Architecture amidst Anarchy: Global Health's Quest for Governance

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Increased concern about global health has focused attention on governance questions, and calls for new governance architecture for global health have appeared. This article examines the growing demand for such architecture and argues that the architecture metaphor is inapt for understanding the challenges global health faces. In addition to traditional problems experienced in coordinating State behavior, global health governance faces a new problem, what I call "open-source anarchy." The dynamics of open-source anarchy are such that States and non-State actors resist governance reforms that would restrict their freedom of action. In this context, what is emerging is not governance architecture but a normative "source code" that States, international organizations, and non-State actors apply in addressing global health problems. The source code's application reveals deficiencies in national public health governance capabilities, deficiencies that are difficult to address in conditions of open-source anarchy. Governance initiatives on global health are, therefore, rendered vulnerable.

INTRODUCTION

The growth in the importance of health in world politics over the past decade constitutes an unprecedented transformation, the implications of which experts are trying to understand and, if possible, manipulate. A prominent and problematic aspect of health's political transformation involves the relationship between health and governance. This relationship is more complex than this article can fully elucidate, so I concentrate on one aspect of the radically changed context of the relationship between the protection and promotion of health and the task of effective and legitimate governance—the growing demand for new governance architecture for global health.

The increased frequency of "governance talk" in global health is, from an international lawyer's perspective, simultaneously fascinating in its novelty and frightening in its familiarity. I have worked on public health issues long enough to appreciate the dramatic change health has undergone in the past decade as an issue in international relations. At the same time, my experiences in other areas of international law and international relations temper my enthusiasm for the transformation global health has experienced.

Many issue areas in world politics today reflect both a perceived need for better governance architectures and frequent failures to achieve governance renovation or reformation. Will the transformation of health as an international political issue produce new, more effective governance architecture for global health, or will the transformation fall victim to the same forces that have deflected or damaged the quests for better governance undertaken in other areas of world politics?

Answering this question requires understanding the context of global health's quest for governance in the early 21st century. Although interest in better architecture for global health governance is currently strong, efforts to renovate governance institutions, processes, and norms transpire in a challenging environment for five reasons. First, talk of governance reform permeates not only global health but also many other areas of international relations. A leading example of the ferment underway concerning governance and international relations involves

reform of the United Nations (UN). The proliferation of reform initiatives is a double-edged sword for interest in new governance architecture for global health. This proliferation highlights the need for better global health governance, but it also forces global health to compete for the limited political and financial capital available for governance renovation efforts.

Second, the demand for new governance architecture for global health reflects changes in how governance occurs in international relations. Governance of global health issues has shifted from a Westphalian to a post-Westphalian context in which both States and non-State actors shape responses to transnational health threats and opportunities. Analysis of the Westphalian approach often emphasizes the impact on governance of the anarchy that prevails among States. Such State-centric anarchy remains a problem for post-Westphalian governance, but the anarchy problem has new features created by the emergence of non-State actors as governance participants. Global health governance reform has, in essence, a new kind of anarchy problem to overcome, a problem I call "open-source anarchy." Open-source anarchy describes anarchy, as a governance space, as accessible to, and shaped by, non-State actors as well as States.

Third, the dynamics of open-source anarchy are such that both States and non-State actors are resistant to governance reforms that would significantly restrict their respective freedom of action. The study of international relations is familiar with States' reluctance to constrain their sovereignty through international law and international institutions. Less well-understood are the consequences of non-State actor preferences for remaining independent of formal structures and processes of government and intergovernmental organizations. Put another way, governing Bill Gates may prove as challenging in its own way as governing the United States in terms of global health.

Fourth, the problems generated by thinking about global health's quest for governance through the architecture metaphor encourage analysis to search for more appropriate analogies. This article utilizes an analogy to open-source software to explain the dynamics of contemporary and future global health governance. The rise of health as a global, political, and governance issue reveals the evolution of global health's normative "source code" and the code's application by States, intergovernmental organizations, and non-State actors to many global health challenges.

Fifth, progress made on global health governance in the context of open-source anarchy confronts the continuing failure of governments within States. This failure is a failure to build and sustain public health capabilities locally and nationally, and interface these activities with global level activities. Global health's new architecturalists want to build governance approaches without adequate foundations existing within countries, especially in developing and least-developed States. The dynamics of open-source anarchy are not well-equipped to address government failure within countries, which leaves governance initiatives on global health, under any metaphor, vulnerable in the short and long term.

GOVERNANCE AND THE ARCHITECTURE METAPHOR

Defining Governance and the Architecture Metaphor

Before analyzing why building new governance architecture for global health is daunting, a few words are in order about what "governance" means and the import of the metaphor "architecture." For my purposes, governance refers to the efforts societies make to organize and exercise political power in response to challenges and opportunities they face. Although

governance occurs at different levels of political organization (e.g., local, national, and international), governance activities involve substantive goals—ends the societies want to achieve,—and procedural mechanisms—how the societies organize the pursuit of their goals. The substantive goals and procedural mechanisms combine to give structure to governance activities.

The architecture metaphor plays off the reality that governance involves crafting ways to achieve political interests and values. The metaphor is appealing because the architect integrates conceptual statements or values (e.g., post-modernism) with practical limitations created by the costs of construction and the forces of nature. At its best, architecture is functional vision. Architecture should not only serve a practical purpose but also support or express deeper interests and values informing its creation, if not its use.

The architecture metaphor frequently appears in discourse on international relations and international law. The international financial and economic institutions established at the end of World War II have often been described in architectural terms. The financial crisis precipitated by events in Asia in 1997–98 led to many calls for revising the "international financial architecture."[1] I use the architecture metaphor to explain the policy purposes and legal rules of the General Agreement on Tariffs and Trade (GATT) through what I call the "House that GATT Built."

The Governance Paradox of "Unstructured Plurality"

Use of the architecture metaphor in discourse on global health governance reveals frustration with how such governance functions. We cannot identify the "House that WHO Built" amidst the diversity of global health activities currently underway within States, intergovernmental organizations, and under the auspices of non-State actors. Reflecting on the influx of new actors and approaches into global health, the Dean of the Harvard School of Public Health argued that "there's one missing piece. There's no architecture of global health."[2]

The Dean is not alone in using the architecture metaphor in connection with the contemporary reality of global health. The conference report of the Open Society Institute Seminar on Global Health Governance, held in December 2005, identified the need to find "[s]trategies to develop a new architecture of global health governance."[3] In February 2006, the German Overseas Institute, in cooperation with the World Health Organization, sponsored a workshop entitled "Defining and Shaping the Architecture for Global Health Governance."[4] Epstein and Guest argued that a "new architecture for governance" was needed to "constitute the scaffolding to sustain healthy, ecologically sound, and equitable global systems."[5] Calls for a more "holistic approach to the global architecture of health aid" have been made.[6]

The argument that global health activities take place without overarching governance architecture raises something of a paradox. Many experts have noted how health has grown in importance in world politics over the last ten years. The apparent absence of architecture means that health's political rise does not flow from organized and centrally implemented strategies and tactics. Health's current global political profile, *sans* architecture, exceeds what WHO accomplished in the late 1970s with its organized and centrally implemented Health for All initiative. With health experiencing unprecedented global political prominence, we might be tempted to ask: With stature like this, who needs architecture?

The paradox may even be deeper. Perhaps the global political profile of health has increased, in part, because existing architecture for global health ranges from weak to non-

existent. Although perhaps counter-intuitive, the current situation may reveal governance potential in the diversity of actors, interests, norms, processes, initiatives, and funding streams that characterizes global health today. This diversity reflects a situation of "unstructured plurality" in contemporary global health.[7] As explained more below, the phenomenon of unstructured plurality flows from an anarchy problem linked to the growing involvement of non-State actors in international relations.

Despite the fecundity of unstructured plurality, increasing use of the architecture metaphor reveals anxiety about the status quo and different critiques of it. A spectrum of critical views exists, ranging from those who have embraced unstructured plurality but now believe that the energies and possibilities unleashed will not be harvested without more systematic, structured governance to those who consider that the diversity of global health actors, issues, and activities diverts attention and resources away from the core but still neglected problems of public health.

Although diverse in their perspectives of health's rise on global political agendas, the critiques commonly emphasize the need for global health governance to have more structure, direction, and policy coherence. Addressing this need requires rationalization, centralization, and harmonization of governance strategies. New architecturalists sometimes argue that what is required to achieve these ends is a comprehensive summit that draws all the relevant policy strands together and integrates them into a more effective system of governance. In thinking about how to improve governance for sustainable development and global health, Epstein and Guest argued that constructing the needed governance architecture "will require a 'Bretton Woods II' summit—this time with representatives from the economic sector, civil society, scientists, the United Nations, and some government representatives."[8] Similarly, Kickbusch has spoken of the potential need for a "San Francisco II" conference to produce a new global agreement or treaty on global health.[9] Without bringing more order to unstructured plurality, the argument goes, any global health gains achieved or governance potential revealed may not take root in a sustainable manner, and thus appear in hindsight as the fads and fetishes of a feckless global society.

Governance Reform in contemporary international relations: What implications for health's new architecture movement?

A World of Governance Reform

The urge for governance reform in global health is not unique to those interested in public and individual health. In fact, governance reform is a hot issue in many areas of international relations, as illustrated by controversies concerning UN reform. The UN Secretary-General's report on UN reform, *In Larger Freedom*, focused on a number of governance changes he and others at the UN believe are necessary to strengthen the UN's future role in global affairs.[10]

These changes involve conceptual shifts, such as thinking about collective security more broadly than threats of inter-State military violence, and institutional changes, such as expansion of the membership of the Security Council. UN reform debates have also addressed terminating the Human Rights Commission and replacing it with a Human Rights Council. UN reform discussions also consider the need to improve governance of responses to international humanitarian emergencies and governance of global environmental problems.

Outside the UN, the tenth anniversary of the establishment of the World Trade Organization (WTO) in 2005 generated discourse on challenges to the WTO's governance principles and institutions.[11] One of the most serious governance challenges the WTO faces is the erosion of its multilateralism occurring through the proliferation of regional and bilateral trade agreements. The multilateral "House that GATT Built" is turning into a "spaghetti bowl" of preferential trading relationships.[12] The lead-up to the Sixth Review Conference of the Biological Weapons Convention (BWC) in December 2006 is producing analyses on what the BWC's governance contributions to preventing biological weapons proliferation and use will be in an age characterized by the global dissemination of rapid scientific developments and global terrorism.[13]

Although not exhaustive, these examples suggest that the desire for governance reform is widespread, if not epidemic. The proliferation of interest in and proposals concerning governance reform leaves the impression that frustration with the status quo has achieved critical mass. Institutions and governance regimes designed and developed largely after World War II and during the Cold War have increasingly been found wanting in the post-Cold War era. The post-Cold War timing of this increased critical scrutiny of governance makes sense because blaming the Cold War for the failure of international institutions and regimes is no longer possible. We can also sense the lifting of the stifling presence of the superpower conflict on governance thinking through the rise of liberalism and constructivism as challengers to realism and institutionalism in international relations theory.

Implications of the Governance Epidemic for Global Health

The new architecturalists of global health are, thus, in step with many people concerned about the sub-optimal results produced by existing forms of international cooperation. Governance questions with which experts and practitioners of global health are grappling (e.g., how best to integrate non-State actors into governance activities?) find parallels in other areas of international relations, which underscores the importance of the governance talk now heard in global health.

The broader context of governance reform in international relations is important to global health for another reason. For various reasons, health was not a prominent issue in the international politics of the Cold War. Aspects of international health activities, such as WHO's Health for All initiative, exhibited features of the larger ideological conflict shaping international relations; but health was a marginal, neglected area in Cold War governance. The rise of health on global political agendas in the past decade reveals health's emergence as a threat, problem, or challenge across many policy areas, including security, trade, development, environmental protection, and human rights. Health's cross-cutting political presence has made global health governance something of a sentinel area for how governance in international relations develops generally in the early 21st century.

Health's sentinel status for governance reform in contemporary international relations has appeared prominently in discourse on UN reform. Leading documents on UN reform, including the UN Secretary-General's *In Larger Freedom*, highlight the importance of public health to the improved functioning of the global community in the 21st century. The emphasis on public health in UN reform strategies mirrors arguments frequently made in the past decade that public health is central to global political agendas on security, economic relations, development, human rights, and environmental protection.

Viewing the growing interest in governance architecture for global health against the backdrop of the larger ferment on governance in international relations helps us understand the pervasiveness of health as a global governance issue. Public health's importance, in many different governance agendas in world politics today, suggests that it represents an integrated global public good capable of providing strategic benefits in multiple areas and levels of governance. As such, public health itself has emerged as an independent marker of good governance nationally, internationally, and globally.

A leading UN reform document reflected this idea when it argued that improving global disease surveillance was important not only for addressing pathogenic threats but also for "building effective, responsible States."[14] Similarly, the Bush administration has identified effective public health systems as a significant marker for larger governance objectives: "Pandemics require robust and fully transparent public health systems, which weak governments and those that fear freedom are unable or unwilling to provide."[15]

With public health emerging as an integrated global public good relevant to many governance agendas, the architecture metaphor begins to look inapt. The message from health's rise in international politics is that it has escaped, for good reasons, the "House that WHO Built." Health's role in global affairs can no longer be captured politically or analytically through a single governance structure or distinct architectural framework. Such a perspective is anachronistic and fails to appreciate the sea change that health has experienced as an issue in international relations.

FROM OLD-SCHOOL ANARCHY TO OPEN-SOURCE ANARCHY

The architecture metaphor tries to capture the idea that global health activities require more rationalization, centralization, and harmonization in order to protect and promote health more effectively. The metaphor expresses a desire to move away from unstructured plurality to organized unity in global health activities. This desire confronts, however, an anarchy problem; but this problem is different from the anarchy problem international relations experts traditionally address. Understanding the nature of this new anarchy problem reveals obstacles and constraints facing those interested in achieving more organized unity in global health governance.

Old-School Anarchy

Students of international relations are familiar with the problems for collective action presented by the condition of anarchy in which States interact. Anarchy among States makes creation and maintenance of collective action by States difficult. I call this conventional anarchy problem "old-school anarchy" in order to contrast it with the different anarchy problem governance in international relations faces today (see below). Old-school anarchy is classically Westphalian in that it sees States as the only important actors in the dynamics of collective action. In international relations theory, realism and institutionalism focus on old-school anarchy in their respective efforts to elucidate the possibilities and problems of collective action in international relations.

In the context of global health, old-school anarchy has not disappeared. Getting States to pursue effective collective action on health remains difficult for reasons explored in realist and institutionalist theories. The new architecturalists of global health face the constraints on

collective action created by the anarchical condition in which States interact. These constraints make rationalization, centralization, and harmonization of governance activities difficult to achieve.

In old-school anarchy, States prefer to limit restrictions and obligations on their sovereignty in order to retain political flexibility in pursuit of their national interests. Much of the frustration with the Westphalian template of inter-State relations is that it tends to produce limited, sub-optimal collective action on international or transnational problems. Old-school anarchy often results in the opposite of unstructured plurality, namely highly structured paucity in terms of collective action.

Open-Source Anarchy

Old-school anarchy does not, however, entirely capture the governance context global health faces today. A leading characteristic of contemporary governance in global health is the significant role played by non-State actors. Literature on global health is populated with analyses of the governance impact and relevance of multinational corporations (e.g., pharmaceutical companies), non-governmental organizations (e.g., *Medecins Sans Frontieres*), philanthropic foundations (e.g., Rockefeller and Gates Foundations), public-private partnerships (e.g., Global Fund to Fight AIDS, Tuberculosis, and Malaria), and individual issue entrepreneurs (e.g., Jeffrey Sachs and Bono). In fact, non-State actors deliver much of the unstructured plurality present in contemporary global health.

The theoretical and practical significance of non-State actor involvement in world politics is hotly debated in literature on globalization and international relations theory. Central to these debates is the impact of non-State actor participation on the traditional Westphalian framework of international governance. Old-school anarchy is a closed system, confined to State actors. Put another way, old-school anarchy functions under the assumption that governance of anarchy was proprietary to States. Contemporary global health does not operate on the basis of this assumption.

Instead, global health reflects a different kind of anarchy, what has been called "open-source anarchy."[16] Open-source anarchy posits that anarchy, as a governance space, is accessible by States and non-State actors. The concept of open-source anarchy draws on the "open source" movement, manifested in such things as open-source journals or open-source software. The open-source movement contrasts with the traditional proprietary approach to publishing and producing software. For various reasons, ranging from the end of the Cold War to globalization of information technologies, the fundamental defining factor of international relations, anarchy, has become open source and accessible as never before to non-State actors.

Open-source anarchy affects more than global health, and the effects are not necessarily progressive. The terrorist attacks on September 11, 2001, and the on-going war against terrorism illustrate how non-State actors can affect national security in profound and adverse ways. Open-source anarchy means that governance of global affairs is no longer the exclusive or proprietary domain of States. The emergence of open-source anarchy has theoretical and practical implications for governance from local to global levels.

This article is not the place to try to explore these implications comprehensively. Instead, I focus on the impact open-source anarchy has on the desire for new governance architecture in global health. To start, the concept of open-source anarchy creates space for non-State actors to become more directly involved in global health activities. The anxiety related to unstructured

plurality suggests that States and non-State actors may under or over exploit the governance space created by open-source anarchy. Under-exploitation may result from certain health problems becoming marginalized or neglected because States and non-State actors prefer to address other problems. Experts on non-communicable diseases (NCDs) have raised the concern that global health governance does not pay sufficient attention to NCDs because the focus is on communicable disease problems (e.g. the exclusive communicable disease focus of the Millennium Development Goals).[17] NGOs have pointed out that pharmaceutical companies and developed countries neglect many communicable diseases predominantly affecting developing countries.[18]

Over-exploitation may produce a "tragedy of the commons" effect in governance in open-source anarchy. Actors have rational interests to engage in global health activities to serve their own purposes, but the net result of many uncoordinated governance efforts is sub-optimal and perhaps even regressive. The "tragedy of the commons" effect in global health governance is perhaps most visibly present with respect to HIV/AIDS. Complaints are frequently heard, for example, that many countries in sub-Saharan Africa endure serious stress in responding to the avalanche of HIV/AIDS efforts coming from States, international organizations, and NGOs.[19]

The problems of the under- and over-exploitation of the governance space created by open-source anarchy perhaps underscore the new architecuralists' argument that global health governance should become more rationalized, centralized, and harmonized. The process of bringing order to unstructured plurality confronts, however, the resistance of both States *and* non-State actors to have their prerogatives and freedom of action restrained. We are familiar with such resistance from States under old-school anarchy, but those interested in global health governance should not underestimate the wariness with which non-State actors would view attempts to rationalize, centralize, and harmonize their involvement in global health.

Open-source anarchy reveals that the desire for new architecture for global health governance is embedded in an environment that is not conducive to the kinds of governance activities implicated by the architecture metaphor. Behind unstructured plurality are political attitudes that complicate and constrain building organized unity through rationalizing, centralizing, and harmonizing governance architecture. Importantly, the blame for resisting architectural re-design of governance cannot be entirely laid at the feet of States and their jealous guarding of sovereignty. In open-source anarchy, non-State actors embrace their independence and freedom of action as critical weapons in their arsenals. The Gates Foundation will no more march to the tune of WHO than the United States will to the cadence of the UN.

SHIFTING METAPHORS: FROM ARCHITECTURE TO SOFTWARE

The previous two sections contained two arguments concerning why the interest in new governance architecture faces serious problems. First, the rise of health on multiple political agendas in world affairs raises questions about thinking in terms of global health governance as architecture. Second, the dynamics of open-source anarchy mean that attempts to move in the direction of rationalization, centralization, and harmonization face resistance from States and non-State actors, which for different reasons prefer to maintain as much freedom of action as possible. The architecture metaphor reveals a strategy that is conceptually anachronistic and practically unrealistic.

Interest in improving global health governance does not end, however, with skepticism about the architecture metaphor. The reality of the world politics of health may require a

different governance metaphor, one that is more appropriate for where global health finds itself in the early 21st century. In this section, I suggest that we could productively think of the challenges facing global health governance in terms of software and hardware.

Global Health's "Source Code"

The open-source movement again proves useful as an analogy, particularly its promotion of open-source software. Open-source software is software the source code to which anybody can access, use, modify, and improve. Modifications and improvements to the source code are then made accessible for anybody to use, modify, and improve. Iterations of source code adaptations lead to the software's rapid evolution. Open-source software becomes a public good produced and applied by a broad spectrum of people and institutions with diverse interests that improves the more it is used.

Earlier I pointed out the paradox of global health's political importance increasing in the absence of identifiable governance architecture. The paradox is not entirely a story of governance fragmentation. The rise of global health politically reveals a different, non-architectural dynamic at work. This dynamic involves the evolution and diverse application of a "source code" for global health. By source code, I mean the collection of normative policy reasons that drive States, intergovernmental organizations, and non-State actors to pursue the protection and promotion of health in world politics. The appearance of global health on many political agendas demonstrates that the source code for global health governance has dramatically changed through the involvement of new actors, the spread of new ideas, and through diverse applications of the source code in global health activities. The grand challenge for global health governance is getting the source code to run productively in each area of international relations that affects health. The efforts in each area can then affect the evolution of the source code, producing an expanding network of actors, processes, ideas, and initiatives that shape global health governance. As the network expands, the relevance of the source code to global governance generally increases.

The application of a global health source code by the network of actors and institutions involved in global health means that the source code's use mirrors the dynamics of open-source software. Its content and use are not closed or proprietary in nature. Non-State actors access, apply, adopt, and adapt to the source code as readily as States and intergovernmental organizations. Adaptations produced by its use then feed into application and adoption of the source code by other actors in other contexts. Iterations generate a more robust and resilient source code for global health purposes.

More concretely, we can trace the evolution of the global health source code from the origins of international health cooperation in the 19th century through the early 21st century. The initial source code was State-centric and reflected predominantly trading interests of the great powers. WHO's establishment after World War II added human rights to the source code in the form of the right to health. Later efforts to address HIV/AIDS deepened the human rights content of the source code. The last decade has seen health motivations related to security and development, as well as renewed emphasis on health's importance to the economic interests of States and non-State actors. The source code has evolved from its early extremely limited content to its current more expansive substance. In short, the normative basis for global health action is now broader and deeper than ever before. This reality connects to the manner in which health has emerged as a prominent issue in virtually all areas of international relations.

Implications of the Source Code Metaphor

Thinking about global health's contemporary political importance through the source code metaphor provides insights into why global health has emerged politically in a context of open-source anarchy. We cannot explain global health's entry into the "high politics" of international relations through the architecture metaphor. The sea change for global health relates to new normative understandings of health created through the dynamics of open-source anarchy that are applied in diverse political, economic, and social contexts. Open-source anarchy allows all manner of actors to access, adopt, apply, and adapt to the source code for global health, creating a governance effect far more vigorous than WHO ever managed to create as an intergovernmental organization. As examined more below, WHO has itself accessed, adopted, applied, and adapted to global health's new source code effectively. Perhaps more interesting, however, are world headlines recording arguments an Irish rock star makes to a neo-conservative U.S. president in the Oval Office concerning diseases adversely affecting sub-Saharan Africa.[20]

The source code analogy provides more insight into the rise of health as an issue in international relations over the past decade. The story of health's emergence as a prominent global priority is a tale of health becoming important across issue areas and in multiple regimes and institutions. Metaphorically, States and non-State actors applied the source code of global health in diverse governance contexts and mechanisms. The application of the source code produced heightened significance for health in areas previously not directly concerned about health, such as the realms of security, international trade, and development policy. This transformation was, if you will, trans-architectural because it happened across and within multiple bits of governance architecture in international relations.

The openness and networking effect of global health activities also produces competitive pressures that can advance the development of the source code. For example, the increasing ability of non-State actors to participate in governance in open-source anarchy has created competition for institutions and regimes designed for the traditional, State-centric approach to governance. States and WHO have had to respond repeatedly to initiatives and actions taken by non-State actors on health problems. ProMED-mail's development of a global electronic early warning system for emerging infectious diseases operated outside governmental and intergovernmental institutions, and constituted competition for the formal surveillance systems operated by States and WHO.[21] NGO activism on access to anti-retrovirals in the "TRIPS v. health" controversy played a major role in the governance changes witnessed in this area of global health.[22]

The source code analogy is also apt because health's emergence across different areas of world politics reveals changes in the way States and non-State actors perceive health. In other words, the source code for global health evolved through its increased application in diverse areas. At the end of the 1970s, the source code for global health focused on the right to health and universal access to primary health care, especially in developing countries. The Declaration of Alma Ata perhaps constitutes the best textual codification of the "Health for All" source code.[23] In the early 21st century, the source code is more complex because the global health community applies health principles and arguments in the realms of security, trade, development, environmental protection, and human rights.

The right to health and commitment to health for all have not disappeared from the source code, but these elements no longer monopolize or enjoy their prior privileged status. The

source code now addresses a complicated mixture reflecting both raw self-interests of States (e.g. national security) and universal ideals of health's centrality to human dignity (e.g. enjoyment of the highest attainable standard of health as a fundamental human right). The evolution of the source code is particularly profound with respect to the proliferation of pro-health arguments and approaches grounded in security and economic policy approaches rather than rights-based or humanitarian thinking. The argument that health is a global public good provides an example of a new approach informed more by economic than human rights concepts.

This change in the normative bases for global health has proved controversial and disconcerting, particularly to those who have dedicated their careers to the ideals expressed in the Declaration of Alma Ata.[24] Most experts would, however, agree that the changes in the source code have made health much more important and politically potent than anything achieved by the Health for All paradigm. The source code for global health is perhaps now more adaptable and inter-operable with governance approaches prevalent in other areas of international relations, which gives it opportunities to influence policy in ways not previously possible.

The evolution of global health's normative content in the face of resistance by traditionalists also reinforces the aptness of the source code analogy. Open-source software does not develop through centralized command-and-control processes, and open-source anarchy also reduces centralization in terms of how governance for global health develops. Despite skepticism and sometimes opposition from public health traditionalists, the rapidity of the proliferation of security-based health arguments in the last decade indicates that the source code's evolution is subject to the "market place of ideas" fostered by open-source anarchy.

Most of the big conceptual changes seen in global health's normative content came, in fact, from outside the traditional international health community. Linkages between public health and national security emerged from the United States in the 1990s,[25] with the United Nations Development Programme most famously promulgating the notion of human security.[26] The establishment of the WTO in 1995 stimulated global debates on the relationships between liberalizing trade and public health.[27] The World Bank pioneered looking at public health's material importance to economic development.[28]

The source code metaphor posits that governance activities in global health exhibit, to paraphrase Edmund Burke, both a unity of spirit and a diversity of operations.[29] The objective is to move beyond highly structured paucity and unstructured plurality towards purposeful plurality. Thinking of global health governance in terms of applying a source code as opposed to building architecture better reflects the opportunities and constraints created for global health by open-source anarchy.

WHO and Global Health's New Source Code

WHO itself has had to adjust to the evolution in global health's source code. How well it has adjusted is beyond the scope of this article; but two examples of seminal WHO governance initiatives suggest that, at least at some level, WHO has adapted successfully to global health's new world order. In the past decade, WHO took the lead in developing radically new governance approaches to infectious diseases—the new International Health Regulations (IHR 2005)[30]—and tobacco-related diseases—the Framework Convention on Tobacco Control (FCTC).[31] Both efforts revealed WHO producing new governance applications through use of global health's new source code.

The IHR 2005 significantly departs from the traditional WHO approach to international control of infectious diseases, and key aspects of this departure show WHO's willingness to use the new normative discourse on global health. For example, WHO strongly connected the IHR 2005 with State interests in security and trade, integrated human rights principles into the new governance regime, and built into the functioning of the regime a critical governance role for non-State actors.[32]

Similar capabilities for governance innovation appeared in WHO's efforts on the FCTC. WHO abandoned its traditional approach to tobacco control and its disinterest in formulating treaties in order to produce the FCTC. To achieve this new governance instrument, WHO integrated right to health concerns raised by tobacco consumption with arguments informed by economic analyses of the heavy material burden tobacco-related diseases impose on governments and societies. The FCTC process drew on the economic, development, and human rights aspects of global health's new source code. Further, WHO enlisted NGOs in the campaign for the FCTC and managed to isolate and contain the opposition from multinational tobacco companies and powerful States. These accomplishments reveal WHO operating effectively in open-source anarchy.

Global Health Governance Failures and the Source Code

Whether the IHR 2005 and the FCTC deliver global health benefits commensurate with their status as historic developments in global health governance remains to be seen. Application of global health's new source code in these new governance instruments is still in its early phases. Failure is a possibility. The application of global health's evolving source code in the context of HIV/AIDS has, in the judgment of many, not produced sufficient results.[33]

The history of HIV/AIDS' global spread is populated by governance reform after governance reform, none of which seem to have had a material impact on the spread and devastation of the pandemic. Virtually everything in the source code has been tried, including approaching the disease as a traditional public health threat, a human rights challenge, a security problem, and a crisis for economic development. We have gone from the WHO Global Programme on AIDS to UNAIDS to Security Council and General Assembly involvement to the Global Fund to WHO's "3 by 5" initiative, and still the tragedy deepens.

The broader message of governance failure concerning HIV/AIDS is that the evolution of global health's source code does not guarantee better health outcomes in open-source anarchy. Global health experts would detect the same message in the global efforts on tuberculosis, malaria, the rising morbidity and mortality associated with non-communicable diseases, and the relationship between intellectual property rights and public health. Global health's new source code may encourage purposeful plurality, but purposeful plurality is not getting the job done.

This sentiment brings us back to the new architecturalists' desire to renovate global health governance systematically. Connecting this desire to the source code metaphor would produce interest in revising the source code. In August 2005, the delegates at the 6th Global Conference on Health Promotion raised one possible way to sort out the source code—the adoption of a global treaty on health.[34] This proposal contained no specific details, but one could see in it the desire by global health experts to reformulate systematically the purpose and approach of global health governance in the early 21st century. Such an effort would constitute a high-profile attempt to modify and develop global health's source code—a kind of early 21st century Declaration of Alma Ata.

The global health treaty idea echoes the new architecturalist aspiration for a San Francisco II or Bretton Woods II global summit that would neatly rationalize, centralize, and harmonize global health governance. The history of grand summits on global issues leaves, however, much to be desired as a strategy for transforming governance in international relations.

HARDWARE FAILURES

Difficulties with global health's source code may not be the most serious problem global health governance faces. Continuing the software analogy, source code requires hardware on which to operate it and the applications it supports. Without hardware, the source code cannot produce the practical benefits programmers designed it to generate. The major problem with global health governance may concern hardware failures rather than bugs in the source code.

The "hardware failure" notion connects to long-standing and continuing concerns about the lack of adequate public health infrastructures in developed, developing, and least developed countries. The hardware available to run global health's 21st century source code is simply not up to the task. The much more demanding nature of today's global health source code highlights and exacerbates the inadequacy of public health and health care infrastructures and capabilities around the world.

Any number of examples illustrates the hardware failure problem. Efforts to increase the percentage of HIV-infected people, in sub-Saharan Africa, with access to anti-retrovirals mainly suffer from inadequate capabilities to deliver drugs effectively to those in need, not because there is a lack of drugs. The relentless spread of avian influenza reinforces both the appropriateness of the global strategy of early surveillance and response, and the inability of many countries to implement such public health tasks. Better access to insecticide-treated bed nets to combat malaria is thwarted by a host of political, bureaucratic, and distributional problems that prevent this low-tech intervention from having more life-saving impact.

The software/hardware analogy exposes something interesting, but disturbing, about open-source anarchy. As examined above, open-source anarchy has contributed to broader and more diverse inputs into, and applications of, global health's source code. Open-source anarchy has, generally speaking, provided governance space that States and non-State actors have productively used to advance the cause of global health in international relations. The same synergy does not hold true in the relationship between open-source anarchy and global health hardware. Open-source anarchy creates enormous difficulties for the task of building and maintaining adequate public health infrastructures locally, nationally, and internationally.

Unlike contributing to the evolution of global health's source code, building and maintaining public health infrastructure remains, even in open-source anarchy, predominantly a government function. No matter how sophisticated and well-resourced, non-State actors simply cannot shoulder the burden of building and operating the kind of comprehensive public health capabilities demanded by global health's source code. For this reason, the dynamics of old-school anarchy are more prominent in the infrastructure context because States are the main actors.

For States, the dynamics of old-school anarchy operate in a context in which open-source anarchy constantly stresses their governmental capabilities. Open-source anarchy exposes countries to threats and challenges from States and non-State actors. Without sufficiently robust governmental and governance capabilities, States will falter. Thus, global health suffers from the burdens of old-school anarchy in a context—government infrastructure building—particularly

afflicted by difficulties in international cooperation. In addition, States do not receive the benefits once thought to flow from the Westphalian principles of sovereignty, non-intervention, and consent-based international governance because open-source anarchy exposes their sovereign realms and prerogatives to constant interference.

The IHR 2005 helps illustrate the conundrum global health governance finds itself in because of the manner in which open-source anarchy affects the governmental responsibility for public health infrastructure. As noted earlier, WHO effectively applied global health's new source code to the problem of emerging infectious diseases in producing the IHR 2005. This new governance regime recognizes how critical public health infrastructure is for success because it obligates States parties to build and maintain core public health surveillance and intervention capabilities. The IHR 2005 contains, however, no provisions that address how such infrastructure improvements in the developing world will be achieved or financed. In short, we have a radically new governance instrument based on global health's new source code but little on how to build and maintain the infrastructure to operate the IHR 2005 effectively on a global basis.

Other applications of global health's source code also suffer from inadequate hardware at the country level. Weak public health and health care capabilities affect strategies to increase access to various public health interventions, including anti-retrovirals. The FCTC requires governments to undertake a range of measures to reduce tobacco consumption, but the ability of many governments to comply effectively with these obligations in a sustainable manner remains questionable. The "brain drain" of trained health personnel migrating from poor to rich countries undermines the scaling up of interest in developed countries on improving health in developing countries.[35] Responses to the spread of avian influenza and development of pandemic influenza preparedness plans have revealed public health infrastructure and capacity problems in developed and developing countries.

Global health governance today experiences a severe gap between the conceptual revolution that has reshaped health's normative policy significance in international relations and, in the words of one UN reform document, the "dramatic decay in local and global public health capacity."[36] Building better public health infrastructure proves far more difficult in the context of open-source anarchy than mainstreaming linkages between security and health. Connecting health more directly to the self-interests of States in security, economic well-being, and development has been a necessary but not a sufficient step along the road to greater public health capacity nationally and globally. Unfortunately, the significance of this step diminishes as the gap between the ferment in global health governance theory and the decay in public health capability widens.

CONCLUSION

Global health has experienced radical change in the past decade that has affected why and how States and non-State actors care about the relationship between health and governance. The growing interest in, and calls for, new governance architecture for global health is understandable and resonates with agitation in many areas of international relations for governance reform. The architecture metaphor has appeal in an environment characterized, in the eyes of many, by unstructured plurality because the image of architecture communicates rational design, ordered stability, and functional vision.

The architecture metaphor does not, however, capture what global health's quest for governance has experienced over the past decade, or will likely involve in the future. The

dynamics of both old-school and open-source anarchy work against transforming the present reality of unstructured plurality into a more rationalized, centralized, and harmonized regime. In addition, the sheer expanse of international relations in which global health now features undermines the feasibility of achieving all-encompassing architecture for global health governance.

An alternative metaphor explored in this article involves thinking about global health's increased political importance in terms of the evolution and application of a governance "source code" specific to global health. The source code contains the normative policy reasons why global health is important to protect and promote. States, intergovernmental organizations, and non-State actors apply the source code in diverse political, economic, and epidemiological contexts. Application of source code produces different global health "software programs" designed to address particular problems, such as the IHR 2005, FCTC, or the Global Fund.

Concerns about unstructured plurality suggest that numerous actors are applying global health's source code in many contexts, producing a proliferation of initiatives, programs, mechanisms, and processes. The proliferation is messy and produces some negative externalities, but the open-source software analogy reveals global health's quest for governance entering and influencing critical areas of international relations never or only superficially touched when State-centric governance architecture addressed health. The unstructured nature of open-source anarchy may suit global health's quest for governance better than attempts to tame the freedom of action States and non-State actors embrace in such anarchy.

Global health governance's biggest obstacle might not be unstructured plurality but the plurality of incapacity. The evolution of global health's source code and its widespread application by States, intergovernmental organizations, and non-State actors has not done much to dent the "hardware" problem global health governance faces. Despite the globalization of public health, the political and financial responsibility for public health infrastructure and capacity falls on governments. Unfortunately, open-source anarchy proves difficult as a context in which to build sustainable capacity for public health within and between sovereign States.

The capacity challenge raises questions about how seriously States and non-State actors take global health problems. The rise of health on many global agendas, the evolution of global health's source code, and the proliferation of global health activities suggest that health as an interest and value has penetrated world politics as never before. The importance of this penetration for global health's quest for governance should not be underestimated. But good governance is governance that gets beyond ideas and good intentions and engages in the heavy lifting of applied ideology. For the new ideology of health as an integrated global public good, the heaviest lifting involves capacity building; and capacity building requires a commitment to health that many desire but none has yet achieved.

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