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Governance Implications Of Global Infectious Disease Epidemics Under Shared Health Governance Scheme. Lessons From Sars

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Table of Contents

ABSTRACT

The world is becoming flat. With the progress of globalization and world integration, the past century has witnessed a growing number of emerging and reemerging diseases. It has become a common concern the world will face a deadly infectious disease pandemic and the international community needs to set up a functional system to face up the challenge. Over the past decade, outbreaks of SARS, H5N1 and H1N1 pandemic have raised concern among public health officials and the public in general on the need of global and local pandemic control. Infectious agents have been able to take advantage of the dramatic population flow, facilitated by the advance in transportation, to reach out to every inch of land on the planet. Diseases no longer respect nation boundaries and no single country are able to handle infectious epidemics. All has pointed to an urgent need of better governance in globalized infectious disease transmission. As complex as the epidemic itself, infectious disease control presents significant governance challenges. World Health Organization (WHO) is created with a mandate to be a world governor of health. However in this post-Westphalia international regime, states still have the residual power in governance and without a real functioning world government, the role of WHO as a leader in controlling global infectious diseases is limited. It is thus crucial to answer the question of how nation states and WHO should place themselves in the architecture of global epidemics control. This paper will examine the role of nation states and global health agencies, taking China and WHO as respective examples, in preparedness and response to the SARS epidemics. It will further compare the specific strengthens of each player in containing global infectious disease outbreaks under a shared health governance scheme.

INTRODUCTION

Infectious disease outbreaks and global epidemics

For centuries, infectious diseases have been great burden of global health with new diseases emerging and old ones resurging. (Binder et al, 1999) The world population were affected by more than 300 infectious diseases emerged between 1940 and 2004. (Jones et al, 2008) According to WHO, infectious diseases accounted for 26% of the total global mortality in 2001, which indicated a number of around 14.7 million deaths from hundreds of communicable diseases known and unknown. (WHO, 2003) Epidemics are rampant throughout human history and they have generated some of the most catastrophic events. Black Death eliminated a third of the European population during the 14th century and the 1918 flu killed nearly a hundred million people. Infectious diseases have devastating impacts, more serious and powerful than other human disasters such as wars. As documented, the 1918 flu pandemic killed more Americans in a single year than the total amount of death in World War I, World War II, the Korean War and the Vietnam War. [1]Being contagious illnesses, these diseases have posed a considerable threat to human survival and caused massive social anxiety. Under certain circumstances with unmanaged disease transmission and public panic, fear grows as fast as the disease itself will cause abrupt and serious social disturbance. With the advantage of modern medicine, optimists have anticipated that we will need to face the threat of infectious diseases not far in the future. However, the development of emerging infectious diseases and resurgence of old ones make us realize that the infectious diseases and global epidemics are not "just a matter of history". (Selgelid, 2005)

An infectious disease outbreak is "the occurrence of unusually large or unexpected number of cases of a disease, known or unknown for a given place and time. "[2] When diseases transmit within a small community or confined group of people, it is a localized event but if the infectious agents have superior communicable capacity, more severe and disturbing pandemic can occur. Transmitting from person to person or from non-human hosts to humans, diseases can spread extremely rapidly within days or even hours, and in such a state of emergency, time is getting short for response. This often leads to high morbidity and mortality rates.

Minor outbreaks of infectious diseases occur all around the world every day. Although not serious, most of them still deserve attention from the international community. New diseases have been reported to appear at a consistent rate of one per year for the past 30 years. (Zacher & Keefe, 2011, p. 43) Many of them are neither treatable nor curable. Prevention and containment methods are often unknown. Microbial pathogens have the ability and potential to evolve and become a killer pandemic. The increased risk of disease outbreaks will have a devastating global impact, combining with other nonmedical factors

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[1] Gina Kolata, "Flu: The Story of the Great Influenza Pandemic of 1918 and the Search for the Virus That Caused It. http://www.nytimes.com/books/first/k/kolata-flu.html

[2] World Health Organization. Outbreaks Control. http://*www.who.int/infectious-disease-news/.../4_Outbreak_control.pdf*

such as international travel and transportation. As these factors become prevalent, it is for sure that we will have to endure an increasing number of global epidemics.

Complexities of governance of global infectious disease epidemics

Infectious diseases are emerging in the increasingly global context of commercial and trade activities. The response to these kinds of diseases is becoming global as well, with national institutions, international organizations and other groups coordinating their efforts to prevent and control the transmission of these diseases. Global governance of infectious diseases has received growing attention as people realize that no single country can handle the global epidemics alone.

However building an optimal global health governance system is not easy task. Whenever and wherever an outbreak occurs, the aim is to detect it as soon as possible and to get it under control so that we can ultimately save lives of people at risk. From a public health perspective, the basic principles behind a great variety of preventive and control measures are fairly straightforward: prepare, detect and respond. However in practice, infectious disease outbreaks are more of a social problem rather than pure public health concerns due to its complex relationship with of ethics, politics and economic interests. (Osterholm, 2005)

Global governance of infectious disease transmission is being shaped by two broad sets of trends, one characterized by the evolution of microbial agents and the changing nature of disease transmission in a globalized world, the other by the gradually reshaped perception of epidemics and the concept of global public governance in the current international arena. (Jones and et al, 2008)

It has been widely acknowledged that in recent year, we are enduring an increasing treat from infectious diseases. As noted by the former Director of World Health Organization, Dr. Brundtland, “in an interdependent world, bacteria and viruses travel almost as fast as e-mail and financial flows.” (Brundtland, 2003) The nature of the microbial world is complex and constantly evolving. Infectious disease agents and vectors take their own path to multiply, mutate, migrate and adapt to new hosts and habitats. Year by year, the presence of unstable and unknown viruses and bacteria strains remains a dangerous factor of another lethal pandemic.

Moreover, the threat posed by infectious diseases is prevailing, accompanied with the high speed and volume of international trade and travel. Globalization has become dominant forces in reshaping public health at both the national and international levels. (Salgado, 2010) As people began to travel and trade, the microorganisms and infectious diseases they harbored traveled with them. Transoceanic air travel allows microorganisms to move from country to country and provides them with a propitious environment to incubate and spread. Time for traveling from coast to coast is even less than the incubation period for many infectious diseases. As a consequence of cut in distance, the world today is more interconnected by means of transportation and faster communication. The globalization of the world’s political economy and infectious disease are accelerating inseparably. (Aginam,

2004) As modern transformations in international commerce, transportation, and human migration has become commonplace, the opportunities for the occurrence of a killer pandemic, provided by the component have been numerous. (Stern and Markel 2004)New frameworks of international economy and changing patterns of human behavior have created new challenges as well as opportunities for global governance of infectious diseases.

ANALYTICAL FRAMEWORK: WHO IS IN CHARGE OF GLOBAL EPIDEMICS CONTROL? SHARED HEALTH GOVERNANCE SCHEME

Governance does matter in outbreaks and epidemics control. As noted by Southwood Smith nearly 200 years ago, “Epidemics are under our own control; we may promote their spread; we may prevent it; we may secure ourselves for them.” (Quah, 2007, p. 11) Nevertheless history has demonstrated that epidemics control can be difficult, and success only comes after trials and errors. Fast-paced and interconnected lives have resulted in diseases transmitting at a quicker tempo and lead to intensified crisis of reducing the risk of infectious disease outbreaks and conducting effective control measures in each public health emergency situation.

A great variety of theories has been used to frame global health governance, most of which customize general international relations ideologies. However, current global health governance literature suffers in description and analytical capacity of global infectious disease epidemics policy, presenting an unmanaged governance structure with roles of players, in particular nation states and World Health Organization (WHO), mixed and not clearly defined. (Ricci, 2009)

This paper is supposed to take the SARS epidemic in 2003 as a case study, to clarify the role Chinese government and WHO, played in the alarming emergency and apply concepts of shared health governance to analyze whether they had fulfilled their responsibilities solidly. The study would provide specific insights into rational allocation of responsibilities between national governments and international health agencies in global infectious disease epidemics control.

Literature Review: Theories of Global Health Governance in History and Gaps in Frameworks of Global Epidemics Control

Governance is a concept traditionally referring primarily to the operations and actions of corporations and state governments. Back in the past when states were geographically isolated, governance was a confined concept of states holding managerial authority over local communities. However, in a globalized world where a wide variety of international actors are playing pivotal roles in issues shared by countries and regions, discussions of governance today must address the roles of a coalition of national and transnational players. (Quah, 2007, p. 11)

In the realm of health, there have been several theoretical frameworks to study global health governance. Unfortunately, as complex as the currently crowded global health architecture itself, work in the area is “uncoordinated” and “fragmented” with mixed

results and impacts. (Ruger, 2010; Ruger, in progress) Given the uniqueness of infectious disease transmission and the complex state of world epidemics control in modern society, most of these frameworks are deficient in illuminating a global health governance structure which is sustainable and has direct implications for legal and actionable measures, leaving much to be desired.

The realist and neorealist perspectives on global governance put emphasis on national survival and geopolitical interests. (Ruger, in progress) It frames international relations and global governance as an arena in which self-interests are the primary motivation for international politics and cooperation. It prompts a "rational actor model" for current global health governance regime and nation states constantly balance between costs and benefits of cooperation with the international community or compliances with a series of international standards. (Ruger, 2011) Cost of this interests-oriented approach can be extremely high as failing to respond to an infectious epidemic can be terribly dangerous. No one can afford millions of deaths similar to what had happened in the 1918 flu pandemic. Any disclaimer or failure of any actors due to self-interests can lead to devastating impacts. (Yach, 1998a) We have already got a bit in our centuries-long struggle against cholera, which unfortunately seems not end in the near future. It is estimated by WHO that currently there are 3 to 5 million cholera cases and almost 100,000 deaths due to cholera every year. With the development of modern medicine, cholera should not be a terror anymore. It is easy to treat if one knows how and can respond quickly. For cholera, time and speed matters and early action is crucial. However until now it is still almost impossible. Governments often cover up the outbreaks or delay responses to invite international investigation, fearing stigma or loss of tourism and trade, which have sustained as primary concerns of many developing countries.[3] This self-interest based model offers nation-states an excuse to escape from its moral obligations. Even with cholera, for which evidence-based control measures are well developed and most accessible, success of containing the disease becomes impossible under actors' constant "cold" self-interest calculation. The extraordinary penetrating capacity of various infectious agents has made the cost of any delayed or failed responses too high to afford. A normative framework should serve as the premium for any other common and collective actions between nation states and international agencies, to address the importance and urgency of controlling epidemics as well as ethical requirements to be liable in fighting global infectious disease outbreaks. This is what the realistic and neorealist schools of thoughts fail to give us.

In addition to these ethical concerns, from a managerial perspective, the rationale actor model conspires against authentic coordination and cooperation between different actors. Management of global infectious disease epidemics is a true grand challenge not only because resources required to successfully contain an epidemic can be unexpectedly enormous but also because without concerted and combined efforts, success will not come. Every single player, whether individuals, state health agencies, pharmaceutical supplies or

[3] "Saving lives in the time of cholera", The New York Times, 2012 http://opinionator.blogs.nytimes.com/2012/04/07/saving-lives-in-a-time-of-cholera/

international institutions, must continue with its reliability and dedicate to their lines of governance to avoid the short board effect. The communicable features of infectious diseases make this a zero-sum game: we will succeed only if combined and concerted actions are committed. Any single tiny hole in the bucket of global epidemics control will cost us a tragic loss. In the rationale actor model, however, everyone focuses on individual losses and gains, which makes it difficult to come up with overarching principles. Without a guidance to delineate components of success, no one is well aware of what is and what ought to be done and it complicates cooperation among different actors. Inexplicit order and adoption of anarchy will lead to duplicated efforts, conflicted agendas and contradicted standards. During an infectious disease outbreak, failure to recognize legitimate institutions to establish a solid case definition will make future efforts of track and control virtually impossible.

Moreover, from a realist or neorealist perspective, states are the principal actors and international institutions are just place where powerful states pursue interests through dialogue and balance of power. (Ruger, in progress) The crucial role of states in the realist or neorealist framework overlooks the increasing importance, independent authority and legitimacy of other actors in particular global agencies. Authorities are located in territories rather than functional categories. States are the only reserved resources of providing health to their citizens. It has undermined the authority of those global actors, especially World Health Organization in filling the void of states' failures and providing support for surging demands during public health emergencies. In epidemic emergencies with an explosion of cases, even the most prepared states can get shorthanded due to exceptionally increased demand of health services and corresponding resources required to tackle the disease outbreak. When outside assistance is in absolute need, the realist and neorealist framework not only limits the possibility of assistance from other countries since from the realist and neorealist schools of thoughts, powerful states are not "meaningfully accountable" to others. It has also disregarded the role of international agencies in serving as complementary resources and focal points for assistance. This state-centered approach and respect for national self-determination has thus inadvertently entitled power to states, allowing them to act on their own behalf driven by the determination of geopolitical and economic interests. States and local communities become more vulnerable due to uncoordinated and inconsistent pledge of help.

Finally, within realism and neorealism, global epidemic control has been discussed under the framework of global health security along with bioterrorism and other human hazards. (Fidler, 1996; Fidler, 2006; Fidler, 2007) Even though by conceptualizing health as a security issue has raised awareness of the importance of health among politicians, it has hindered to further develop a functional global governance system. Security has been an idea framed to "justify bilateral and multilateral action" as a primary objective to protect national interests and predominance. (Ruger, in progress) Employing such a security framework, not only forces us into the rationale actor model dilemma discussed above since security is the primary interest of sovereign states, but also exposes us to higher risks of an over-politicized global health arena. Security is a controversial term which has been used differently by different groups under varied circumstances. It is always uncertain in

answering “whose security from whom”. The military connotations of the word “security” can easily exacerbate tensions among nations and group of politicians, which may lead to risks of countries becoming protectionists. (Irwin, 2010) The over securitization of highly pathogenic H5N1 contributed to the plight of disputes between developing and developed countries about international virus sharing, which has largely complicated the already difficult international health cooperation. (Elbe, 2010) The increased linkage between terrorism and infectious disease agents has also raised complaints about additional barriers on trade and migration, causing unnecessary disputes and fear. In addition to that, by moving health issues out of a pure technical arena, it could prevent us from understanding the complex relationship between health, poverty, social behaviors and general political economic conditions. (Irwin, 2010)

The liberal and neoliberal perspectives differ from realist and neorealist schools of thoughts in taking interdependence of various actors and convergence of interests into consideration. Moving on from a centered-focus on self-interests, liberal and neoliberal thoughts incorporates pursuit of goals covering interests transcending beyond state borders, which creates potential structure for states to undertake substantial endeavors of cooperation at the goal of maximizing absolute gains. (Ruger, in progress) Although liberalism and neoliberalism takes a significant step further in engaging states in transnational cooperation, it fails to clarify rules of conduct for cooperation and suffers in concrete measures to ensure adherence and hold actors accountable.

First of all, liberalism and neoliberalism still rely on the premise of the “rationale actor model”. Voluntary compliance is not based on legitimate and genuine ethical consensus thus certain actors may stop to cooperate if mutual agreements can not continue to provide them with benefits of their own preferences. (Yach, 1998b) It therefore results in a similar crisis as in the realist and neorealism framework that actors can be unreliable and unaccountable after doing its own absolute gain calculation. (Ruger, in progress) Apparently when global epidemics hit, irresponsibility and unaccountable reactions produce rapid spread of disease and risk of death. It leaves much more to desire of a theoretical framework in which global epidemics control is sensible target and compliances proceed based on ethical and moral commitments.

Second, a liberal or neoliberal approach tends to place greater emphasis on the contractual mechanism, which confines them in a lower level of comprehensive consent. This would create difficulties in global epidemics control as containing transmission requires more than principles and treaties and success relies on nothing but quick action and implementation, based on ethical and empirical investigations. When crisis does hit, it is much more important to know what exactly one should respond to reduce the risk rather than wait and remind each other what general principles they have agreed on and endorsed on papers. The liberal and neoliberal framework thus fails to provide a mechanism to delineate responsibilities among actors and outline explicit rules of conduct, which can be translated into decisive actions.

Shared Health Governance Scheme

Shared health governance scheme is based on a set of shared moral values among different actors in the global health arena and a social contract for collective decision making processes. (Ruger, 2011) It emphasizes the importance of establishing a set of shared public moral norms and believes that the internalization of these shared values will encourage members to comply with their moral commitments based on either voluntary actions or functional requirements. The scheme has three principal components: shared values and beliefs, responsibility allocation after internalizing the shared norms, a "global health constitution" reinforcing the allocated responsibilities.

Shared values or ideas play a pivotal role in laying the foundation for coordinating parties across sectors to solve common problems. It forms the basis and serves as "focal points" in defining collaborative solutions. (Ruger, 2011) These shared social norms should not only comply with universal ethical standards based on the goal of human flourishing, but also incorporate self- and personal interests, indicating a process of either sublimation of internal beliefs or internalization of external moral obligations. It plays a key role in bringing joint actions to solve global health problems under a normative framework. The internalized ethical norms build strong moral influences on national and international policy and serve as overarching guiding principles to establish collaborative solutions and ensure consistent adherence.

With a set of mutually agreed public moral norms, duties and responsibilities are delineated and allocated to different actors according to either functional or political concerns. It thus establishes a mix-level governance structure, in which national and global actors are glued by the shared moral commitments and are responsible to hold themselves accountable by taking on respective roles and responsibilities. (Buchanan & DeCamp, 2006) The global health constitution is an alternative governance structure to a world health government with the authority to prescribe respective obligations and direct actors' behaviors by contextualizing and authorizing the overall framework. (Ruger, 2011) By officially contextualizing the shared moral norms and allocated responsibilities, actors in the national level as well as the international level are supposed to hold the system together and make collective decisions to finally address shared and transnational problem.

The shared health governance scheme is beneficial in various ways of providing governance implications on global epidemics and developing more coherent and practical political theories for international and national actors to fulfill their roles in global infectious disease epidemics control.

First of all, the underpinning unit within shared health governance scheme, the shared public moral norms are essential to indemnify and rectify the externality of epidemics. Infectious agents are known for their outrageous ability to communicate in the population and among hosts without being noticed. Compared with most chronic illnesses, infectious diseases are featured with enormous epidemiological externalities: individuals' state of infection and behavioral reactions can cause far-reaching influences on disease transmission and effectiveness of control measures. A single "superspreader" can lead to

uncontainable disasters. As in the case of SARS, 249 cases around the world had been traced to one sick man from Guangdong, China who checked in for just one night at Hotel Metropole in Hong Kong. Among the 12 guests directly infected by the sick man, many later became initial cases and spreaders in other countries such as Canada, Singapore and Vietnam. [4] Bearing in mind such great external impacts, it is necessary to present at the center a set of moral obligations of not causing harm to others. Without shared moral standards of protecting others by regulating individual behaviors, it is hardly possible to suppress disease transmissions even with sound public policies. The shared health governance is based on a number of commonly agreed social norms, including obligations not to cause harm to others. These well-accepted values will not only decrease the risk of adverse impacts caused by misbehaviors but also are likely transformational factors to compensate and rectify positive externalities. Ethical commitments to hold one accountable will produce positive external impacts on protecting the health and benefits of the overall population.

Secondly, shared health governance rests on the premise that the internalized shared values and an overlapping consensus become primary sources of inspiration to achieve our goals. (Ruger, in progress) This is notable in particular for global epidemic control, as it would ensure consistent investments and longstanding endeavors committed to disease surveillance and emergency preparedness. Epidemics have always announced themselves with unexpected explosion of cases. When everything goes well, public health emergency preparedness and surveillance systems are usually present unnoticed, but when crisis does hit and responses are needed, people begin to recognize their existence and the enormous role a solid emergency preparedness plan can play for ultimate success. It is for sure that we need surveillance and preparedness to ensure quick and decisive responses, but it matters more how much effort actors can and are willing to give. Uncertainties of outbreaks signify the fact that necessities of emergency preparedness and surveillance systems can be largely overlooked and attention can be easily moved away when protecting self-interests on other issues become more desperate for any economic or political reasons. It is more than often that resources are mobilized to other priorities such as trade, economic growth, defense and security as these are always key factors for governments to uphold order and keep in force. As a result, without accepted and internalized moral obligations, longstanding and consistent shared commitments to invest on epidemics control are difficult even though they are the prerequisite for sustainable and successful infectious disease control. A key component in the shared health governance structure is the creation and internalization of shared ethical principles which will ensure coherent governance structure and consistent ethical commitments on communicable disease control from national and global actors even when they are confronted with interest conflicts.

Thirdly, shared health governance ensures authentic cooperation by asking different actors and groups to embrace and successfully fulfill their respective duties based on functional

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[4] "From one hotel guest, many infectious", New York Times, 2003. http://www.nytimes.com/imagepages/2003/04/01/science/20030401_DOCS_GRAPHIC.html

requirements and voluntary commitments. (Ruger, in progress). Cooperation and well-coordinated efforts play crucial roles in containing infectious disease transmission. On one hand, control of infectious disease epidemics is a monumental challenge in respect with the magnificent large amount of resources needed for a success. Just to consider the broad range of expertise required to address an infectious disease outbreak: it is a total team effort by microbiologists, lab researchers, epidemiologists, field investigators, nurses, physicians, social workers, public communication specialists, government officials, diplomats and sometimes even police officers. It not only indicates a fact that no single player can accomplish the ultimate goal but also raises concerns that cooperation can be dysfunctional and fragmented because of overlapped and redundant functions among actors. On the other hand, accountability of actors is a primary concern in epidemics control due to short board effect. Failure of any single actor in fulfilling its mission will deliver a dangerous loss. It is therefore of exceptional significance that each player is fully aware of what they ought to do and holds itself accountable by carrying out respective duties in a comprehensive way. Despite of the complexities in global epidemics control, the shared health governance scheme is able to address both challenges. First, in shared health governance, an explicit system is crafted around a set of shared values and different actors establish a mixed-level of governance structure, in which responsibilities are allocated through an evidence based approach according to overarching objectives and consensus. In light of a collective desire to contain global epidemics, control measures can be broken down through analysis of principal components: prepare, investigate, respond and evaluate. It places greater emphasis on the creation of a governance and coordination structure with clear lines of responsibilities and accountabilities. By allocating duties and obligations based on a balanced view of components to achieve mutual benefits, it contributes to avoid conflicts, waste and reduce duplication and inefficiency. (Ruger, 2011) Second, internalized ethical commitments will connect and align different actors with more power for compliance and less chance of duty discharge, which help us avoid the short board effect. Actors are accountable and voluntarily prepared to reach for compliances because of internalized ethical obligations. They are also capable and feel better chance of carrying out tasks allocated based on their technical and functional capabilities. Actors are then complementary in roles of a comprehensive system. It is sufficient to avoid short board effect.

Who is in Charge of What in Global Epidemics Control? Responsibilities of Nation States and WHO

Whenever and wherever an outbreak or epidemic occurs, the aim is to detect it as soon as possible and to control the spread of diseases so that we can ultimately save lives among the population at risk. In the realm of health, especially in global outbreaks and epidemic control, actors that have been actively involved are national governments, international organizations and other units such as non-profit organizations. (Stern, 2004) Because there is no real world government with both authority and capacity to implement powers, what requires is a functional, effective and comprehensive health system consisted of various actors based upon mutual agreements to take joint actions and distinct functions. An explicit and coherent governance structure in which duties of state agencies and

international actors are clearly delineated is necessary to reduce duplicated efforts, inefficiency and conflicts.

Under the realm of shared health governance, duties and responsibilities are allocated based on functions that are both ethical and technical. (Ruger, 2009, 2011, in progress) Despite the presence of shared purpose and principles, in the context of differences in their structure, power balancing mechanism and decision making process, it is reasonable to assume that national governments and international agencies have varied strengths in carrying out specific strategies to control global epidemics. (Table 1)

Table 1 Delineated Responsibilities National and International Actors in Global Epidemics Control

State Actors	WHO and Global Agencies
• Build and finance a functional healthcare system, especially a disease surveillance and reporting system, developing plans to prepare for public health emergencies • Aggregate resources to investigate and respond when epidemics occur • Provide support to institutions on research and development about diseases • Issue policies and laws to empower local health departments and manage its citizens on enforcement of preventative measures such as quarantine, vaccination and isolation • Share information and resources with the global community in particular data and technology • Comply with international regulations on global infectious disease	• Lead and promote the discourse of shared values and public norms • Providing technical, knowledge assistance to help member states build up their health system • Coordinate research resources and disseminate norms, standards and recommendations • In response to a global infectious disease epidemic provide technical or personnel support as a surge capacity for nation states • Serve as an information hub and promote communication and mitigate disputes among its member states • Establish international conventions and agreements to contextualize the agreed norms and responsibilities • Develop soft powers such as travel advisory and public statement to promote cooperation and compliance

In respect with infectious disease, states are the leading player in realizing the objectives of global epidemics control. States are always the first to detect an outbreak and also the one who will bear the heaviest burden of a deadly infectious disease epidemic. It is of its interest, both ethically and politically to contain the disease and protect its citizens from

the threat of death, thus maintaining order and governance in the society. The idea of putting states at the center of shared health governance of global epidemics is justified in two ways.

From a manage-down perspective, states and local governments are the one working directly with individuals through regulation, oversight and enforcement of rules. Although disease prevention and control is usually discussed as a population-oriented approach, the success however is based on the actual effectiveness of policy implementation and rests on individual compliances. Compared with other chronic illnesses, individual behavior matters a lot more in containing the spread of infectious diseases since infectious agents are communicated through personal contacts, from person to person. States resume the power to command and manage individual citizens and as a result are the best one to implement policies such as quarantine and isolation. Moreover, the police power of the state provides state actors with the authority and capacity to enact regulations and press for compliances. (Ruger, 2010)

In addition, whenever there is an outbreak, national governments and local health agencies are usually the first to know about the disease, should they have a well-developed disease surveillance system. No one other than the local health clinics is more close to face the burden of surging demands on healthcare services because of a sudden explosion of cases. When an outbreak occurs, local health agencies also stands in the frontline in fighting against the disease by implementing national policies. With a functioning health system, states are the one in a better chance than WHO to get the most accurate and best available data and conduct evaluation and make decisions. As a result, states should be the one to initiate efforts to contain a disease outbreak, which includes but not limits to take quarantine and isolation measures, issue travel alerts, investigate, disseminate information and disease reports. Without managed and coordinated efforts committed by the state and local governments, we will never be able to finally prevent the spread.

From a manage-up perspective, states are the direct components of any global governance regime, in the sense that national representatives are the one that communicates directly with international agencies. Implementation of any concerted international convention requires participation from the states. In a global surveillance system, international agencies would have to rely on state units to establish and promote local surveillance, collect data and disseminate information appropriately. (Calain, 2007)

Sovereign states have the capacity and legitimacy to regulate the behavior its own citizens and actors in the local level, through public policy and enforcement capacity of law and police system, so they are, for both political and functional reasons the best option to take on main duties of reducing disease transmission. To defend the need of their own citizens, the state governments must be responsible for financing and structuring a healthcare system that is working in response to public health emergencies. Beyond sufficient preparedness of healthcare facilities, state governments shall be able to take decisive measures such as quarantine, isolation and early detection to interrupt disease transmission. A state's authority to regulate its own citizen's behavior and compel isolation and quarantine within its borders derives from its inherent police power. (Ruger, 2010)

With this supreme legitimacy, state governments will not only be able to enforce individuals but also local level actors and agencies to comply with standards and norms. This is of foremost importance since disease transmission can be stopped only if there is an effective bottom-up approach which requires individuals and local actors to moderate their behavior and comply with implementation standards of any policies or intervention measures. Beyond the scope of a national interest, on the global level, to defend the necessity of the overall world population, nation states shall be responsible for timely and accurate assessment of disease transmission state and sharing vital frontline experience and knowledge, including but not limited to diagnostic definition, epidemiology trend.

Global actors have different roles in parallel with their general functions and capacities distinguishing from government agencies. Given the specificity of its core functions and the legitimacy as a world leader, WHO shall carry on its international obligations as well as extra-national requirements, which would remedy the failure of the states. Their commitments comprise categories like developing norms and standards, directing and coordination, providing assistance. Global actors shall serve as a focal point for coordination, resource mobilization, technical assistance services, information and knowledge dissemination and guidelines development. (Kamradt-Scott, 2011)

Beyond state obligations, duties of global actors are defined within the scope of an overarching governance structure to bind to specific needs in global health that have not been or cannot be fulfilled by states. (Ruger, in progress) Global health institutions can serve as chief complementary resources to rectify any failures or inadequacies of state actors. Although without a true global health government, WHO and international agencies are limited in their role of enforcement. Compared to the hard coercive powers owned by national states, global health institutions have to employ soft powers such as peer pressure or patient diplomacy to ensure compliances. However, the legitimacy of these international organizations have entitled them unique authorities that national states do not have, of carrying out specific tasks tied to specific needs of global health.

First and foremost, global health institutions generally have broader and comprehensive range of expertise and bigger potentials to mobilize resources to address cross border and sector problems. Connected with many skilled specialists in elite research and education centers around the world, WHO is functionally able to provide assistance to those who falls short of particular expertise required to address the problem. Moreover, the wide range of expertise also designate WHO the legitimacy to issue international standards, such as case definition, standardized treatment plan, protective measurements which are all critical evidence-based approaches to control disease transmission.

Secondly, when nation states fail to fulfill their responsibility in initiating efforts to make diseases under control, WHO is the most legitimate and capable player to step in from both political and functional perspectives. (Chan, 2010) When states are functionally incapable of controlling the disease due to various reasons such as lack of resources or personnel support, WHO is the one they could turn for help, asking for technical or material support. If the states fail intentionally and deny the outbreak because of self-interests, WHO shall pressure for action through travel advisory and patient diplomacy. These two measures

serve as soft powers of WHO to coerce nation states' compliances.

Moreover, WHO can play a significant role as a moderator or arbiter in disputes given its highest legitimacy in global health governance. (Chan, 2010) When states are questioned in their overreactions such as issuing travel alerts to areas suffering disease outbreaks, WHO should take the responsibility to facilitate communication and public information flow between different actors. It should also assemble a consultant group with experts from different fields as independent or third party evaluation resources. Without its efforts, information or message can be misinterpreted, which will hinder agreements settlement and further joint actions and decision-making. WHO is currently the only international organization that is both functionally and legitimately able to take actions.

Generally speaking, comprehensive preparedness, fast and decisive responses are always central to prevent and stop the spread of those infectious agents. To mitigate the risk of infectious disease outbreaks and conduct effective control measures in each public health emergency situation, we shall seek specific approaches that will allow us to limit the spread of diseases. Relevant agencies and actors for health are responsible for planning and response to the sharp increase of cases of a certain disease. For any legitimate national governments, it is one of their priorities and leading responsibilities to keep their citizens from the threat of diseases. As a central focal point of global health governance, the World Health Organization has been the most prominent actor of international health activities particularly in global pandemics control. In addition to these two actors, non-profit organizations such as the Red Cross have started to take an integrated approach towards disaster relief and postdisaster infectious disease outbreaks control. However, previous cases have shown that currently the role of non-profit organizations is quite limited especially during pandemic emergencies and the services they are providing are not consistent and solidly identified. (Zacher, chp3, p52) Given these restrictions, non-profit organizations will not be included in the following analysis and we will confine the research on the role national governments and international organizations play when global outbreaks or pandemics occur.

LESSONS FROM THE SARS EPDEMIC IN 2003

Severe Acute Respiratory Syndrome (SARS) is considered as the first major novel infectious disease to hit the international community in the 21st century. (Heymann, 2006) Its special place in human history and development of the disease has made it a prime model to examine the role of national actors and international agencies in global infectious disease epidemics control under shared health governance scheme.

Originated from Southeast China, it spread to 37 countries and claimed 8,422 cases and 916 deaths worldwide within months. The origin of SARS is retrospectively linked with the first case of atypical pneumonia in Southeast China in mid-Nov 2002. The highly contagious disease then spread along with international travels, posing serious threats to people all around the world. (Figure 1)

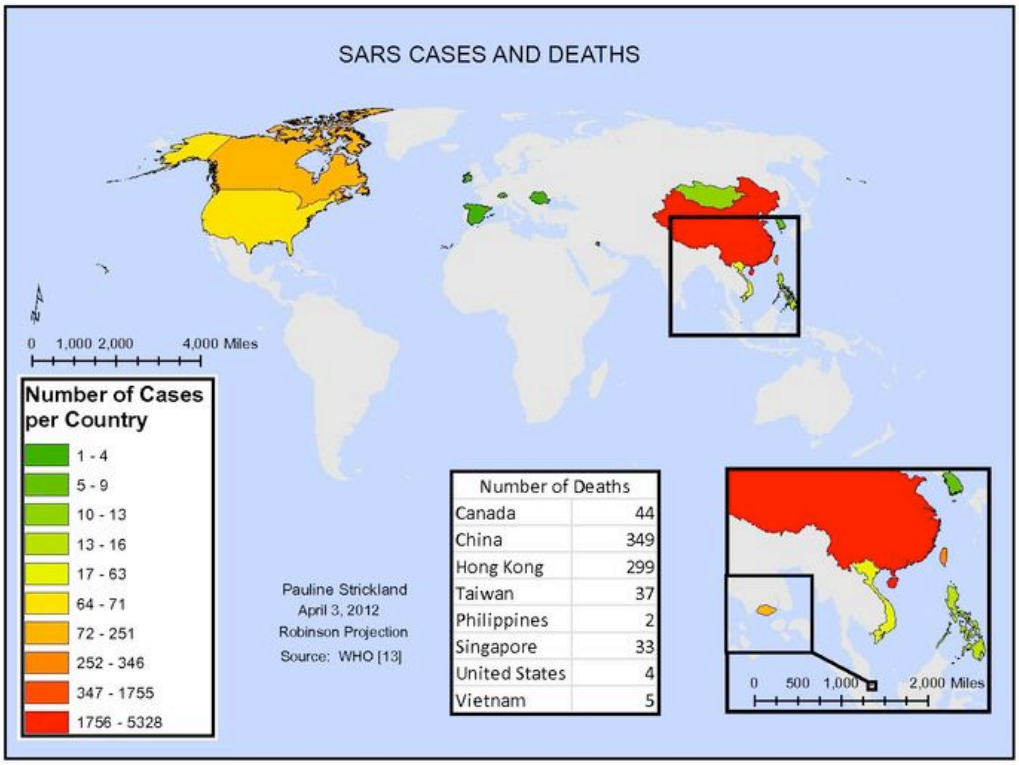

Figure 1 SARS Epidemic: Cases and Deaths[5]

China is not only the country where the first case of SARS was identified but also the one hit the hardest by the devastating disease, accounting for half of the total number of cases and deaths. World Health Organization (WHO), as the principal international organization leading to ensure the health and wellbeings of people all around the world, has taken an active role and stand in the forefront in coordinating the fight against SARS since the start of the epidemic.

Shared Health Governance in SARS

China and SARS

In China, public health is inherently a government responsibility and employs what Turnock calls a “command and control” approach, where government focuses on using its own resources to improve health. (Schwartz, 2010) Back to the 1950s when China was founded, containing infectious disease outbreaks were one of the top priorities of the government. During the 1950s, many severe epidemics became well controlled, including malaria, smallpox, measles. Surveillance of infectious diseases is the main public health concern in China. (Freeman & Lu, 2009)There have been requirements of routine reporting of selected infectious disease since 1950 through the county-level public health institutions. (Kaufman, 2009) The National Disease Reporting System was first initiated in 1959 as a system for reporting communicable diseases. In 1987, a Nationwide Anti-epidemic Computer Telecommunication Network was established as an official information system for the

[5] http://en.wikipedia.org/w/index.php?title=File:Sars_Cases_and_Deaths.pdf&page=1

national Disease Reporting System. The Ministry of Public Health and the regional centers of health and epidemic prevention support this network and utilize it to monitor disease epidemics at various levels within the public health system.[6] Data collected through the disease surveillance network serves as the basis to formulate health policies and devise strategies for preventing disease. A computerized reporting system for notifiable diseases has been established that links China's 30 provinces, autonomous regions, and municipalities. Mechanisms for providing timely feedback to units that report data and for systematically assessing the quality of those data are fundamental attributes of this system.[7]

The initial case of SARS appeared in Guangdong, China as early as November 2002. The provincial CDC noticed that there were a cluster of cases with similar flu-like syndromes and the Ministry of Health was then notified. As things progressed, the Ministry of Health convened a committee to investigate the outbreak and informed the WHO that the disease was under control. However, this appears to be a strategy to cover-up as the superspreader, a 65-year-old medical doctor from Guangdong checked into the 9th floor of the Metropole hotel in Hong Kong and triggered a global transmission chain of the disease through people who had contact with him in the hotel.

Chinese government did not fully involved in addressing the spread of this dreadful disease until late March 2003, which was 4 months after the emergency of the first case. (Yoon, 2008) The turning point for full cooperation is the lessened political tension. With the highest level of political support from the President as well as the Prime Minister, China was able to move quickly and pace up from then. On April 6, a Beijing Joint SARS Group comprising of 10 task forces was established to oversee the outbreak in Beijing. (Ahmad, 2009) Ministry of Health confirmed and added SARS to the country's profile of infectious diseases on April 8. The local health departments were mandated by law to administer routine data collecting and reporting, quarantine and isolation. (Ahmad, 2009) In response to SARS, the central government via the Ministry of Health also swiftly updated and developed new policies and regulations relating to infectious disease response. Before SARS China was still using its Law on the Prevention and Treatment of Infectious Disease enacted in 1989, with only 18 diseases classified as notifiable diseases including plague, cholera etc. (Kaufman, 2009) During the SARS epidemic, the Law was revised within 20 days in response to the outbreak. The revised law and regulations were then sent to each province across the country. (Schwartz, 2010) A hospital, *Xiaotangshan Hospital*, as designated area to admit SARS patients only were constructed and was in essence completed in seven days, with a minimum of 4000 construction worker working day and night. It is estimated that at peak times there were 7000 workers working simultaneously

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[6] *Disease surveillance in China - Wikipedia, the free encyclopedia.* (n.d.). Retrieved from http://en.wikipedia.org/wiki/Disease_surveillance_in_China

[7] *Disease surveillance in China - Wikipedia, the free encyclopedia.* (n.d.). Retrieved from http://en.wikipedia.org/wiki/Disease_surveillance_in_China

on the magnificent project and 500 machines were engaged continuously in the construction.[8]

WHO AND SARS

Since the creation of the World Health Organization in 1945, the role of reporting on infectious diseases was assumed by the organization through the Weekly Epidemiological Record. WHO launched its Epidemiological Surveillance Unit in the Division of Communicable Diseases in 1965 and the first Communicable Disease Surveillance Reports were published by WHO in the following year. Ever since then, the dissemination of global surveillance data usually has been carried by "weekly reports" of disease of critical health or strategic importance. (WHO, 2006)

As a reflection of the grave Ebola hemorrhagic fever outbreak in 1995, the World Health Assembly adopted its first resolution on emerging and reemerging infectious disease. It urged member states to strengthen surveillance for infectious diseases in order to promptly detect reemerging diseases and identify new infectious diseases. This resolution led to WHO's establishment of the Division of Emerging and other Communicable Disease Surveillance and Control (EMC). It was then widely acknowledged that there was a urgent need to draw up plans and strategies for improving world capacity to identify and respond to new diseases. Since 1996, WHO had been developing and testing a system, supported by a range of new mechanisms, to strengthen global capacity to detect and contain outbreaks. The Global Public Health Intelligence Network (GPHIN) developed and maintained by Health Canada, taking advantage of advanced Internet technologies, continuously scans the Internet for news and reports of suspicious disease events all around the world. Human inquiry and computerized text mining are used to filter, organize and categorize the more than 18,000 items it picks up every day, of which around 200 merit further investigation by WHO. This sensitive early-warning system introduced in 1997 allows WHO to move from the conventional case report system, passively relying on official government notifications to a proactive role in collecting data and issuing early alerts.

To expand and formalize the response capacity, the Global Outbreak Alert and Response Network (GOARN) was set up in early 2000. This overarching network links more than hundred technical and operational resources from scientific institutions in Member States and a wide selection of networks of laboratories. WHO utilized resources from the network to coordinates global outbreak responses and also provided secretarial support for the network. GOARN has helped to build consensus on guiding principles and standards for global outbreak alert and streamlined administrative processes to ensure rapid mobilization. (Davies, 2008)

[8] Original resources in Chinese. http://www.qianlong.com/3413/2003-6-17/225@901726.htm

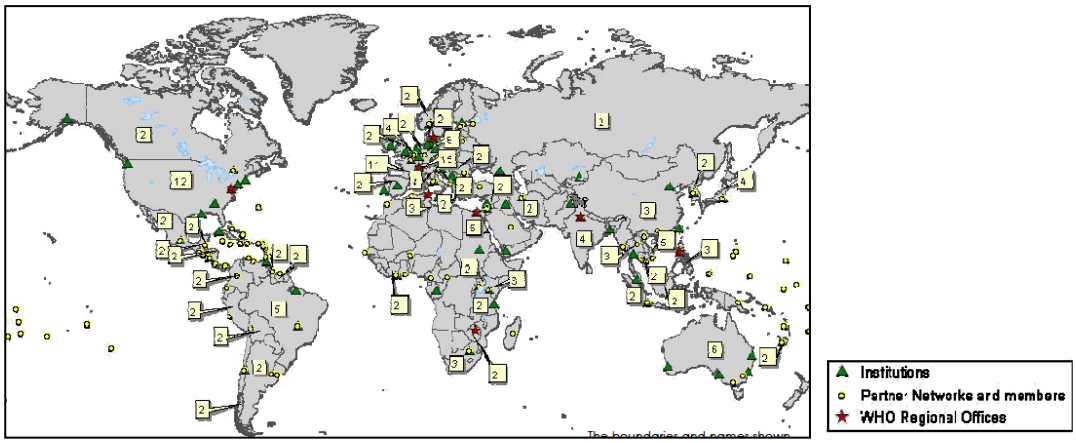

Figure 2 Worldwide Distributions of GOARN Partner Institutions and Networks[9]

The SARS outbreak in 2003 was a sharp reality check on the accountability and capacity of WHO, the main fighter of SARS, has demonstrated its leadership capacity in facing with this new global threat. (Heymann, 2004a; Heymann, 2004b) Efforts from thousands of brave fighters have marked its incremental legitimacy in maintaining international health security. For further research and analysis, the role and impact of WHO during SARS epidemics in terms of public health measures can be grouped into six categories.

- Global alerts
- Travel advisory
- Mobilizing global resources
- Produce health guidelines and standards
- Technical and material support
- WHO and nation states

Role1: Global Alerts

Information management and dissemination are vital in raising alerts as well as stopping the circulation of rumors during disease outbreaks. On March 12, 2003, WHO issued its first global alert about atypical pneumonia given increasing concerns about the evolving outbreak in Hanoi, Hong Kong and Guangdong. Since March 16, WHO maintained its daily disease outbreak updates. Until July 5 when the SARS outbreak in Taiwan was announced to be interrupted, WHO had issued 96 updates in total. The daily updates posted on WHO's website were seen as the most recognized resources for the outbreaks at that time. Other resources maintained by WHO which were largely consulted by local government and health officials and the general public were the table of Cumulative Number of Reported Suspect and Probably Cases of SARS and list of Affected Areas of SARS. In many of the SARS-affected areas, following news and monitoring the SARS epidemic on the WHO website were added as another item in their daily routine. (WHO, 2003)

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9 'WHO | Global Outbreak Alert & Response Network', *WHO*, n.d., http://www.who.int/csr/outbreaknetwork/en/.

Role2: Travel Advisory

In the great context of globalization, a closely interdependent and highly mobile world through modern transportation has largely favored the spread of contagious diseases. The international transmission occurred through flights has demonstrated that every country with an international airport was at risk of importing the disease. Near the end of March, WHO recommended screening procedure at airports for passengers departing from areas with recent local transmission, and issued guidance to airlines on steps to take should a suspected case be detected in flight. (Bell, 2004) These preventive measures were shown to be an outstanding success. No cases of suspected in-flight transmission were reported following the issue of advice. As the situation in Hong Kong deteriorated and several areas linked their first imported cases to a history of travel in Guangdong or Hong Kong, WHO urgently issued the toughest travel advisories in its 55-year history when it recommended "postponement of all but essential travel" to designated high-risk areas. (Fidler, 2007)

Role 3: Mobilizing Global Resources

As the premier international health institution, WHO enjoys a prime capacity in mobilizing international resources. Thanks to this, WHO was able to coordinating and setting up extensive networks and calling on a collaborative approach to fight against global epidemics.

Based on the model of its electronically interconnected global influenza network, on March 17, the Organization was able to quickly create a similar network of 11 leading laboratories in 9 countries, consisting of major research institutes in industrialized countries as well as key laboratories in infected areas. The laboratory reagents needed to standardize and assure the quality of laboratory tests were being made available by WHO, at no cost, to designated laboratories. Samples from one and the same patient can be analyzed in parallel in several laboratories and results are shared among network members in real time on the secure WHO website. Similar networks were formed subsequently on March 20 to address the clinical aspects (78 clinicians in 9 countries) and on March 28 to deal with epidemiology of the outbreaks (9 sites in 9 countries). (WHO, 2006)

On April 17, just a month after its establishment, the laboratory network announced conclusive identification of the SARS causative agent: a new coronavirus unlike any other known human or animal virus in its family. On May 4, network scientists released the first results of studies on the survival time of the SARS virus on various environmental surfaces and in various body specimens.[10] From May 16 to 17, WHO convened the first international consultation on the global epidemiology of SARS and produced a state-of-the

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10 *SARS: Assessment, Outlook, and Lessons Learned.* (n.d.). Retrieved from http://energycommerce.house.gov/108/hearings/05072003hearing917/print.htm

art consensus document on the status of current knowledge to guide firm policy recommendations for containment and control.

Role 4: Produce Health Guidelines and Standards

When WHO alerted the world of the SARS outbreak on March 12, 2003, virtually nothing was known about the new disease. It did not even have a name. No conventional treatments worked. Explosive spread from patients to healthcare workers, to a large scale further undermined the local medical surge capacity. How the disease came to be and how it was developing, were also unknown. The only thing without doubt was that it would go on spreading around the world. On March 15, 2003, WHO issued its second, stronger global alert, and promptly issued case definitions and reporting requirements, as well as tools for their implementation, and began reporting cases and assessments of the evolving state daily on its website.

As with any other disease outbreak, the first step in setting up a surveillance system is to establish standard case definitions. When WHO issued its second alert on March 15, 2003, the case definitions were simple compared with the final version revised in late May. Abundant additional support was available to all through information posted at the WHO website. Guidance ranged in nature from forms for collecting and reporting data, through guidelines for clinical management and infection control in hospitals, to the instructions for local production of diagnostic tests. [11]Although these standards and guidelines were restrained at the very beginning, they have largely helped reduce the risk of transmission of disease, especially among healthcare workers. Hospitals that detected possible cases followed WHO's advice to isolate patients and manage them according to strict procedures of epidemic control.

Role 5: Technical and Material Assistance

During the SARS outbreaks, WHO were committed to provide technical and material assistance by "sending teams of experts and specialized protective equipment for infection control in hard-hit hospitals to countries requesting such assistance."[12] All the countries affected by SARS received some level of support from WHO and were under the coordination of WHO to fight SARS domestically and internationally.

Vietnam was the first country to be announced SARS-free by WHO. It was removed from the list of countries with local transmission of SARS on April 28, 2003, two months after the

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[11] **APA:** *SARS: Assessment, Outlook, and Lessons Learned.* (n.d.). Retrieved from http://energycommerce.house.gov/108/hearings/05072003hearing917/print.htm

[12]**APA:** *SARS: Assessment, Outlook, and Lessons Learned.* (n.d.). Retrieved from http://energycommerce.house.gov/108/hearings/05072003hearing917/print.htm

Hanoi index case was hospitalized.[13] The success in Vietnam was particularly significant and encouraging, as it was one of the four countries WHO initially identified as having local transmission of SARS on March 15, 2003. It also demonstrated how WHO's strong and timely support can help nations win over the disease. WHO had collaborated closely with the Vietnamese government to tackle the outbreak since SARS was first detected in Hanoi. Early alert issued by Dr. Carlo Urbani, WHO's communicable disease specialist in Vietnam led to rapid actions from the government. Since the step-in of WHO experts, they made recommendations on early investigation, immediate implementation of control measures, rigid contact tracing, laboratory references etc. By March 16, a nine-person international team was in place at the WHO Vietnam Office to help investigate and control the outbreak. As advised and supported by WHO, Vietnam was able to set up a high-level SARS Task Force within the Ministry of Health and a national inter-sectorial Steering Committee for SARS control at the very early stage of the outbreak. (WHO 2006)

Thanks to the prompt and determinant actions including early identification of the outbreak, the consolidation of SARS patients in a single hospital, strict infection control, persistent contact tracing, and thorough investigation of all rumored cases, Vietnam reported only a total of 63 SARS cases and 5 deaths. Evidence from SARS control in Vietnam has shown that local and national capacities can be assisted by WHO coordinated networks. The additional technical and material resources offer adequate support during times of public health emergencies. The assistance provided by WHO and its distribution networks strengthens the surge capacity in preparing and responding to future infectious disease threats through a global alert and response system. The SARS experience in Vietnam has also shown that rapid political commitment at the highest level can be crucial. "Vietnam demonstrated to the world how a developing country, hit by an especially severe outbreak, can triumph over a disease when reporting is prompt and open when WHO assistance is quickly requested and fully supported, and when rapid case detection, immediate isolation and infection control, and vigorous contact tracing are put in place." (WHO, 2006)

Role 6: Soft Power over Nation States

China, the epicenter of the disease outbreak joined the fight against the epidemic fairly late. Since the earliest sporadic and localized outbreaks in southeast China, WHO has been networking with officials and sending queries to the Ministry of Health for more information. However, due to the sensitive political situation in China at that time, it failed to respond quickly and contain the disease inside its border. During this difficult time, WHO approached China several times by ways of telephone calls, letters, and face-to-face encounters, including a tense meeting in Hong Kong when WHO's Regional Director for the Western Pacific pressed China's Minister of Health for more information and access to Guangdong Province.

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13 *Containing Pandemic and Epidemic Diseases in Asia.* (n.d.). Retrieved from http://www.asiabusinesscouncil.org/docs/DiseaseBriefing.pdf

The changing attitude of Chinese governments and its willingness to open-up and to cooperate was accompanied with the increasing international pressure and the realization of the severity of SARS around the world when WHO kept issuing world alerts. Travel advisory was for the first time demonstrated as a successful soft power to compel countries to follow, in this case China, to carry out its obligations in maintaining international health security. At one time, more than 100 countries imposed travel restrictions to mainland China after WHO issued its travel advisory to Hong Kong and other major cities in mainland China. The Chinese government, afraid of a risk of trade block and economic recession, changed from the most murky government to the one desperately sought affirmation from WHO that it was on the right track towards containing the disease. Since late March, WHO was able to markedly increase its presence and influence in China. Having realized the paramount importance of combating SARS, the Chinese government made an unprecedented move. It began to enhance its collaboration with WHO and eagerly seek for assistance. It not only relaxed visa authorization procedures for WHO experts but also held a briefing session together with WHO investigation teams. (Abraham, 2004, p. 180) In late March, Chinese authorities issued updated information on cases and deaths for the previously reported outbreak of atypical pneumonia in Guangdong Province. [14] Chinese scientists, epidemiologists, and clinicians also became full partners in the three working groups that were studying SARS. On April 2, a WHO five-person team was given permission to travel to Guangdong Province to confer with officials there about the SARS outbreak. The Chinese government gave highest priority to the SARS response and declared a "people's war" against SARS. On May 15, 2003, China's Xinhua New Agency quoted Premier Wen Jiabao's address at a Cabinet meeting, "no individual or administration will be allowed to tamper with or delay the reporting of information". [15]Over 300 Communist Party and government officials had been fired or punished for delaying the release of figures. State media also publicized a warning by China's Supreme Court that those who caused death or severe illness by deliberately spreading SARS could face a prison term or possible execution. Quarantine violators could be jailed for up to seven years. [16]From late May, when SARS had been contained in countries like Singapore which were the earliest hit areas of SARS, WHO started to put more efforts in China. On June 13, the Organization started publishing data and maps of current probable cases in China provided by the Chinese Ministry of Health.

Implications of a shared health governance structure

The success in containing SARS was a story of allied commitments and decisive actions

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[14] World Health Organization - *Revision of the International Health Regulation* (n.d.). Retrieved from http://www.who.int/csr/sars/WHA56-48.pdf

[15] *Welcome to the United Nations: It's Your World.* (n.d.). Retrieved from http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan014303.htm

which provide governance implications under a shared health governance structure. (WHO, 2003a; WHO, 2003b)

From a pure technical standing point, Chinese government was supposed to capable of fulfilling its role in securing health of its citizens. Through years of construct, China has build up a disease surveillance system to detect and monitor disease outbreaks. The local health agencies in Guangdong were able to detect the cases and the ministry of health coordinated panel developed an early case definition which was shown to be consistent with the following WHO's version. (Abraham, 2004) A group of Chinese scientist was also able to identify the virus of the infectious agents even before WHO convened its global laboratory network however unfortunately the result went unpublished. (Abraham, 2004) With a robust security system accompanied with a strong will to overcome the problem, the country was able to hold its citizens accountable by issuing and implementing strict quarantine and isolation policies.

However, China as the major country affected by the diseases failed to stand on its role in protecting health for its citizens as well as the world population as a whole. The political irresponsibility of the Chinese government had made us miss the gold window to contain the virus at an early stage before it became an alarming global epidemic. The cover-up strategies and denial of independent audition and investment has endangered authentic collaboration. China recognized the importance of containing infectious diseases at an early stage. However, due to competitive priorities, China failed to act consistently to remain cautious about infectious disease outbreaks, which resulted in the unpreparedness at the beginning of SARS epidemic. It underlines an approach of measuring cost-benefit before taking actions. After SARS, preventing and controlling epidemics have moved to the top priorities of the government. The central government has shown its determination to improve public health emergency systems and prevent similar catastrophes from happening again in the future. During the H5N1, the Chinese government was able to respond in a swift and decisive manner. On the global level, global outbreaks control has sustained top on the list of WHO agenda. The severity of SARS has increased awareness of urgency in addressing emerging and reemerging infectious disease problems. SARS has served as a leverage point in promoting the internalization and pushing the adoption of the shared values that containing infectious disease is in the interest of everyone, and without collaboration and cooperation, success is hard. (Fidler, 2004a; Fidler, 2004b; Fidler, 2009)

The WHO played a decisive role in nailing down the success by performing the six roles discussed above. It has demonstrated that it has the potential to be a world leader in global infectious disease control. (WHO, 2002; WHO, 2004) WHO's role in containing SARS and other infectious outbreaks is more like a moderator and coordinator, by providing information and assistance to where they are needed. "Countries experiencing outbreaks often approach WHO for assistance as the first point of call-this can be likened to a global equivalent of dialing 911 in an emergency. WHO then acts as a facilitator as it has the capacity, knowledge, and legitimacy to assemble the most appropriate people to assist with the disease outbreak in question" (Zacher, chp3, p51) Usually when a country is unable to handle the outbreak, they will call on the international community for assistance. During

the SARS epidemic, the laboratory network run by WHO played notable roles in containing the virus. WHO's success in aggregating such a network is compelling evidence of its ability to organize and coordinate resources.

However despite all the fantastic stories and honors, the uniqueness of the SARS epidemic is expected to produce particular concerns for future governance of global epidemic epidemics under the shared health governance system.

First, it is worth to bear in mind that China is unique from both political and cultural perspectives. Not only does China has a relatively well-developed healthcare system which sustained as the guts to fight against diseases, but also does the country has distinct political culture. The government has resumed supreme power of governance which has been demonstrated in its ability to issue strict quarantine policies and ensure enforcement through its security system. More importantly is the enormous amount of resources the country was able to mobilize in front of an emergency. It is literally impossible in any other countries in the world where the government can gather resources and create a hospital within 10 days. This then implies a risk that when this kind of miracle stories will not exist, the duty and responsibility of WHO shall be increased. Or if SARS would have occurred in fragile African countries rather than Singapore, Canada and China where healthcare systems are comparatively well developed, we might have faced a totally different story.

Secondly, SARS has demonstrated how decisive actions of nation states can change history and how critical that states should maintain a leading role in dealing with global health epidemics. Evidence from the case of SARS has shown that, states and WHO have different scales of size and varied roles in preparedness and response to global epidemics. For instance, in detecting outbreaks and conducting surveillance, the surveillance system in WHO is primarily relied on the data collected through national surveillance networks. In order to address the threat of transnational infectious disease outbreaks effectively, accurate information and accountable domestic surveillance systems are critical. The success of containing infectious disease transmission relies mainly on early detection of the onset of possible symptoms, followed by rapid response with infection control measures including isolation and quarantine. The health department of the country where an outbreak occurs is often the first to know about the disease. Monitoring disease transmission requires and is strongly dependent on local and national systems. The capability and capacity of a government in containing infectious disease outbreaks largely depends on the network and relative powers of the government administrative divisions and their subordinate public health and CDC offices. (Schwartz 2010) The thrilling success of the global laboratory network on one hand prove WHO's capacity in aggregating resources, but on the other hand implies the importance of nation states' substantial support and maintenance of the routine work and development of these laboratories.

Thirdly, some scholars have argued that the response of SARS is valid but not fast enough. The challenges of fast action and responses may remain on the uncertainty of most disease outbreaks. In many cases, accurate information is not available or ambitious and incomplete, which creates unique challenges for governance and decision-making. Usually the immediate threat demands an immediate response yet disease comes with scientific

complexity that requires lengthy research and analysis to understand. Therefore, action always brings its own risks. (Kahn, 2009, p. 81) How to deal with the uncertainty and a risk of overreaction is critical in reaching agreements and calling for decisive responses. Balancing anxiety and risk is always a long learning process however beyond acknowledging the importance of dealing with threats, it is also, to some extent, crucial to accept the necessity of overreacting and the fact that a certain amount of panic within control will reward in preventing more devastating catastrophes. This concept should but has not been integrated into the normative framework and fully realized by all its members. It is obvious to be a more complicated process, as there will be conflicts between short-term benefits and long-term interests. Usually quick responses under uncertainty mean you are putting your short-term economic interests at risk however the benefits of decisive action are also evident: you are doing long-term investment to prevent the diseases from spreading and out-of-control. But by reiterating the principles that fear is better than death, WHO will have to push the internalization of accepting the uncertainty of outbreaks and responding decisively with its continued efforts of education, deliberation and patient diplomacy.

Fourthly, there is a lack of global health constitution as the guiding principle at the time of SARS epidemic. The International Health Regulation was not working at that time given its limitations on disease coverage and lack of clear role definition of key actors. (Taylor, 2002) The new International Health Regulation is revised in 2005, more specific responsibilities have been allocated to the two actors, for instance, states are responsible to build up a solid state-based surveillance and alert system. (Wilson, 2005) According the new International Health Regulation, improvements in the capacity of national and regional surveillance systems by incorporating real-time event management system become a substantial requirement for the member states. (Baker & Fidler, 2006) It is required that member states have to assess their core capacity for effective public health surveillance and response within 2 years and meet requirements for core capacity within the subsequent 3 years. (Wilson, 2008) Currently, the International Health Regulation serves as a basis for WHO to further develop a Global Health Constitution. It has established a structural framework of the importance of controlling global epidemics and allocated duties and powers to nation states and WHO. However there are still a lot that have been left out for instance WHO's power is not legitimately conceptualized as it is limited in mitigating disputes and pressure its member states for action. The reason for this short-handed constitution is largely due to the unclearly shared values and poor internalization of relevant concepts among member states. Literally, the Global Health Constitution comes at last to contextualize all the elements in the shared governance scheme. In a theoretically perfect world, the Constitution will do nothing more than as documentation since every member in the system is binded with a number of ethical standards and is supposed to be accountable and responsible for its assigned duties. However in reality when competing strategies do exist and the internalization of moral standards usually takes time, the Constitution would serve as both a guide and facilitator for members to internalize the shared principles and a binding power for every player to fulfill its obligations. As contracting a global health constitution is the final stage of shared health governance, the effectiveness of the drafted constitution will be largely dependent on the establishment of a normative framework and a functional approach to responsibility

allocation. As that said, the revised International Health Regulation can serve as a basis to further develop a true global health constitution, but it will largely depend on what and how WHO can adapt to pin down a set of moral obligations and normative rules to share with and make them internalized among its member states through continual deliberation and patient diplomacy.

CONCLUSIONS AND RECOMMENDATIONS

The shared health governance scheme begins with a universal ethical principle that preventing health insecurity and containing epidemics are a general moral obligation and incorporated interest of all therefore shall be embodied as a social value shared by every individual, nation states and international institutions. With this as a starting point, duties are not dumped but functionally granted based on voluntary commitments and functional requirements of nation states and global actors. A Global Health Constitution comes at last to document and contextualize the shared norms and allocated responsibilities and it also serves as an end as well as a starting point to further elaboration and refinement of the normative framework. The scheme not only follows a logical flow from ideas, to responses and actions and finally archives of accountable regulations but also ensures a sustainable development and self-evolving potential of the governance structure. Given the always-imperfect reality, sustainability is essential to strengthen our strategies to address both current challenges and further threats.

Based on the analysis of shared health governance scheme, the responsibilities of nation states and WHO shall be clear-cut, distinguished and complementary. The SARS case has shown that the role of nation states and WHO are somewhat complementary which suggests that shared health governance structure leading by the WHO, centered around nation states could be a viable solution for future epidemic control. The success also proved that a managed and well-coordinated global partnership under shared health governance framework will work. However, evidence from SARS has shown that both WHO and national governments have unfulfilled roles. To fully realize the shared health governance structure, one would require both actors devote more efforts and further enhance their performances.

For nation states, financing and funding to strengthen the health surveillance is essential for future rapid detection and responses of outbreaks and public health emergencies. As a political unit, governments shall recognize the importance of reducing infectious disease spreading and internalize it as a moral obligation to protect its own citizens as well as the world population.

For WHO, it is a top priority to propose comprehensive collaboration on containing global epidemics and install it as public moral norms. It requires education, deliberation and diplomacy with government officials to intensify the internalization of such values. WHO shall also use IHR as a basis to draft the Global Health Constitution, which would endorse the defined responsibilities of states and global agencies. Moreover it should also find itself as a role model to fulfill its responsibility such as promoting dialogue and information flow and providing technical assistance.

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