Governance of Epidemics: Is There a Reason for Concern?

Stella R. Quah

> Epidemics are under our own control;
> we may promote their spread; we may prevent it;
> we may secure ourselves for them.
>
> —Southwood Smith, M.D. (1866, 58)

The earliest available record of an epidemic is a passing reference in an ancient Egyptian script of "a great pestilence" that struck in 3180 BC (Marks and Beatty 1976, 3). The history of epidemics' swift attacks and the suffering they bring has been repeated from East to West ever since. What have we learned? Writing in 1854, at a time when England was still recovering from the 1848–49 cholera epidemic, physician Southwood Smith, quoted above, knew all too well the nature of the problem. He was a medical member of the Board of Health from 1848 to 1854, Physician at the London Fever Hospital, and a keen student of the history of epidemics. Smith was convinced that epidemics were preventable and that the obstacle to prevention was, for the most part, human folly. He observed that "epidemics always take a country by surprise—burst suddenly on an unprepared people, who willfully shut their eyes against the plainest evidence, as if they would avert the event by denying its existence" (1866, 7–8).

Six decades later, with the First World War still a fresh memory and the political conflicts that would lead to the Second World War already escalating, another public health expert expressed serious concern about the danger of epidemics. Victor Heiser, an American physician working for the League of Nations Association, reminded governments that although an infectious disease may begin with one person, it soon becomes a national and a world problem as an epidemic. Heiser felt that the preparations to combat epidemics were grossly inadequate. Unfortunately, despite scores of epidemics throughout history, the lack of preparedness remains as pervasive today as it has been in past centuries. Among the first international efforts to improve the situation were an "international sanitary conference in 1851 . . . called by the French government," and the ratification of "an agreement for the regulation of international collaboration in 1893" (Heiser 1937, 1–2). Still, considering the speed of infectious disease transmission and the necessity of containing

epidemics, Heiser lamented "the seemingly slow progress that is being made in the application of knowledge for the control of disease" (1937, 2–3).

More than one hundred and fifty years after Southwood Smith's writings, and about seventy years after Heiser's, scientific knowledge of infectious diseases has progressed. Unfortunately, governments have not kept up, nor have they been sufficiently receptive to the social and behavioral fundamentals of health crisis preparedness and epidemic prevention. When a crisis strikes, people worry about whether there is someone "in charge" and what, if anything, those in charge are doing to alleviate their suffering and solve the problem. In other words, people worry about governance.

On Governance

Governance is the central theme of this book. One underlying assumption that the various chapter authors made is that the effectiveness of the governance of epidemics and of other health crises in a given country reflects the effectiveness of that country's overall governance. It is thus pertinent to examine the concept of governance more closely.

In a free society organized along democratic principles, governance refers to the management of the affairs of the collective to ensure safety, fairness, and equal opportunity for all its individual members. Referring to ethics in corporations, Scott Fleming and Mike McNamee define "corporate governance" as "the idea that an organization has a range of aims or purposes that it must adhere to in ways that are ethically defensible" (2005, 137). The United Nations Development Program (UNDP) defines a country's governance as "the exercise of political, economic, and administrative authority to manage a nation's affairs" including "all the methods that societies use to distribute power and manage public resources and problems" (UNDP 1997, 9–10). The UNDP classifies governance into four types: economic, political, administrative, and systemic.

The World Bank defines governance as "the traditions and institutions by which authority in a country is exercised" (Kaufmann, Kraay, et al. 2003, 2). This definition, compared to others, has a more direct research application because it has been developed into a set of six indicators that form a scale of governance against which 199 countries are "measured" (Quah 2006, 2007). The six indicators of governance are (1) voice and accountability, which refer to "the extent to which citizens can participate in the selection of their governments; and the independence of the media"; (2) perceived political stability and absence of violence; (3) government effectiveness, defined as the "quality of the public service and competence of civil servants"; (4) regulatory quality, which comprises "incident of market unfriendly policies" and "perceived excessive regulations"; (5) rule of law, which involves the "perceived incidence of crime, effectiveness and predictability of the judiciary and enforceability of contracts"; and (6) control of corruption, which refers to "perceptions of corruption, conventionally defined as the exercise of public power for private gain" (Kaufmann, Kraay, et

al. 2003). Table 1.1 shows the average governance rankings for fifteen Asian countries, which provides an overview of the variation in governance quality on all six indicators across Asia. These figures offer informative background to the discussion of the governance of epidemics in ensuing chapters.

Although the concept of governance refers mostly to the actions of corporations and national governments, discussions of governance today—and particularly in the realm of health care—must address also an increasing number of regional and international players. The World Health Organization (WHO) has been the most visible coordinator of international health activities for the past five decades. However, the number of international bodies that influence (mainly through funding) and are affected by health governance issues, at both global and national levels, has expanded considerably. According to the WHO's regional director for Southeast Asia: "By the early 1990s, 40 percent of the international health assistance was from bilateral agencies followed by the UN agencies (33 percent), NGOs (17 percent), development banks (8 percent), and foundations (2 percent)" (Rafei 2000).

Governance and Social Influences

With more questions than answers on the nature of disease, medical scientists are, appropriately, preoccupied with advancing understanding of the molecular dimension of infectious diseases and have made great strides in biotechnology with the financial and logistical support of national and international governing bodies. But governments have paid comparatively less attention to the social dimension of epidemics; that is, to factors such as the impact of social norms, lifestyles, and politics on disease transmission and on the design and implementation of prevention guidelines. This dismissal, or lack of awareness of the social and behavioral aspects of disease, has significantly limited the governance of epidemics. Nations have not yet learned from the serious governance inadequacies of the past. This chapter seeks to highlight the historical prevalence of this problem, and thereby to provide context for the successes and failures in the governance of epidemics discussed in the other six chapters of this volume.

Among the plethora of social constraints impinging upon the nature and quality of health governance, two are most common. The first is a characteristic initial reluctance of the authorities to acknowledge the threat of an epidemic and an impending crisis. The second is a tendency to set aside efforts to prevent the next crisis once an epidemic is over. Throughout history, examples abound of official reluctance to acknowledge the problem. For example, in the early twentieth century, a colonial governor refused a Swiss bacteriologist's request to visit the Yunan province to trace the origin of a plague in Indochina. The governor flatly stated, "There has never been a plague in Yunan, and if there were, I would deny it" (Wills 1996, 73). Another example shows the pattern of late reaction. During the 1994 disease outbreak in the Indian city of Surat,

Table 1.1. Governance Indicators and Ranking for Selected Asian Countries, 2004

Country Ranking (based on total average score)[1]	**Governance Indicators** (percentile ranks, 0–100)[2]					
	Voice and accountability	Political stability	Government effectiveness	Regulatory quality	Rule of law	Control of corruption
Singapore (89.0)	43.2	96.6	99.5	99.9	95.7	99.5
Hong Kong (86.0)	51.9	91.3	92.3	99.5	90.3	90.6
Japan (84.6)	78.2	83.5	86.5	83.7	89.9	86.2
Taiwan (77.3)	75.7	62.6	85.1	88.7	77.8	73.9
Korea (South) (68.6)	68.9	59.7	80.3	71.9	68.6	62.1
Malaysia (61.8)	37.4	58.7	81.3	64.5	64.7	64.5
Thailand (51.9)	52.4	41.7	65.4	51.2	51.7	49.3
India (43.1)	53.9	24.3	55.8	26.6	50.7	47.3
China (38.2)	7.3	46.6	60.1	35.0	40.6	39.9
Philippines (37.9)	47.6	15.0	46.2	49.8	32.4	36.5
Vietnam (32.3)	7.3	51.9	44.2	27.6	35.7	27.1
Indonesia (26.9)	35.9	9.2	40.9	36.9	20.8	17.7
Cambodia (24.9)	24.8	30.6	18.8	44.3	17.4	13.3
Laos (11.8)	6.8	24.8	14.4	9.9	8.2	6.9
Myanmar (3.2)	0.0	12.1	2.9	0.5	2.9	1.0

1. The average scores calculated for this table are simple arithmetic means (obtained by adding all six individual scores for each country and dividing the sum by 6). Higher scores in the percentile rank indicate higher governance quality.
2. Scores on the six indicators were taken from Kaufmann, Kraay, et al. (2003).

"the public health authorities, caught unprepared . . . did not at first admit that there was anything wrong [until] the number of cases mounted" (Wills 1996, 13). The response of Chinese government officials to the first stages of the SARS (severe acute respiratory syndrome) epidemic followed the same trend. As John Barry reported in his study of the influenza pandemic, "For political and commercial reasons mainland Chinese authorities kept the disease secret and then lied about it.... The fact that SARS killed people for several months before it attracted [the] WHO's attention demonstrates the vulnerability of the influenza surveillance system" (Barry 2004, 456–57).

In the face of a crisis or threat, denial is common. We express denial as the "not me" syndrome, when dismissing health warnings on the dangers of cigarette smoking, consumption of saturated fats, drunk driving, drug and alcohol addiction, and countless other threats to life and limb. The "not me" syndrome is the belief that the problem will not affect me; it will only affect other people. The reluctance of leaders and the general population to acknowledge danger is, in part, a collective manifestation of the "not me" syndrome—for example, believing that the traditional norms of a given community will protect it from the sexual transmission of HIV/AIDS.

Another important reason for the initial unwillingness to acknowledge danger officially is that rulers and traders are keenly aware of the political and economic damage an epidemic can inflict, both upon the country and upon their own interests (Marks and Beatty 1976; Rosenberg 1992, 281). Dramatic ancient instances of the political and economic destruction wrought by epidemics include the ruin of Athens caused by "the Plague of Thucydides" around 431 BC; and the epidemics that hit Rome and curtailed the power of the Roman Empire between 161 AC and 266 AC (Marks and Beatty 1976, 23–24, 28–39). More recently, the 2003 SARS outbreak clearly illustrates the tendency of officials to deny the problem (for example, in China), the destructive impact on the national economies of affected Asian countries, and health authorities' inadequate preparation for emerging infectious diseases (WHO 2006). These elements are discussed in other chapters of this volume.

Epidemics as health crises may, occasionally and unexpectedly, have a constructive social impact. When they occur, epidemics serve to identify and accentuate deficiencies in the governance system. In response, some individuals or groups in high places, or with enough clout and determination, might decide or attempt to correct those deficiencies. It has been suggested, for example, that the epidemics that affected San Francisco in the late nineteenth and early twentieth centuries motivated the authorities to improve the city's health emergency response system (MacMahon 1991). Similarly, the cholera outbreaks in London during the second half of the nineteenth century led to dedicated study of disease transmission, to mass media attention on the discovery of contamination in the city's water supply and, subsequently, "to the passage of a series of bills proposed by B. Disraeli and other members of parliament which

over the objections of landlords forced the overhaul of London's ghastly water and sewage systems" (Wills 1996, 115).

The first years of the HIV/AIDS epidemic forced a serious inventory of accumulated wisdom in the management of epidemics. The outcome of that effort was the WHO's *Practical Guide* (1986), compiled by P. Brès. However, as the rising number of HIV/AIDS deaths shows, enlightened guidelines and legislation are useless without effective implementation. Obstacles to implementation are numerous and wide-ranging. In the mid-nineteenth century, Southwood Smith—who, in addition to his broad experience in public health management was also known as the "Father of Sanitary Reform"—underscored these points in one of his reports to the British government:

> . . . it is the duty of the Legislature to deal with . . . the improvement of the sanitary condition of the people … and the first systematic legislative effort to bring about a better state of things has been made. The Public Health Act is in operation . . . [But] Up to the present time (1855) there are under this Act 196 towns, containing a population of upwards 2¼ millions. In about 50 of these towns, however, nothing has yet been done. . . . The great obstacle to sanitary progress is the fear of rates, not so much on the part of the poor, who gladly pay for the improvements, but on the part of the owners of small tenements, by whom chiefly opposition is raised to the application of this Act (Smith 1866, 56).

When implementation of guidelines or policies does take place, crisis management can be affected positively or negatively by, among other things, the authorities' chosen policy approach and the given country's particular socio-political and cultural characteristics. For example, a top-down approach to epidemic containment by the authorities—as has occurred in some Asian countries—may lead to the dismissal of local customs and may cause additional and unnecessary grief to the population. A good illustration of this top-down scenario is the case of the colonial Philippines, whose sparse settlements and small population size largely protected the country against infectious disease epidemics. However, the active trade that the Philippines pursued with China, Japan, and the rest of Southeast Asia exposed its population to infection. China was apparently first affected by a smallpox epidemic in the fourth century BC. By the eleventh century, the disease was endemic in China and entered Japan around the thirteenth century (Newson 2006, 9–11). Not surprisingly, the Philippines endured several smallpox epidemics between 1565 and 1600 (Newson 2006, 11), a problem that continued in the ensuing centuries. A top-down approach to public health likewise aggravated the management of a cholera epidemic in Manila in March 1902. Trying to contain the cholera epidemic among the native population, American colonial officials ordered "the burning of infected nipa huts [typical dwellings of the local population] . . . to the confusion of the natives." Health inspectors also imposed the "cremation of

bodies, outlawing of funerals, and land quarantine." Filipino historians reported that "these foreign actions conflicted with Filipino customs of funeral visits and visiting of the sick. During these epidemic years, people were not educated on how to prevent cholera" (Society of Philippine Health History 2004a). The Filipino population, unaccustomed to outside intrusion and unaware of the link between their disease and the authorities' burning of their homes, viewed these directives as unnecessarily harsh. The ensuing unrest impelled the American colonial government to reassess and improve their approach. A decade later, the authorities managed the situation more successfully: "The 1910s will be remembered as a time when the Americans, in their second decade of rule, launched widespread public health improvements in terms of disease control, health education, waste management, safe water and provisions for safe food and drugs" (Society of Philippine Health History 2004b).

Advances in behavioral and social sciences should make past centuries' trial-and-error approach to public health governance unnecessary today. HIV/AIDS offers a case in point. Scientific advances in the molecular dynamics of viruses and bacteria over the past century have significantly improved the identification of HIV infection and its treatment. New diagnostic technologies, such as the single-use diagnostic system (SUDS), do not require patients to return for test results. SUDS' sensitivity, specificity, and speed are very high, providing "results within 10 minutes" (Stover and Steinberg 2000, 93; Rutherford, Schwarcz, et al. 2000). The two enzyme-linked immunosorbent assays (EIA) can detect HIV infection that occurred within the previous 129 days (Rutherford, Schwarcz, et al. 2000). Detecting HIV/AIDS has never been so quick or effective. With respect to prolonging the life expectancy of HIV-positive people, significant advances have followed in the wake of Zidovudine, also known as AZT. One promising treatment is highly active antiretroviral therapy (HAART), which reduces infectiousness. If HIV infection is detected early through prompt testing, seropositive individuals "can begin lifesaving HAART before severe immunologic destruction has occurred" (Sanders et al. 2005, 579).

Despite these rapid gains in scientific knowledge, the human immunodeficiency virus (HIV) and acquired immune deficiency syndromes (AIDS) epidemic has not abated. Social science research over the past two decades has documented the significant influence of social and behavioral factors that impede preventive action and the application of scientific advances. It is fair to assume that one possible reason for the failure to control HIV/AIDS is the disconnect between epidemic governance and the application of evidence-based knowledge on social factors. Note, for example, that whether or not testing should be universally required, and if so, who should be tested, when, where, by whom, and how, are all normative and thus controversial issuess, as recent studies have reiterated (see Sanders et al. 2005; Morin 2000; Stover and Steinberg 2000; Doll and Holtgrave 2002). In contrast to the differing views on HIV testing, there is widespread agreement that a considerable number of people infected with AIDS—between 33 to 95 percent—are unaware of their HIV-positive status and,

therefore, are probably unwittingly contributing to the spread of the epidemic (Sanders et al. 2005, 571; Stover and Steinberg 2000, S93). One concerned commentator, in referring to African AIDS activists' resistance to testing due to fear of stigmatization, wrote that "the biggest threat to Africans isn't that HIV will stigmatize them, but that it will kill them" (Kristof 2006). Put simply, the tests are available, but for a variety of social reasons (including attitudes, beliefs, norms, perceptions, and political pressures), the people who need the tests do not take them, and the agencies that can offer the tests do not act.

Available treatment options are difficult to implement for similar reasons. The most obvious barrier to treatment is the high cost of the HAART "drug cocktail" that HIV-positive people must take daily over their life span. Another problem is that some patients discontinue the burdensome daily cocktail of drugs, whether because of its secondary effects, or because it is too difficult to keep track of the medications (Harrington 2002, 1431). On May 24, 2006, the American TV network ABC announced in a news report that a new "one-pill a day" was being developed to facilitate HIV treatment compliance. The report did not mention its cost, but the expenses associated with HAART remain a primary obstacle to its use by most people living with HIV/AIDS, particularly in developing countries.

These and other scientific advances in the testing and treatment of HIV/AIDS have begun, albeit slowly, to influence policy guidelines agreed upon at international health forums (see, for example, UNAIDS 2005, 17). Social science knowledge, particularly theory and methodology, has guided public health research for several decades (Hedges et al. 2002, S9). But HIV/AIDS casualty figures show that social science knowledge on the social and behavioral dimensions of HIV transmission has not been sufficiently used in the design and implementation of prevention programs. A conservative estimate shows that approximately 60 million people around the world have been infected with HIV since it was first identified in the early 1980s (UNAIDS 2005, 7) and about 25 million of them have died of AIDS (Annan 2006). Experts note that "the number and distribution of new cases . . . of HIV infection represent failures of current public health programs and signal a need for refining approaches to preventing HIV transmission" (Rutherford, Schwarcz, et al. 2000, S116).

Over the past five years, terrorism, environmental disasters, and new and reemerging infectious diseases, such as SARS and the threat of the influenza A (H5N1) virus, have joined the HIV/AIDS pandemic to heighten the sense of urgency among governments, regional and international organizations, social scientists and public health specialists, and the international mass media, to take specific steps to improve the safety of human populations. This book is a response to the need for systematic analysis of the key social and public health components of the problem. Each of the book's chapters critically analyzes the governance of epidemics. In particular, the authors address strengths and failures and dissect the experiences of developed and developing countries. North America and Europe are included in the analysis, but the book's primary focus

is seven Asian countries and jurisdictions: China, India, Hong Kong, Myanmar (Burma), Singapore, Thailand, and Vietnam.

This introductory discussion on the governance of epidemics began with the question, Is there a reason for concern? The answer is yes. The three main problems with the governance of epidemics that I discuss in the preceding pages are indeed reasons for concern. The lessons from painful past errors in handling epidemics tend to elude decision-makers. Governments and communities seem unwilling to acknowledge a danger until the problem becomes overwhelming and lives are lost. And social science knowledge of how social factors influence the prevention and management of epidemics is either not used or is used ineffectively. The ensuing six chapters elaborate on these problems.

Book Summary

By examining the governance of past and ongoing epidemics such as HIV/AIDS and SARS, this volume seeks to guide improvements in the control of current epidemics and the prevention of and preparation for future ones, such as avian influenza. The book's discussion, which I outline more fully in this section, proceeds in three stages: first, an introduction of the main features of the governance of epidemics, second, country case studies that illustrate the situation; and third, macro-level analyzes of two dimensions of governance. The introductory stage comprises two chapters: this first chapter provides basic conceptual and historical background to the discussion of governance of epidemics; and chapter 2 analyses the challenges and limitations of global governance. The second stage involves detailed analyses of selected case studies: Myanmar (Burma) in chapter 3; India in chapter 4; and Thailand, Cambodia, and Vietnam in chapter 5. All of these chapters employ a comparative approach, contrasting their main country cases with the situation in other countries, including China. The book's third stage is an analytical discussion of the overall governance of epidemics from two angles. Chapter 6 examines the dynamic roles of governments and citizens from a sociological perspective, whereas chapter 7 addresses the role of research epidemiologists in sharing and advancing knowledge on infectious diseases. I turn now to a brief description of the contributions of each of those six chapters.

In chapter 2, Jim Whitman examines several basic questions of global governance. How do we define the concept of global governance of epidemics? What challenges do epidemics set for the design and implementation of global governance? How can global governance effectively prevent epidemics? Whitman discusses "the possibilities for extending global governance mechanisms to cope with epidemics" and "the blocks and limitations that are likely to persist into the near future, including but extending beyond the compass of law." He emphasizes the situation in the Asia-Pacific region, but addresses his analysis of the globalized condition to "all places and peoples." He concludes that global governance mechanisms lack consistency and effectiveness; that the vulnerabilities of

globalization must not be overlooked; and that local, community, and national currents and commitments play a vital role in health governance.

Focusing on Myanmar (Burma), Chris Beyrer analyzes the recent emergence of SARS and the threat of pandemic avian influenza in chapter 3. Beyrer argues that the recent emergence of these health threats underscores the critical importance of international collaboration, free and open exchange of scientific information, and the fact that part of good governance in an epidemic is fast, early, decisive response. He analyzes public health governance and early official responses to HIV, tuberculosis, and malaria in Myanmar, and compares them with the Chinese government's response to SARS. Beyrer concludes that international and regional collaboration, transparency, and scientific integrity are crucial to effective responses in our globalized and interconnected world. In his view, state failures can swiftly lead to regional and global ones.

In chapter 4, titled "Global and Local Strategies against HIV/AIDS in South and Southeast Asia: The Cases of India and Thailand," Graham Scambler provides a detailed discussion of the HIV/AIDS situation in India and its contrast with Thailand. Scambler reflects on how monitoring and intervention processes against HIV/AIDS might be best understood and evaluated. Framing his assessment within a case-study approach and a series of analytical dichotomies, he focuses on India and Thailand's social environments, their sex industries in particular. He concludes that the impact of social structure and culture, on both individual behavior and the sex industry, has been neglected in the study of HIV/AIDS in both countries.

In her essay "Taming the Tiger: The Success and Failure of HIV/AIDS Policies in Thailand, Cambodia, Vietnam, and China," Kari Hartwig compares the HIV/AIDS strategies in Thailand and Cambodia—which are considered examples of "successful" country programs—with China, whose strategy is considered a failure, primarily in terms of securing a safe blood supply. However, she notes that Cambodia and Vietnam took some time to react to their serious problem of injected drug use. Hartwig employs a cultural ecology framework as she analyzes the structural and policy factors that have facilitated reductions or increases in HIV incidence and prevalence in these countries. She argues that countries that have successfully reduced their epidemics or maintained low prevalence rates shared marked characteristics: early political leadership, assurance of a clean blood supply, aggressive social marketing campaigns for condoms, comprehensive reproductive health and HIV curricula in schools, targeted mass media campaigns, active civil society partners, and early provision of antiretroviral therapy. Hartwig concludes by summarizing the cultural ecology characteristics that have encouraged the epidemics, and identifies the steps necessary to reduce their further impact.

In my own chapter, "On Trust and Health Consensus-building in the Governance of Epidemics," I use historical and contemporary examples from several countries (both within and outside Asia) to examine the difficulties of controlling HIV/AIDS and the experience of dealing successfully with SARS.

I identify and discuss the *sine qua non* factors for the successful management of epidemics from a macro-level perspective. I address a major factor in the governance of epidemics: the need to nurture "collective informed consent." Further, I suggest that the presence of collective informed consent on the nature of the problem and the range of solutions available is a crucial prerequisite for the successful governance of epidemics. Four major factors, in turn, underpin collective informed consent: (1) the level of community trust in the expertise and integrity of the health authorities to solve health crises fairly and successfully; (2) the transparency of state actions and decision-making; (3) the state's implementation of consensus-building by disseminating objective information about the problem, the available and recommended solutions, and incentives to facilitate preventive action; and (4) facilitation of community participation in decision-making and crisis management.

In chapter 7, Gabriel Leung brings a public health perspective to bear on questions he discusses in "Global Public Health Research Preparedness against Emerging and Reemerging Infectious Diseases." Leung focuses mainly on the 2002–03 SARS outbreak in Hong Kong and China, and more recently, on avian influenza. He argues that, however impressive field surveillance and sophisticated laboratory science may be, the system is only as robust as its weakest link. Leung argues that "to strengthen biodefense" it is imperative to develop a global "parallel public health research network." Available raw epidemiologic surveillance data offer excellent research opportunities, he explains, and should be exploited more efficiently with two main objectives in mind: to attain a better general understanding of infectious diseases, and to create a very necessary—and currently absent—"organizational setup for international cooperation." Leung concludes that without creating and sustaining robust public health research systems, efforts to halt the next emerging or reemerging disease will assuredly fail.

This book was written with two equally important audiences in mind: practitioners and researchers. The first audience comprises health policymakers, public health specialists, and public health practitioners. For these readers, the volume offers useful discussions of health policy formulation and analyses of policy implementation problems in the context of epidemics and other health crises, possible approaches to crisis prevention, and lessons to be learned from the management of past and current health crises in various countries. The second audience comprises medical sociologists and other social scientists who study the socio-behavioral dimensions of health and illness. The book speaks to this group because it identifies and discusses knowledge gaps, offers analytical frameworks, poses significant research questions, and provides data and an extensive review of relevant literature. Finally, the authors hope that this book illustrates the potential for fruitful collaboration between medical and social scientists in the governance of epidemics and may be used as a reference text in graduate courses on public health and medical sociology.

References

Annan, Kofi A. "Preface," in *2006 Report on the Global AIDS Epidemic*, ed. UNAIDS (**Joint United Nations Programme on HIV/AIDS**). Geneva: UNAIDS, 2006, viii.

Barry, John M. *The Great Influenza: The Epic Story of the Deadliest Plague in History*. New York: Penguin Books, 2004.

Brès, P. *Public Health Action in Emergencies Caused by Epidemics: A Practical Guide*. Geneva: World Health Organization, 1986.

Doll, Lynda S., and David R. Holtgrave. "The HIV/AIDS Prevention Research Synthesis Project: Implications for Federal HIV Prevention Policy." *Journal of Acquired Immune Deficiency Syndromes* 30 (2002): S130–S133.

Fleming, Scott, and Mike McNamee. "The Ethics of Corporate Governance in Public Sector Organizations: Theory and Audit." *Public Management Review* 7, no. 1 (2005): 135–44.

Harrington, John A. "The Instrumental Uses of Autonomy: A Review of AIDS Law and Policy in Europe." *Social Science & Medicine* 55 (2002): 1425–34.

Hedges, Larry V., Wayne D. Johnson, Salaam Semaan, and Ellen Sagolow. "Theoretical Issues in the Synthesis of HIV Prevention Research." *Journal of Acquired Immune Deficiency Syndromes* 30, Supplement 1 (2002): S8–S14.

Heiser, Victor. *Millions of Patients: What the League is Doing for the World's Health*. Chicago: The League of Nations Association, 1937.

Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi. *Governance Matters III: Governance Indicators for 1996–2002*. Washington, DC: The World Bank, 2003 <http://www.worldbank.org/wbi/governance/govdata2002> Accessed January 30, 2006.

Kristof, Nicholas D. 2006 "Race against Death," *New York Times*, June 4, 2006 <http://www.nytimes.com> Accessed January 25, 2006.

MacMahon, Sandra V. *Epidemics as Catalysts in the Development of Public Health Care Systems: San Francisco, California, 1854–1930*. Master's thesis. San Jose, CA: Department of History, San Jose State University, 1991.

Marks, Geoffrey, and William K. Beatty. *Epidemics*. New York: Charles Scribner's Sons, 1976.

Morin, Stephen F. "Early Detection of HIV: Assessing the Legislative Context." *Journal of Acquired Immune Deficiency Syndromes* 25 (2000): S144–S150.

Newson, Linda A. "Conquest, Pestilence, and Demographic Collapse in the Early Spanish Philippines." *Journal of Historical Geography* 32 (2006): 3–20.

Quah, Jon S.T., ed. *Governance, Accountability and Administrative Reform in Asian Countries*. Singapore: Marshall Cavendish Academic, 2006.

———. "Administrative Reform and Governance in Singapore," chapter 9 in *The Repositioning of Public Governance*, ed. G. Caiden and T. T. Su (Taipei: Taiwan Public Affairs Center, National Taiwan University, 2007.)

Rafei, Uton Muchtar. 2000. "Communicable and Non-communicable Diseases." Geneva: World Health Organization Speeches, 2000 <http://www.whosea.org/en/section980/section1162/section1167/section1171-4783.htm> Accessed January 5, 2006.

Rosenberg, Charles E. *Explaining Epidemics and Other Studies in the History of Medicine*. Cambridge: Cambridge University Press, 1992.

Rutherford, George W., Sandra K. Schwarcz, and William McFarland. "Surveillance for Incident HIV Infection: New Technology and New Opportunities." *Journal of Acquired Immune Deficiency Syndromes* 25 (2000): S115–S119.

Sanders, Gillian D., Ahmed M. Bayoumi, Vandana Sundaram, S. Pinar Bilir, Christopher P. Neukermans, Chara E. Rydzak, Lena R. Douglass, Laura C. Lazzeroni, Mark Holodniy, and Douglas K. Owens. "Cost-effectiveness of Screening for HIV in the Era of Highly Active Antiretroviral Therapy." *New England Journal of Medicine* 352, no. 6 (February 10, 2005): 570–85.

Smith, Southwood. *The Common Nature of Epidemics, and Their Relation to Climate and Civilization*. Philadelphia, PA: J.B. Lippincott, 1866.

Society of Philippine Health History. "Health in the 1900s: The Epidemic Years." Manila: Department of Health, 2004a <http://www.doh.gov.ph/sphh/1900.htm>. Accessed May 8, 2005.

———. "Health in the 1910s: American Public Health Initiatives." Manila: Department of Health, 2004b <http://www.doh.gov.ph/sphh/1910.htm>. Accessed May 8, 2006.

Stover, Ellen, and Louis Steinberg. "Early Detection of HIV: Implications for Prevention Research." *Journal of Acquired Immune Deficiency Syndromes* 25 (2000): S93.

UNAIDS (Joint United Nations Programme on HIV/AIDS). *Intensifying HIV Prevention. UNAIDS Policy Position Paper*. Geneva: UNAIDS, 2005.

United Nations Development Program (UNDP). *Reconceptualising Governance*. New York: UNDP Discussion Paper 2, 1997.

Wills, Christopher. *Plagues: Their Origin, History and Future*. London: Harper Collins, 1996.

World Health Organization (WHO). *SARS: How a Global Epidemic Was Stopped*. Geneva: WHO Western Pacific Region, 2006.

Quah, Stella R. (2007a) "Governance of Epidemics: Is there reason for concern?". In S.R. Quah, ed., Crisis Preparedness: Asia and the Global Governance of Epidemics. Stanford: APARC and Brookings Institution, pp. 11-23. Quah, Stella R. (2007b) "On Trust and Health Consensus-building in the Governance of Epidemics". In S.R. Quah, ed., Crisis Preparedness: Asia and the Global Governance of Epidemics. Stanford: APARC and Brookings Institution, pp. 113-133. Quah, Stella R. (2008) "Management of Epidemics". WHO develops global strategies for the prevention and control of epidemic-prone diseases, such as yellow fever, cholera and influenza. With partners from a wide range of technical, scientific and social fields, WHO brings together all globally available resources to counter these high-threat infectious hazards and scale these strategies to regional and country levels. Flagship global strategies include: the Eliminate Yellow Fever Epidemics strategy 2017- 2026; Ending Cholera: a Global Roadmap to 2030; the Pandemic Influenza Preparedness (PIP) Framework; and. the Global Strategy for Influenza 2018-2030. WHO is also the... The Intergovernmental Panel on Climate Change (IPCC) has organized many of the risks of climate change into five "reasons for concern." The reasons for concern show that these risks increase with increases in the Earth's global mean temperature (i.e., global warming). The IPCC's five reasons for concern are: threats to endangered species and unique systems, damages from extreme climate events, effects that fall most heavily on developing countries and the poor within countries, global aggregate...