the national interests of the stronger states. This may prove too narrow a foundation for supporting all the activities required in a global infectious disease control strategy. Second, to focus on regulating the interactions between states loses sight of the problems inherent within many states, particularly developing countries, that nurture global microbial threats.

In connection with world order, Bull argued that "the states system can remain viable only if the element in it of international society is preserved and strengthened."[115] Bull believed that the fate of international society depends "on maintaining and extending the consensus about common interests and values that provides the

115. *Id.* at 315.

foundation of its common rules and institutions, at a time when consensus has shrunk."[116] Bull observed that, to strengthen international society, one needed "a sense of common interest among the great powers"[117] and "the preservation and extension of a cosmopolitan culture."[118] Similarly, one could argue that the international system will only remain viable for infectious disease control purposes if international society can be rebuilt, strengthened, and preserved.

This argument places the WHO and other international health organizations in the spotlight and heightens the importance of institutional reform efforts. While such institutional reforms are necessary, they are not sufficient to transform *microbialpolitik*. Strengthening and preserving international society must be directly linked with the national interests of the developed states—the "great powers" in international public health.

To support a strong international society, the national interests of the developed states cannot be narrowly construed because, in Bull's words, a consensus among the great powers "that does not take into account the demands of those Asian, African and Latin American countries that are weak and poor . . . who represent a majority of states and of the world's population, cannot be expected to endure."[119] Thus, the great powers of international public health must integrate the need to develop the public health systems of the developing world into their national interests and their interactions in the international system. This extended conception of the national interest will also broaden the possibilities at the international systemic level because developed states will see more and different kinds of contacts and interactions that must be addressed informally through diplomacy or formally through international law.

Another necessary factor in strengthening international society in infectious disease control is the role of global society because it can play a powerful role in the preservation and extension of a cosmopolitan culture on infectious diseases. Historically, cosmopolitan culture in international relations has been shallow,

116. *Id.*
117. *Id.*
118. *Id.* at 317.
119. *Id.* at 315.

based largely in the elite communities of diplomats, intellectuals, and scientists.[120] The cosmopolitan public health culture in the post-1945 period has followed this general pattern, as it was narrowly based in the staff of the WHO and the official contacts those staff members had with elites in national public health agencies. The global public health society made possible by new information technologies not only reinforces traditional cosmopolitan ties, but also expands the cosmopolitan culture to include local doctors, hospitals, and patients directly using the new information flows and the new public health cyberspace. The influence of this emerging cosmopolitan culture will, therefore, be felt across a wider geographical scope and deeper within states and societies than the narrow cosmopolitan public health cultures of the past.

Thus, the strategic objectives for remaking *microbialpolitik* are twofold. The first objective is to create a "bottom up" dynamic. This dynamic, based originally in the national interests of developed states, builds consensus among states in the international system on attacking infectious diseases. State consensus produces a more vigorous approach to infectious diseases at the international system level. State consensus and international systemic activity will support a broader vision of international society.

The second objective is to generate a "top down" dynamic in which global society increases its scope and intensity, involving more non-governmental actors in infectious disease issues and policies. The growing activities of global society connect more societies and people directly to the international society through the work of international health organizations. This not only reinforces international society but also helps broaden its scope as well.

The convergence of the "bottom up" and "top down" dynamics results in a broadened scope of international systemic activity and an expansive vision of international society. Such broad systemic activity and expansive societal vision are too ambitious to be achieved by, or only associated with, a single state, group of states, or international organization. WHO reform is critical, but it would be a mistake to pin all the hopes of the international society on the WHO. Regional contributions to the international system and

120. *See id.* at 317 (describing the composition of the historical cosmopolitan culture).

international society will be very important, whether from the European Union, PAHO, or the Asia Pacific Economic Cooperation forum. Bilateral initiatives will also serve very useful purposes for the international system and international society. Rather than be housed solely within a single great power, block of states, or global public health leviathan, the international system and international society should have multiple laboratories for infectious disease cooperation.

CONCLUSION

The history of *microbialpolitik* suggests that its transformation as envisioned above will not be easy. The shift from the strictly national to the international approach in the nineteenth century took many decades to bear fruit in international law and even longer to produce international health organizations. Richard Cooper noted that "[i]t took over seventy years from the first call for international cooperation in the containment of the spread of contagious disease in 1834 to the time, in 1907, when an international organization was first put in place to deal with the problem; and even that represented only the beginning."[121]

We have now entered a new period characterized by the dreadful consequences of decades of neglect of infectious diseases at the national level and of decay and demoralization in international health organizations. The task before us today is, in some ways, the most daunting challenge *microbialpolitik* has yet presented because we face having to integrate the state, international system, international society, and global society in effective ways while knowing that science will not provide the catalyst that it earlier did for international health law, international health organizations, and the taming of the microbial world in developed states.

Although this article provides a framework with which to analyze the global politics of infectious disease control, the framework still remains an intellectual activity rather than a practical blueprint. Again paraphrasing Hedley Bull, while there is a great desire to know what the future of *microbialpolitik* will bring, and also to know

121. RICHARD N. COOPER, INTERNATIONAL COOPERATION IN PUBLIC HEALTH AS A PROLOGUE TO MACROECONOMIC COOPERATION 86 (1986).

how we should behave in that future, "it is better to recognise that we are in darkness than to pretend that we can see the light."[122]

122. BULL, *supra* note 39, at 320.