Look But Don't Touch: Overemphasis on Surveillance in Analysis of Outbreak Response

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Frank L. Smith

Most literature about global health governance assumes that surveillance is the most important public health function during pandemics and other transnational outbreaks. This paper challenges that assumption and argues public health actions like medical treatment and infection control are far more important. However, global governance focuses on surveillance and reporting by the World Health Organization, and since most literature sees intrinsic value in global governance, it overemphasizes the significance of surveillance as a global public good. In contrast, this paper suggests that surveillance is a luxury good; demonstrates that global governance through surveillance had little effect during SARS, H5N1, or H1N1; and recommends refocusing the analysis of outbreak response on action rather than information.

INTRODUCTION

Voyeurism is vogue during pandemics and other transnational outbreaks. Global governance, for instance, focuses almost exclusively on watching outbreaks of infectious disease through surveillance and reporting by the World Health Organization (WHO). Most literature about global health governance likes the idea of watching as well. "Without question, the most important public health function is surveillance," at least according to Fidler and Gostin.[1] The first part of this statement is certainly correct – the significance of surveillance is rarely questioned in the analysis of outbreak response. Yet whether surveillance is, in fact, the most important public health function is an entirely different issue.

This paper will question what most literature about global health governance assumes to be true about the significance of surveillance. Contrary to conventional wisdom, it argues that surveillance is not the most important aspect of outbreak response – far more consequential are public health actions that actually treat the sick and control the spread of infection. Although global governance focuses on surveillance, this does not mean that surveillance is intrinsically valuable. Nevertheless, most literature is normatively biased in favor of global governance, and as a result, it tends to overemphasize surveillance and neglect more important public health actions like medical treatment and infection control.

In order for surveillance to be useful, the information it provides must be coupled with medical treatment and infection control. Therefore, supply and demand for these complementary goods and services complicates the claim that surveillance is a global public good and suggests instead that it is best described as a luxury good. In addition, the empirical evidence indicates that state and local governments often fail to comply with global governance through surveillance,

and even when they do, compliance often fails to produce goods and services of substantial value for outbreak response.

This paper proceeds as follows. First, it will summarize the content of global governance and its emphasis on surveillance during transnational outbreaks. The normative bias in literature about global health governance is considered next, along with the definition of surveillance. This paper then qualifies the common assumption that surveillance is a global public good, and finally, discusses the lack of consequence and compliance with global governance through surveillance during outbreaks of Severe Acute Respiratory Syndrome (SARS), H5N1 influenza, and H1N1 influenza. Since a voyeuristic "look but don't touch" approach to global governance through surveillance is less significant than most literature suggests, the analysis of outbreak response should refocus on the politics that drive public health action.

GLOBAL GOVERNANCE AND (RE)DEFINING SURVEILLANCE

How does global governance attempt to govern pandemics and other transnational outbreaks? If global governance is defined as transnational rules, regulations, and recommendations, then WHO provides global governance during disease outbreaks, primarily through its International Health Regulations (IHR).[2] First adopted in 1951, these regulations consolidate a series of previous conventions about sanitation and public health in the context of international trade and travel.[3] Consequently, "the purpose of the International Health Regulations is to ensure the maximum security against the international spread of diseases with a minimum interference with world traffic."[4]

The primary mechanism chosen to maximize security while minimizing interference was disease surveillance, coupled with reporting by WHO. Initially, the IHR only required states to monitor and report outbreaks involving a short list of communicable diseases. They contained no additional rules regarding outbreak response beyond surveillance and reporting, other than the requirement that states maintain basic public health facilities at international seaports and airports. Beginning in 1995, these regulations underwent substantial reform, resulting in the revised IHR adopted by the World Health Assembly in 2005. They now require states to report any public health event of potential international concern, as well as authorize WHO to address surveillance information collected by unofficial sources and declare a "public health emergency of international concern."[5] The revised IHR also require states to develop response capabilities, but like the original regulations, the overwhelming emphasis remains on collecting and reporting surveillance information (e.g. Articles 5 through 12) rather than response or intervention (e.g. Article 13).[6]

Thus international treaty law focuses almost exclusively on surveillance and reporting. The same is true for global governance through customary programs like the WHO Global Influenza Surveillance Network (GISN). Since 1952, GISN has helped monitor the flu and identify the particular strains of virus that states and industry then use to manufacture vaccines.[7] Several other surveillance programs emerged more recently with the advent of the Internet, including the Global Public Health Intelligence Network and ProMED. In order

to draw on the information reported by these and other sources, WHO formally established its Global Outbreak Alert and Response Network (GOARN) in 2000.[8] Even though GOARN contains the word "response" in its name, however, it still stresses surveillance due to its limited capacity. GOARN's primary response is to verify surveillance information, after which it may provide state governments with technical advice but little material aid (usually consisting of small teams deployed for short periods of time).

Given the prominence of surveillance in global governance, it is not surprising that surveillance is also addressed in the analysis of outbreak response – as it should be, to some extent. Yet in doing so, most literature about global health governance tends to overemphasize the importance of surveillance and reporting by WHO (for example, through countless accounts of the revised IHR). This overemphasis is due in part to a normative bias in the literature, manifest in what Ricci refers to as its "commitment to the concept of a post-international framework."[9] Simply put, global governance is assumed to have intrinsic value. Since most transnational rules, regulations, and recommendations regard surveillance and reporting, these goods and services are assumed to have intrinsic value by association.

In short, most literature about global health governance draws on social constructivism and focuses on ideational factors, such as supposedly global norms about human rights to health, as well as independent action by non-state actors like WHO.[10] Global governance is normatively appealing from this perspective because it is seen to represent a recent and radical change in international relations that can correct the longstanding neglect of public health by state and local governments. In contrast, this literature shuns realism, which focuses on national power and self interest, since realist theory provides pessimistic predictions that are normatively unsatisfying.

The normative bias favoring global governance is shared by proponents and critics of surveillance alike, as demonstrated in debate over the "securitization" of infectious disease. Note that securitization is an application of social constructivism, in which speech acts are said to cause problems like infectious disease to become security threats.[11] (In contrast, such rhetoric is epiphenomenal according to realism). Proponents of surveillance argue that the rhetorical link between security and disease is beneficial because it places greater emphasis on the revised IHR and therefore helps increase global governance by WHO.[12] Critics also favor increasing global governance, concede that securitization placed greater emphasis on surveillance, and rarely challenge the assumption that surveillance actually works during pandemics and other transnational outbreaks. Instead, they argue that surveillance does little to fight the endemic diseases that impose the greatest burden on mankind, particularly in the developing world. The emphasis on security through surveillance is therefore seen to distort public health priorities in favor of wealthy states and undermine what critics like Calain assume to be the otherwise inherent and valuable "impartiality and independence of the WHO."[13]

Since both sides of this debate assume that global governance is valuable and acknowledge that it focuses on surveillance, the literature as a whole overemphasizes the significance of surveillance simply because WHO is involved.

However, the implicit assumption that surveillance is necessary or sufficient for outbreak response reflects a partial definition of the term. Although neglected in literature that reveres global governance, action is integral to the definition of surveillance:

> Public health surveillance is the ongoing, systematic collection, analysis, interpretation, and dissemination of data regarding a health-related event *for use in public health action* to reduce morbidity and mortality and to improve health.[14]

In other words, the information provided by surveillance is only relevant when it is acted upon to treat the sick or control the spread of infection. These actions differ from surveillance, so it possible to watch an outbreak and yet not intervene (i.e. look but don't touch). Nevertheless, such inaction defeats the primary purpose of surveillance, by definition.

It should be obvious that the information provided by surveillance is no substitute for public health action. However, the importance of action is lost in literature about global health governance because WHO can only collect, analyze, interpret, and disseminate data – it has very little capacity to actually provide medical treatment or control the spread of infection. Consequently, surveillance and reporting tend to be overemphasized and treated as if information alone constitutes a substantive or even sufficient response to transnational outbreaks.

When divorced from action, this overemphasis on surveillance undermines the analysis of outbreak response. Granted, surveillance plays a prominent role in public health, which differs in many respects from clinical care. For its part, public health focuses on populations rather than individuals, and to a lesser extent, prevention rather than therapy (although this distinction blurs in the case of communicable disease). Yet surveillance is not synonymous with public health; nor is it the most important aspect of outbreak response for the sick and susceptible.

Overemphasis on surveillance also reflects a selective recollection of history. On the one hand, surveillance has long been a core tenet in the practice of public health in the United States and Europe.[15] On the other hand, surveillance has not always been necessary to fight infectious disease. For example, consider the initial use of surveillance by the U.S. Centers for Disease Control and Prevention (CDC) in 1949. CDC started surveillance in order to confirm the effect of action already taken to control malaria in the United States during World War II – not as a necessary prerequisite for public health action. As it turned out, malaria had been successfully eliminated in the U.S. long before surveillance was even initiated.[16] In addition, many of the greatest gains in public health history have been made through improvements to sanitation, independent of surveillance.

None of this is to say that surveillance is irrelevant – only that its necessity and sufficiency are implicitly overstated when divorced from consideration of public health actions like medical treatment and infection control. Just because surveillance is addressed by transnational rules, regulations, and recommendations like the IHR does not make it intrinsically valuable,

notwithstanding the normative bias in literature about global health governance. The significance of surveillance must be demonstrated (not assumed), and considered in conjunction with public health actions to reduce morbidity and mortality. Yet even if surveillance proves to be neither necessary nor sufficient for outbreak response, it is still desirable. How desirable, and for whom, is considered next.

GOOD, BUT NOT GREAT: SURVEILLANCE AS A GLOBAL PUBLIC GOOD

Given its normative bias, the literature about global health governance treats surveillance and reporting as if the information that WHO provides is a global public good of great value. For example, Fidler argues that surveillance is a global public good, and similarly, "without an effective WHO, the operation of global health governance and the production of global/regional public goods for health would not be possible."[17] Ruger and Yach make comparable claims, and according to Zacher,

> [because] health risks anywhere can pose a threat everywhere... the knowledge generated through international health surveillance has an important public goods dimension.[18]

What are public goods? In their purest form, public goods consist of goods and services that are both non-rival and non-excludable. Non-rival means that one person's use of the good or service does not prevent others from using it as well. Non-excludable means that use cannot be withheld or denied, even if those consuming the good or service are unwilling or unable to pay for it. While these are relative rather than absolute attributes, they are often depicted as distinct categories in a 2x2 table (as seen in Figure 1), with the greatest contrast drawn between public and private goods.

Figure 1: The Classic Typology of Different Goods and Services

	Excludable	*Non-Excludable*
Rival	PRIVATE GOODS (e.g. food)	COMMON GOODS (fish stocks in the ocean)
Non-Rival	CLUB GOODS (cable television)	PUBLIC GOODS (lighthouses, national defense)

Because public goods are non-excludable, consumers can use them without paying their share of the cost. As a result, everyone is tempted to free ride on the contributions of others and no one has a strong incentive to provide the good or service, even though all would benefit. This collective action problem is particularly acute for global public goods, which are non-rival and non-excludable across national and regional borders.[19] Here the provision of public goods is further complicated by anarchy and thus the lack of an overarching authority that can force international consumers to pay (as national governments can do domestically through taxes, conscription, and other mechanisms).

According to most literature about global health governance, however, non-state actors like WHO help coordinate collective action during transnational outbreaks by reporting the information collected through surveillance, and in doing so, provide a global public good that no single state could supply.

But is the information provided by surveillance and reporting really a global public good? In principle, information can be both non-rival and non-excludable (when widely reported), which supports the common conclusion that surveillance and reporting by WHO are global public goods. Yet, recall that the information provided by surveillance and reporting requires medical treatment and infection control in order to be useful for outbreak response. Unlike information, many of these complementary goods and services are excludable and rival, or some combination thereof.

This fact, namely that surveillance requires complements which are not public goods, complicates the claim that information provided by surveillance is a global public good of great value. More often than not, however, this qualification only receives partial or cursory consideration in the literature about global health governance. For example, Fidler acknowledges that "to be a public good... information has to be useful for those consuming it," but then he suggests that the barrier to utility is the quality of surveillance information itself; not the complementary goods and services required for action.[20] Such an emphasis on information rather than action neglects the fact that even perfect information is no substitute for the ability to act upon it.

For their part, Smith and Woodward acknowledge that surveillance requires complements like vaccination in order to be useful, and some of these goods and services are also excludable, "turning what is otherwise a [global public good of information] into a club good."[21] This is only partially correct. While exclusive access to services like vaccination would turn surveillance information into a club good, vaccines and others drugs are also rival and therefore private goods due to their limited supply – limits which stand to be severe during pandemics (given high demand). For instance, consuming one dose of a vaccine prevents someone else from consuming that same dose. Although immunization has positive externalities like herd immunity that are non-rival, the expected benefits are still concentrated or localized within those individuals and communities that consume the vaccine and yet diminished or denied to those who do not. Limited supply means that other goods and services involved with medical treatment and infection control are rival as well.

Consequently, surveillance starts to look less like a global public good and more like a private good, at least in its effect during transnational outbreaks. In addition to being rival and excludable, many of the complements and inputs to surveillance are also costly to provide and maintain. All public goods are not equal in this respect.[22] For example, consider a lighthouse and national defense, which are classic examples of public goods. In theory, they both provide benefits that are non-excludable and non-rival. Yet a lighthouse is relatively cheap and easy to maintain once built. The hazards it guards against (e.g. rocks) are static, and for the most part, maintenance consists of changing an occasional light bulb. As a result, the public good that a lighthouse provides for maritime navigation is not particularly costly to maintain.

In contrast, the public good of national defense is expensive to maintain because a military requires constant upkeep and investment in order to defend against adaptive threats. The threat of infectious disease is also dynamic, and as a consequence, many of the public goods associated with outbreak response resemble national defense more than a lighthouse. Granted, it may be cheap to maintain herd immunity (or in the extreme case, eradication) against a particular pathogen, but surveillance guards against emerging infectious diseases that have not been fully eradicated or contained, by definition, and therefore it monitors a dynamic arms race between a range of adaptive pathogens and hosts. Like military hardware and training, many of the complements and inputs needed to provide and use surveillance are also expensive. For example, vaccines are one of the best tools available for infection control, but the threat of emerging infectious disease requires constant investment in vaccine research, development, and acquisition. The same is true for antibiotics and antiviral drugs, as well as some inputs to surveillance like advanced technology for detection and diagnosis.

Surveillance is therefore expensive when the costs of its inputs and complements are considered, regardless of whether it is treated as a global public good. One might even speculate further and suggest that surveillance resembles a luxury good. Surveillance would be a luxury good if demand for information increases disproportionate to an increase in income. While a formal analysis of the elasticity of demand for surveillance and its complements is beyond the scope of this paper, there are good reasons to suspect that this might be the case. After all, given scarcity and a choice between goods and services, consumers (including state and local governments, as well as sick and susceptible individuals) probably prefer medical treatment and infection control over surveillance and reporting, since treatment and control can be used even in the absence of accurate information. The reverse is less true. While this trade-off becomes absurd in the extreme (i.e. perfect treatment and control but no information, or vice versa), the suggestion that surveillance is a luxury good still stands because it is only useful when more basic demands have already been met.

Luxury goods and public goods are not mutually exclusive categories. In other words, even if surveillance is treated as a public good, it can still be a luxury good that disproportionately benefits wealthy states, as argued by critics like Calain. Consequently, surveillance and reporting by WHO can be global public goods and yet have little or nothing to do with supposedly global norms about human rights to health, although some literature suggests otherwise.[23] Instead, as Barrett observes,

> We should not be surprised that only *some* global public goods help the worst off people, for few if any are provided specifically for this purpose... global public goods are provided by and for better off countries.[24]

THE EMPIRICAL RECORD: NON-COMPLIANCE AND LIMITED BENEFIT

The preceding analysis highlights some of the theoretical problems with placing undo emphasis on surveillance. But does global governance through surveillance actually work during pandemics and other transnational outbreaks? The short answer is no. First, key states often fail to comply with transnational rules, regulations, and recommendations regarding surveillance and reporting. Second, compliance often fails to produce goods and services of substantial value. Both non-compliance and the limited benefit of global governance through surveillance were apparent during the SARS outbreak, H5N1 influenza, and H1N1 pandemic, each of which is briefly summarized below.

2003 SARS Outbreak

According to conventional wisdom, WHO's response to SARS represents the epitome of effective global governance through surveillance and reporting. This conclusion does not withstand closer scrutiny, but the basic facts about the outbreak are well documented. SARS first emerged as an atypical and occasionally fatal pneumonia in China that eventually spread to several other countries in early 2003, including Taiwan, Canada, Singapore, and Vietnam. Fortunately, the spread of infection was quickly controlled and SARS was effectively eliminated less than a year after the outbreak began. Nevertheless, more than 8,000 people were infected worldwide and almost 800 died.[25]

Based on its surveillance data, WHO issued a series of unprecedented global alerts and travel advisories to help control the spread of SARS. However, a handful of alerts and advisories is hardly sufficient proof of effective global governance. Though unprecedented for WHO, these alerts and advisories were in fact rather innocuous. For example, the "emergency travel advisory" that WHO issued in March 2003 was the first of its kind, but it did not actually recommend restricting travel to any location.[26] Indeed, WHO did not start advising against non-essential travel to places where SARS was spreading until after government authorities in the United States and elsewhere had issued their own warnings.[27] As a result, it is difficult to distinguish the effect of WHO alerts and advisories from similar warnings issued by states and neither represents a particularly effective response to the outbreak, since SARS continued to spread.

WHO also reported surveillance information and helped mobilize the world's medical and research community to identify and contain SARS.[28] While WHO served as a useful information clearinghouse in this respect, information alone did not translate into public health action. For example, the research community quickly characterized the SARS virus and yet this information played little role in providing medical treatment, which was limited to supportive care that WHO had little capacity to deliver (despite GOARN). In addition, WHO reporting on surveillance information was often tangential to infection control, notwithstanding its global alerts and travel advisories. Infection control relied almost exclusively on public health action by state and local governments. This was particularly true for China, which suffered the greatest incidence of SARS

and eventually launched a surprisingly effective infection control campaign, but often failed to conform to WHO recommendations.[29]

Finally, WHO pressured China to stop lying about SARS and report accurate surveillance information, and according to Fidler, the Chinese government buckled in response.[30] In brief, China failed to report the initial outbreak to WHO and then lied about the prevalence of SARS. WHO officials eventually accused the Chinese government of underreporting SARS during a news conference on April 16, and shortly thereafter, the Minster of Health and the mayor of Beijing were fired and China started to report more realistic data.[31] The timing of this policy shift is therefore seen to suggest that global governance through surveillance and reporting by WHO superseded Chinese sovereignty during this outbreak.

Yet it is doubtful that "naming and shaming" by WHO was the decisive factor in changing Chinese policy. Domestic pressure inside China to acknowledge SARS was at least as significant as international pressure to cooperate with WHO – as demonstrated by a prominent physician and member of the Chinese Communist Party, who chastised his government for lying about SARS in early April.[32] More important, China's leaders were preparing for a policy shift more than a week before naming and shaming by WHO officials. First, the director of China's Center for Disease Control apologized for failing to inform the public on April 4, and a few days later, Premier Wen Jiabao visited the Center and reportedly "said it was wrong that the military was not reporting cases of SARS... we have to start telling the truth."[33] Premier Wen and President Hu Jintao then organized a series of meetings with senior officials about ending the cover up. Finally, while Hu visited Guangdong (where SARS first emerged), Wen "chaired an emergency meeting of the State Council [on April 13]... and warned that the country's economy, international image and social stability could be affected." [34] This evidence suggests that the Chinese government was changing policy on its own accord.

WHO pressure was therefore insufficient to change the behavior of powerful states like China. Moreover, states like Canada changed the global recommendations issued by WHO, despite countervailing surveillance data about SARS. In April, WHO recommended against non-essential travel to Toronto through an advisory that was to remain in place for at least three weeks.[35] However, political pressure from Canada caused WHO to prematurely lift this travel advisory in less than a week, even though SARS continued to spread in Toronto (where cases were on the rise again by early May).[36]

In sum, much of the response to SARS was driven by the politics associated with national power and self interest rather than global governance through surveillance. Although WHO served as a useful clearinghouse for reporting surveillance information, this information was often uncoupled from medical treatment and infection control. Treatment and control were the most important public health actions during this outbreak, but they were governed by state and local governments rather than transnational rules, regulations, and recommendations.

H5N1 ("bird flu")

Whereas SARS was a previously unknown infectious disease, pandemic influenza is a recurring threat. H5N1 has not caused a pandemic as of yet, but it is a highly pathogenic avian influenza with a frightfully high case fatality ratio of almost 60 percent in humans.[37] The prospect of such a lethal virus causing a pandemic has raised the specter of the infamous 1918 Spanish flu and prompted a lot of talk about surveillance and global governance, ever since H5N1 made its first tentative but deadly steps across the species barrier in 1997.

WHO regularly reported surveillance information about H5N1 since 2004, increasingly with the added authority provided by the revised International Health Regulations. Likewise, GISN helped coordinate surveillance of H5N1 by collecting and analyzing samples of the virus, as it has done for decades with the seasonal flu. While GISN served as a focal point for coordination, however, it also became a flashpoint for conflict over how the benefits of surveillance should be distributed among states. This distributional conflict prompted non-compliance with global governance in the face of a potential pandemic and highlighted the shortcomings of surveillance as a global public good.

In short, Indonesia stopped sharing its virus samples with GISN because they were being passed on to pharmaceutical companies that could then profit from drugs sold at Indonesia's expense.[38] Like China's resistance to reporting SARS, Indonesia's defection from GISN was particularly problematic for global governance through surveillance because Indonesia suffered the most cases of H5N1, as well as the most virulent strain of the virus. Nevertheless, the Indonesian government decided that the costs of cooperating with GISN outweighed the benefits. Since December 2006, Indonesia has refused to share its samples of H5N1 though GISN, until and unless WHO reforms the way it transfers these virus samples so as to ensure equitable access to vaccines and other important benefits.

The debate over benefit sharing would be strange if surveillance was a pure public good, with truly non-rival consumption and non-exclusive benefits. However, this distributional conflict demonstrates that the benefits of surveillance are not manifest in the information itself, but rather the ability to act on the information using complementary (and sometimes private) goods and services for medical treatment and infection control – particularly vaccines and antiviral drugs. Similarly, the relative priority that Indonesia assigned to these different goods and services suggests that surveillance is less important than its complements and it behaves like a luxury good. Since compliance with global governance through surveillance failed to supply more substantial goods and services, Indonesia stopped complying. In addition to its defection from GISN, for example, Indonesia has also delayed reporting human deaths from H5N1 and therefore violated the IHR.[39]

H1N1 ("swine flu")

For years, H5N1 was thought to be the virus most likely to cause the next influenza pandemic, but H1N1 struck first. Human cases of H1N1 were first identified in Mexico and the United States in April 2009, after which the virus quickly spread around the world. Since the H1N1 pandemic is ongoing, any conclusions drawn from it are inherently tentative. As was the case with H5N1 and SARS, however, preliminary evidence about H1N1 suggests that several states failed to comply with global governance through surveillance, and with few exceptions, compliance failed to produce goods and services of substantial value.

On the one hand, surveillance worked, at least in the sense that H1N1 was eventually detected by state governments and subsequently reported by WHO. Likewise, there do not appear to have been any significant defections from GISN, and most important, the virus samples collected through this surveillance program helped states and industry develop effective vaccines. These are notable benefits (though they may have been available even without the revised IHR).

On the other hand, H1N1 probably appeared in humans months before the virus was first detected – despite its emergence inside or next door to the United States, which has some of the best surveillance capabilities in the world.[40] This delay undermines the assumption that surveillance can reliably provide early warning in advance of transnational outbreaks.[41] For its part, Mexico cooperated with GISN and shared its virus samples, but was then dissatisfied with the benefits it received in return. As a result, the Mexican government has now voiced concerns, similar to Indonesia regarding H5N1, about its need for more substantial goods and services (namely vaccine) in order to benefit from surveillance.[42]

In addition, several other states failed to comply with the surveillance and reporting requirements enshrined in the IHR during the H1N1 pandemic. Not only do these regulations require states to notify WHO when an outbreak is initially detected; they also require them to "continue to communicate to WHO timely, accurate and sufficiently detailed public health information."[43] Yet Britain and Spain refused to aggressively look for H1N1 or report timely and accurate information. [44] Nevertheless, they were not vilified to the same extent that China was for similar behavior regarding SARS. As was true during SARS, however, WHO reporting on surveillance information had little effect on medical treatment and infection control in the early days of this outbreak. Instead, states adopted a wide variety of dubious measures for controlling infection and distributing drugs, contrary to WHO recommendations. Due to political pressure from powerful states, WHO also failed to abide by its own surveillance data and thus delayed the decision to declare a pandemic for weeks after H1N1 had spread past the threshold for this declaration.[45]

In sum, the information provided by surveillance was often uncoupled from medical treatment and infection control in the early days of the H1N1 pandemic – precisely when surveillance is typically assumed to be most useful. Perhaps the most tangible benefit of surveillance was the role that virus samples played in developing effective vaccines, but this benefit was not apparent until several months after the pandemic began. Even then, vaccines and most of the

benefits derived from them were both excludable and rival. Compliance with global governance through surveillance often failed to produce these more substantial goods and services, and as was true during SARS and H5N1, several states failed to comply with transnational rules, regulations, and recommendations regarding H1N1.

REFOCUSING THE ANALYSIS OF OUTBREAK RESPONSE

The significance of surveillance should neither be disregarded nor overemphasized. Just because transnational rules, regulations, and recommendations focus on surveillance and reporting does not mean the information they provide is intrinsically valuable as a global public good, or that surveillance is the most important public health function in the aftermath of an outbreak. Simply put, information is no substitute for action, and since action requires satisfaction of more basic demands for complementary goods and services, surveillance probably behaves like a luxury good. Unfortunately, the normative bias found in most literature about global health governance predisposes it to exaggerate the importance of surveillance and neglect more important public health actions such as medical treatment and infection control.

Overemphasis on surveillance is not only analytically unjustified and empirically inaccurate; it also lends itself to surprisingly apolitical assessments of outbreak response. Rarely, if ever, does technical information of the sort provided by surveillance fully determine important decisions about public policy – particularly in the politically charged atmosphere around pandemics and other transnational outbreaks. Even if most states delegate some aspects of information collection and reporting to international organizations like WHO, every state still chooses what to do with (or without) this information. Since state and local governments make these inherently political choices about public health action, they ultimately determine the success or failure of outbreak response.

Although less consequential, WHO also makes political choices, as demonstrated by its decisions to delay declaring H1N1 a pandemic in 2009 and prematurely lift the travel advisory against Toronto for SARS in 2003. Surveillance therefore fails to fully explain policy even within this ostensibly technical agency, which further undermines the technological determinism implied by an overemphasis on surveillance. Even under the best circumstances, the information provided by surveillance will still suffer uncertainties and alternative interpretations. Overemphasizing surveillance therefore risks neglecting the politics through which these uncertainties and alternatives are adjudicated, just as it tends to disregard the difference between information and action. However, an analysis of outbreak response that actually addresses the importance of action and politics may identify more opportunities to increase the relevance of global governance than normative theorizing about surveillance alone.

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[1] David P. Fidler and Lawrence O. Gostin, *Biosecurity in the Global Age: Biological Weapons, Public Health, and the Rule of Law* (Stanford, CA: Stanford University Press, 2008), 125.
[2] For different definitions of global governance, see James N. Rosenau, "Governance in the Twenty-First Century," *Global Governance* 1, no. 1 (1995); Daniel W. Drezner, *All Politics Is Global: Explaining International Regulatory Regimes* (Princeton: Princeton University Press, 2007), 11-13.
[3] David P. Fidler, *SARS, Governance and the Globalization of Disease* (New York: Palgrave Macmillan, 2004), 28-34. The IHR were called the International Sanitary Regulations until 1969.
[4] WHO, "International Health Regulations (1969)," (Geneva: 1969): 5.
[5] WHO, "International Health Regulations (2005)," (Geneva: 2008): 1.
[6] In fact, "response" is one of the few keywords used in the revised IHR but not defined in Article 1, unlike other terms such as surveillance. The closest these regulations come to defining response is found in Article 13 and Annex 1, where response is associated with capacity and control.
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[8] WHO, "A Framework for Global Outbreak Alert and Response," (2000); Thomas W. Grein et al., "Rumors of Disease in the Global Village: Outbreak Verification," *Emerging Infectious Diseases* 6, no. 2 (March-April 2000): 97-102.
[9] James Ricci, "Global Health Governance and the State: Premature Claims of a Post-International Framework," *Global Health Governance* 3, no. 1 (Fall 2009): 1.
[10] For an exception that proves this rule, see Andrew T. Price-Smith, *Contagion and Chaos: Disease, Ecology, and National Security in the Era of Globalization* (Cambridge, MA: MIT Press, 2009).
[11] Barry Buzan, Ole Waever, and Jaap de Wilde, *Security: A New Framework for Analysis*, (London: Lynne Rienner, 1998); also see Stefan Elbe, "Should HIV/AIDS Be Securitized? The Ethical Dilemmas of Linking HIV/AIDS and Security," *International Studies Quarterly* 50, no. 1 (March 2006): 119-144.
[12] Fidler and Gostin, *Biosecurity in the Global Age*, 157, 245.
[13] Philippe Calain, "Exploring the International Arena of Global Public Health Surveillance," *Health Policy and Planning* 22, no. 1 (2007): 2-12.
[14] CDC, "Updated Guidelines for Evaluating Public Health Surveillance Systems," *Morbidity and Mortality Weekly Report* 50, no. RR-13 (2001): 2. Emphasis added. Note that Alexander Langmuir, a key proponent of surveillance, initially limited his definition to the collection and dissemination of data (even as he recognized the relationship between surveillance and action such as infection control). Alexander D. Langmuir, "Communicable Disease Surveillance," *Proceedings of the Royal Society of Medicine* 64 (June 1971). However, WHO defined the term more broadly to include treatment and control, and as quoted here, CDC also adopted a definition that explicitly links surveillance with action. See Stephen B. Thacker and Ruth L. Berkelman, "Public Health Surveillance in the United States," *Epidemiologic Reviews*, 10 (1988).
[15] Amy L. Fairchild, Ronald Bayer, and James Colgrove, *Searching Eyes: Privacy, the State, and Disease Surveillance in America* (Berkeley: University of California Press, 2007), 1, 4.
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