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Halia M. Czosnek
College of William and Mary

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Responding to International Health Emergencies: Comparing the World Health Organization
response to Ebola and Zika

A thesis submitted in partial fulfillment of the requirement
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by

Halia Czosnek

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Susan Peterson, Director

Michael Tierney

Alison Scott

Williamsburg, VA
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The World Health Organization (WHO) serves as the health authority and leader of international emergency responses to health crises (Lee, 2009). The WHO was founded in 1948 with twenty-two functions enshrined in its constitution (Clift, 2013:6). It evolved out of the International Sanitary Bureau, which later became the Pan-American Health Organization (PAHO) (Clift, 2013:6). The Office International d'Hygiène Publique was established in 1907, and following World War One, the League of Nations established its own parallel Health Organization alongside the Office International d'Hygiène Publique (Clift, 2013:6). Throughout its existence, the WHO infrastructure has evolved into a highly decentralized system with six regional offices and 150 country offices, one representing each WHO Member State (Yamey, 2002:1170).

The WHO has responded to health crises with varying degrees of effectiveness. In 2014, there was an Ebola crisis in West Africa in which more than 11,000 people died (BBC News, 2016a). The outbreak spread outside of West Africa with cases in the United States and Europe (BBC News, 2016a). The ongoing Zika outbreak began in 2015 in Colombia and Brazil. The associated clusters of microcephaly and Guillain-Barré syndrome (GBS) were officially recognized as a health emergency by the WHO in February, 2016 but later downgraded to a long-term public health issue in November, 2016. Microcephaly and GBS are neurological disorders thought to be related to Zika. Microcephaly is a congenital disorder where babies are born with smaller skulls and brains. Guillain-Barré syndrome on the other hand is not congenital but can be acquired and results in full or partial paralysis that can be temporary or long-term.

Although the WHO deemed both Ebola and the clusters of microcephaly and GBS related to Zika to be Public Health Emergencies of International Concern (PHEIC), the WHO responded differently in each case. Under the International Health Regulations (2005), a PHEIC is defined

as “an extraordinary event” which constitutes a public health risk that has spread internationally, and requires a “coordinated international response” (WHO, 2017d). Broadly interpreted, it is a situation that is unexpected and has severe implications for public health within the state the outbreak originated and the public health of other Member States (WHO, 2017d). During the 2014 Ebola outbreak, the WHO’s Director-General, Dr. Margaret Chan did not declare a PHEIC until August 8, 2014, after over one thousand people had died, despite having acknowledging eight months earlier that Ebola was a public health threat. Once the PHEIC entered into force, however, the WHO and Member States’ response escalated quickly, and garnered a significant amount of financial and human resources that even involved foreign military operations (London School of Hygiene and Tropical Medicine, 2015).

In the most recent Zika outbreak, mainly affecting countries in Central and South America and the Caribbean, the initial recognition of a health crisis was more rapid, as cases of microcephaly surged in mid- to late-2015 in Central and South American countries. When Dr. Chan declared a PHEIC on February 1, 2016, there had been no reported Zika deaths, though Brazil and Colombia had in recent months observed an unprecedented increase in the number of babies being born with microcephaly and other neurological abnormalities (CDC, 2016j). The delivery of resources to affected countries, despite the WHO declaring the clusters of microcephaly and GBS related to Zika a PHEIC, has proven slow in comparison to the WHO’s response to Ebola in 2014 (Associated Press at the United Nations, 2014). The Zika response similarly did not receive the financial and human resources that the WHO and its Member States allocated to the Ebola response. No foreign militaries responded to the Zika outbreak, forcing Brazil to deploy its own military to conduct public education and outreach prevention. On November 18, 2016, the WHO announced that Zika no longer constituted a PHEIC, and instead

urged Member States to recognize the long-term effects of Zika, such as life-long neurological complications, that necessitate a long-term strategy rather than a short-term emergency style response (Sun, 2016c). On the one hand, it seems obvious that the system would respond more quickly and with more resources to the more lethal of the two diseases. But the WHO did not respond more quickly. Why did the WHO respond so slowly to Ebola? On the other hand, the WHO responded quickly to Zika but the response did not have as many resources. What factors could explain the WHO's response time and resources that the organization allocated to each response?

This thesis explores explanations for why the WHO and its Member States responded differently in each of the two cases. The epidemiology, securitization, and organizational theory literatures suggest three primary answers to these questions. I have used these literatures to formulate three explanations through which to examine each case. I assess the Ebola and Zika cases along two dependent variables: time from the start of the outbreak to the WHO and Member States' response, and the amount of financial and human resources allocated to the response. The epidemiological explanation focuses on the lethality and transmissibility of each virus. In this explanation I examine whether a more lethal and easily transmissible virus results in a faster response that garners greater amounts of financial and human resources. Second, the securitization explanation examines whether the framing of each case as a security threat (or not) results in greater amounts of financial and human resources, even if such a process of securitizing disease occurs slowly. Finally, in the organizational structure explanation I examine the WHO's decentralized structure and budgetary mechanisms to determine whether or not greater decentralization and voluntary contribution mechanisms in the WHO's budget contribute to a slower response that sees fewer resources allocated to it.

Epidemiological approaches suggest that the more lethal and easily transmissible the virus, the quicker the WHO and Member States respond and the greater the resources that are allocated to the response. Ebola was lethal and relatively but not highly transmissible. The response, while initially slow, received significant amounts of resources once the response began in August 2014. Zika, being less lethal (but more easily transmissible via mosquitoes) is non-life threatening in most cases and thus has not seen a large inflow of resources. Zika, in comparison to Ebola, is a much more easily transmissible disease, which suggests that the WHO and Member States would respond more quickly to Zika and dedicate more resources to the response. This, however, was not the case as the WHO was quick to recognize the Zika outbreak but slow to allocate resources.

Securitization theory suggests that when a pandemic outbreak is framed as a security issue, it is elevated from normal politics to an existential threat that requires an equally proportionate response. This should result in greater resources allocated to the emergency response. I find that Ebola was framed as a security issue and garnered greater resources, including military resources. In contrast, there has been a dearth of resources allocated to the Zika response, despite the outbreak having been labelled a PHEIC in February 2016. The WHO revoked the PHEIC on November 18, 2016 and announced that the fight against Zika would be long-term and require resources to be spread out over a number of years rather than a number of months (Goldschmidt, 2016b).

Finally, organization theory suggests that the speed of response and resources allocated hinges on the decentralization and funding of the WHO's regional and country-level offices. The more decentralized the WHO's organizational structure, and the more the budgeting mechanism allows Member States to voluntarily fund public health issues, and the less these contributions

are mandatory, the slower the response and the fewer resources allocated to the response. The WHO is a highly decentralized organization whose emergency response time and resource allocation capabilities are hindered by a spider web of regional and country offices that lacks clear lines of accountability and communication during emergencies. In the case of Ebola the African Regional Health Office (AFRO) was in charge of operations. AFRO, while having the largest budget of the six regional offices, spends almost none of its 2014-2015 budget on emergency response and preparedness and instead focuses voluntary-specified funds on special programs, such as polio eradication. The PAHO, conversely, has the smallest budget of the six regional offices, yet spends a greater percentage of its 2016-2017 budget on outbreak and crisis response. The PAHO receives additional funding from its private organization, the Pan-American Health Organization.

In addition to testing variables from epidemiological approaches, securitization theory, and organizational theory, I find through my analysis that leadership emerges as a fourth independent variable that would be worthwhile exploring in future research. In the case of Ebola, the leadership within AFRO was irresponsive to communication from country offices and headquarters which contributed to a slower WHO and Member State response. Ebola, however, was securitized which prompted the WHO and its Member States to contribute resources to response efforts even though the leadership at the regional level failed to coordinate a timely and resource-rich response earlier on in the Ebola outbreak. Conversely, the leadership within the PAHO was proactive and responded to the Zika outbreak before WHO headquarters. The PAHO's leadership helped galvanize a response and small amounts of financial resources in the absence of Zika being securitized.

In short, I find that securitization and the WHO's budget mechanism interact to produce

the observed responses in each of my cases. The hypotheses concerning lethality and transmissibility did not produce conclusive predictions. The WHO's decentralization remained the same in both case studies, meaning that the organizational structure hypotheses did not produce conclusive predictions. I find that as a disease becomes securitized over time it receives significantly more resources than non-securitized diseases. When those resources are funneled through a budgetary mechanism, such as the voluntary contributions mechanism at the WHO, a securitized disease like Ebola will rapidly receive increased funding (but only after it is securitized). The leadership, specifically at the regional office level in my two case studies, either impeded (in the case of Ebola) or expedited (in the case of Zika) the coordination of an emergency response and the amount of resources dedicated to the response.

The structure of the paper proceeds as follows. First, I discuss my research question and the puzzle that I am trying to address. Second, I outline the epidemiological, securitization, and organizational theory literatures. Third, I state my hypotheses and explain my chosen methodology of structured, focused comparison and process tracing. In this section I also explain why my chosen method offers the greatest insight into my two cases. The fourth section contains my detailed analysis of the two cases in which I explore the effect of each independent variable on the observed responses. In the conclusion I summarize my findings from the two case studies.

The Research Question

The main question I address is why Ebola and Zika were treated differently by the World Health Organization (WHO) and its Member States. Were these differences due to differences in lethality? Were they a result of socially constructed arguments by key securitizing actors, or did the differences arise from the organizational structure and budget of the WHO itself? Before

addressing the literature on the three approaches, I outline the facts of each case and then demonstrate that the facts of each case present an empirical puzzle requiring further analysis.

The Ebola virus outbreak started in Guinea in late December 2013 and spread to Liberia and Sierra Leone in early 2014 (Fox, 2014). The WHO was criticized for its slow response, as the world health authority declared a PHEIC on August 8, 2014 after over one thousand West Africans had died from Ebola. Once the WHO declared the PHEIC, WHO Member States contributed large amounts of financial and human resources to the emergency response operations. Only once Ebola was framed as a “security issue” was the PHEIC declared and did Member States commit significant resources to the response efforts. The situation in the three worst affected West African states (Guinea, Liberia, and Sierra Leone) grew so dire that Western military forces were sent in to establish health clinics, provide training and supply personal protective equipment to local and foreign healthcare workers (WHO, 2015b:18). Between March 2014 and April 22, 2016 the World Health Organization received more than \$459 million to the WHO’s Ebola response efforts in West Africa (WHO, 2016a). This number includes donations from both Member States as voluntary contributions, bilateral funding from development organizations and other donors such as the Bill and Melinda Gates Foundation and the Wellcome Trust (WHO, 2016h). The first large scale donor was the regional African Development Bank Group that began a series of donations to the WHO on July 15, 2014. Other Member States and private organizations also began to donate in July, 2014 but most of these donations were no more than \$1 million USD. These donations dramatically increased in size and number following the PHEIC declaration on August 8, 2014. After August 8, 2014, donations from Member States and other organizations were several millions of dollars and had increased in number from the initial donations before the PHEIC declaration (WHO, 2016a). For example, Japan donated

\$300,000 USD on April 1, 2014, but on August 22, 2014 nearly tripled its first donation when the Japan donated \$850,000 to the WHO in the form of voluntary contributions. Japan, along with many other WHO Member States, sent donations from their development agency and ministry of foreign affairs to the WHO after the PHEIC announcement on August 8 (<http://www.who.int/csr/disease/ebola/funding/en/>). None of the African Regional Office's assessed contributions were reserved for crisis response, which left the regional office reliant on voluntary-specified contributions from WHO Member states and bilateral assistance from governments and other organizations (WHO, 2016k).

Zika, on the other hand, was quickly declared a PHEIC on February 2, 2016 after a rise in the number of babies born with microcephaly in Colombia and Brazil, the two worst affected countries in the WHO's Americas region (PAHO, June 2016a). The WHO worked to establish a link between the uptick in microcephaly in newborns and the Zika virus, and eventually concluded that there was a definitive connection between the spread of Zika and the rising number of babies born with microcephaly (PAHO, June 2016a). Despite the WHO quickly declaring the clusters of microcephaly and GBS related to Zika a public health emergency, Zika poses little, to no threat to the majority of people who are infected (CDC, 2016g).

Since declaring a PHEIC in February 2016, the flow of financial and human resources to the worst-affected countries (Colombia and Brazil) has been slow and virtually non-existent (Arnett, 2016). Colombia and Brazil, along with other affected countries in the WHO's Americas region, are reliant on their own national resources to manage the virus' spread and cope with the long-term effects of the Zika virus (WHO, 2016e). In the United States, Congress was unwilling to allocate additional resources requested by President Barack Obama to combat the Zika virus (Fox, 2016; Kodjak, 2016). President Obama was forced to siphon off remaining funds from the

United States' West African Ebola fund, leading to concerns that Ebola recovery efforts in West Africa would be undermined (Kodjak, 2016). Eventually, Congress agreed to fund \$1.1 billion out of the \$1.9 billion originally requested (Fox, 2016; Kodjak, 2016).

The WHO requested \$17,721,484 USD and received \$2,338,084 USD, leaving a funding gap of \$15,383,400 USD, while the PAHO received a meager \$1,640,000 USD out of the \$17,300,000 USD it had requested (WHO, 2016e:6; PAHO, 2016a:4).

The Literature

I now turn to the literatures that inform the three explanations through which I assess the Ebola and Zika cases. There are three major International Relations (IR) literatures that relate to my research question. The first is the epidemiological literature on diseases. This body of literature is related to IR topics such as security and health, though the epidemiological literature is not a specific IR literature. The epidemiological literature provides a rational-actor explanation for the WHO and Member States' response to Ebola and Zika. Second, the Copenhagen School's securitization theory is useful for understanding how framing a pandemic as a security issue helps garner resources to a particular issue. The third approach is based on organizational theory. In this section I also highlight the principal-agent (PA) literature as PA theory is helpful for explaining how the length of delegation chains within or between organizations contributes to miscommunication and provides agent's with greater autonomy from their principal.

Epidemiological Approach- Rational actor model applied to public health issues

The epidemiological approach serves as the baseline expectation for the behavior of health actors in response to a disease outbreak. Two disease characteristics, lethality and transmission,

are most important for understanding why the WHO and Member States' response to Ebola and to Zika differed in response time and resources allocated. Lethality of a virus is measured by the case fatality rate. Case fatality rate can only be measured once a pandemic is already occurring, as case fatality rates for the same virus often vary across different outbreaks. The case fatality rate is used as a measure of disease severity and is a good predictor of how many individuals will be infected in the future (Harrington, 2016). Case fatality rate is calculated by dividing the number of deaths from a specific disease over a given time period by the number of people diagnosed with the disease during the same time frame and then multiplied by one hundred to yield a percentage (Harrington, 2016).

The Centre for Disease Control and Prevention (CDC) defines transmissibility as the estimations of the basic reproductive number, R_0 . R_0 is an epidemiological measurement that describes the reproductive rate of a virus and is used to measure the number of secondary infections that are produced by a typical case of a particular infection (Breban, Vardavas and Blower, 2007: e282). For example, if an R_0 measurement for a given virus is 12, then one case of this virus produces 12 new cases. In the 2014 Ebola outbreak, the R_0 was similar to previous Ebola pandemics in Uganda and the Democratic Republic of Congo, ranging between 1.5 and 2.5 (CDC 2016h). The specific range for the reproductive number was between 1.51 and 2.53 (CI 95%) across Sierra Leone, Guinea and Liberia meaning that one case of Ebola would produce between one to almost three new cases of Ebola (Althaus, 2014:1). The R_0 for the current Zika outbreak is estimated to range from 3.0 to 6.6 depending on the epidemiologist's location at the time of measuring R_0 , meaning that one case of Zika produces between 3 and 7 new Zika virus cases (Nishimura et al., 2016: 274). Zika's higher transmission rate is a result of it being transmissible by mosquitoes, as mosquitoes easily cross boundaries and are indifferent to

who they infect.

Looking at the lethality of the two viruses, we expect the response to Ebola to be quick and consist of a large amount of financial and human resources. We expect the response to Zika to be slow and resource-poor. Conversely, upon examining transmissibility, we would expect for the response to Zika to be quick and resource-rich, while the response to Ebola to be slow and resource-poor. The lethality of the virus may matter more in the amount of resources dedicated to an emergency response, while the transmissibility of a virus may matter for the speed of response. In reality, evidence suggests that the Ebola response is initially slow, but once the issue is securitized, the resources allocated to the response speed up. The WHO and its Member States respond quickly to Zika, although few resources are allocated to the emergency response even after the WHO declares Zika a PHEIC. The epidemiological explanation partially explains some of the responses to Ebola and Zika, yet it cannot explain why the large military and financial response to Ebola was slow or why the resource-poor response to Zika was so quick. Political explanations are necessary to explain the speed of response and amount of resources allocated to the response in each of my two case studies.

Securitization Theory

At the heart of the constructivist literature developed by the Copenhagen School of International Relations is the “securitization” of phenomena through “speech acts” that frame a previously non-security issue as an emerging security threat (Wæver, 1995). The Copenhagen School defines securitization as a “successful speech act through which an intersubjective understanding is constructed within a political community to treat something as an existential

threat to a valued referent object, and to enable a call for urgent and exceptional measures to deal with the threat” (Buzan and Waever, 2003:49). Buzan and Waever (2003) elaborate on this framework as they specify that particular securitizing actors direct speech acts at a specific audience. Following this, the speech act’s definition and representation is negotiated and reconstituted through social interaction between the actor(s) and the audience (Stritzel, 2007). In securitizing previously non-security issues, Austin (1962) states that these speech acts, or “performative utterances,” create new patterns of understanding and significance that, over time, embed themselves in everyday security practices. The process of securitization is dependent upon the capacities of actors to make reputable claims about threats, how these claims are conveyed, whether the target audience accepts them, and a multitude of case-specific factors (Williams, 2003).

The existing context in which speech acts are conveyed from the securitizing actor(s) to the target audience is not the primary concern for many constructivists. Constructivists emphasize the agency of the particular securitizing agent. Over time, the actions of agents may influence the Ebola and Zika responses more than context does. Separate from the logic of securitization theory, it is important to note that the WHO’s response may be path-dependent. Path-dependency refers to how the WHO’s response to prior outbreaks influences its response to later outbreaks. Context refers to the immediate climate in which the pandemic health event is unfolding. Path-dependency may take precedence over context as the WHO internalizes past criticism, which then influences its future response to pandemic disease threats. In 2009, the WHO was criticized for an excessive response to the H1N1 pandemic (Gostin and Hodge Jr., 2016:1906). The criticism from 2009 could have influenced the WHO’s caution in issuing a PHEIC for Ebola. The WHO was then criticized for not recognizing the seriousness of the 2014 Ebola pandemic

sooner (Harmon, 2016). One might argue that the criticism of the WHO's delayed Ebola response could have influenced the WHO's much faster response to Zika in 2016, despite Zika having benign effects for the majority of those infected.

Copenhagen theorists rather stress the importance of actors over contexts and path-dependency. Ingram (2005) says that as the international order welcomed a "new security agenda" that recognizes a broader range of security issues, influential actors have reshaped orthodox understandings of security where the state was the main referent to the point now that individuals and sub-state communities are the referent objects (Paris, 2001:89). Mutually-reinforcing characters of structures and agents refers to the idea that both structures and agents are necessary for the other to exist, meaning that both structure and agent are constantly changing through interactions, and respond to change in the other. The Copenhagen School asserts that an actor-centric approach more readily describes real-world change; an individual actor (usually a political leader), acts as the securitizing actor, conveying speech acts that unleash definitional and institutional changes (Williams, 2003). Williams (2003) also notes that the importance of individual actors is conditional on the "positional power," or political influence, of an actor that is necessary to successfully securitize an issue. For instance, Elbe (2011) and Kamradt-Scott and McInnes (2012) note that medical practitioners, senior policymakers, politicians, and journalists as influential actors who have securitized, and continue to securitize, pandemic influenza. Such actors contribute to the meaning of security in ways people devoid of power or influence cannot (Davies, 2012). Thus, in expanding security beyond past meanings of "security," the meaning of security begins to define larger areas of social life (Waeber, 1995).

This broadening of security is a result of the redefinition of communicable and non-communicable diseases as a global health threat by prominent individuals and/or groups that then

galvanizes an intended target audience to action (McInnes and Lee, 2006; Kamradt-Scott and McInnes, 2012). The example of pandemic influenza illustrates how actors can reframe an outbreak as a health pandemic that also threatens political, economic and social stability (Fidler, 1997; McInnes and Lee, 2006; Labonte and Gagnon, 2010; Kamradt-Scott and McInnes, 2012). As a result of pandemic influenza, governments continue to revise and strengthen their pandemic readiness protocols, and the World Health Organization created an influenza surveillance network to monitor and report outbreaks (Fidler, 1996). Kamradt-Scott and McInnes (2012), argue that this network heightens the saliency of influenza such that it requires “surveillance” associated with the military and traditional security mechanisms. In addition to WHO action, the G7 countries identified global health as a pressing foreign policy issue in the 2007 Oslo Declaration, thereby suggesting that countries should devote more security resources to ensure the health of their populations (Labonte and Gagnon, 2010). The WHO also launched a Global Health Security Initiative in 2014 to bring countries around the world together to form well-defined commitments to global health, and furthermore to make global health security a “national leaders’-level priority” as health was traditionally dealt with at a sub-state level (Global Health Security Agenda, 2014).

Elbe (2011) argues that the WHO constructed SARS, rather than HIV/AIDS, as a security threat because of the mortality and potentially catastrophic economic repercussions, while at the time HIV/AIDS was understood to kill more slowly. Elbe (2011) further argues that issues of high mortality and economic repercussions provide security with a broader medical aspect, as any infectious disease causing many deaths and economic damage can now be interpreted as a security threat. The National Security Strategy of the United States (The White House, 2006) acknowledges that public health pandemics like SARS and HIV/AIDS pose a threat to security

as they transcend borders. These two diseases make evident that framing and the mortality rate of specific infectious diseases influence the international response to pandemic disease.

Others (Rushton, 2011; Weir, 2012; Fourie, 2015; McInnes, 2015; Nunes, 2015) use the term, “global health security”, to describe a regime complex linking health and national and international security that is led by the World Health Organization to prevent epidemics and eradicate disease (Ostergard Jr. and Kauneckis, 2015). For instance, Ingram (2005) notes that the UN Security Council addressed HIV/AIDS twice in two separate sessions in 2000 that showed global health issues were framed at the highest political level. This high-level discourse similarly redefined the relevant security actors to now include doctors and public health experts alongside policymakers. Ingram (2005) further argues that the Security Council resolution stated that the HIV/AIDS pandemic, if unchecked, may pose a risk to stability and security and recommended that national and international efforts to control the pandemic be intensified. Not only did such actions highlight the political saliency of global health issues, but also emphasized “the interdependency of health risks across nations,” thus suggesting that while inequalities between North and South continue to exist, both developing and developed countries fill equally important roles in the global health security framework (Labonte and Gagnon, 2010). Fidler (1996) notes, in reference to “global health security,” that international cooperation is not what is new; what is new is an increasingly interconnected, easily travelled world. As such, countries cannot tackle massive public health crises, thereby demonstrating that public health policy operates at the international level.

In the context of the Ebola and Zika cases, securitization theory suggests that when securitizing actors emerge and successfully frame and convey to the WHO and its Member States that a pandemic constitutes a security issue, the WHO and its Member States should

allocate larger amounts of financial and human resources to address the threat. On the other hand, if there are no securitizing actors present to convince the WHO and its Member States that a pandemic is a security issue, then the WHO and its Member States will not allocate the same level of resources to the response effort. Importantly, an issue does not need to be framed as a traditional security issue in order to be securitized, rather a securitizing actor can securitize an issue that conveys the urgency with which the issue must be addressed.

Organizational Theory and Principal-Agent Approaches

In the final portion of my literature review I turn to the literature concerning the relationship between organizational structure, budget, and policy response. Specifically, this literature can help us understand how the WHO's decentralized structure and budgetary mechanisms explain the IO's differing responses to Ebola and Zika. I use organizational theory and principal-agent approaches to delegation because both are useful for illustrating the relationships between bureaucracies within an organization. In the case of the WHO, principal-agent theory focuses on the communication, reporting and delegation of tasks between the WHO headquarters, regional offices and country-level offices. I specifically use PA theory to explain these relationships because PA theory can help us understand how miscommunication can occur between the bureaucracies within a large organization. More broadly, PA theory explains the relationship between a principal and an agent whereby the principal delegates to an agent a specific task that the principal wants the agent to complete often because the agent has specialized knowledge in an issue area (Hawkins and Jacoby, 2006:7; Hawkins, Lake, Nielson and Tierney, 2006:25). The agent must then carry out this task, however, the agent may shirk its duties resulting in an outcome that diverges from the task delegated by the principal (Hawkins,

Lake, Nielson and Tierney, 2006:8 see also Hawkins and Jacoby, 2006:206). Additionally, large organizational structure can provide agents with a high degree of autonomy from their principal which also increases the risk of agency slack. This section offers a brief survey of the PA literature and its application to the WHO. I specifically address the decentralization and budget mechanisms of the WHO and how these two independent variables could affect speed of response and resources allocated by the WHO and its Member States.

The WHO is a decentralized organization consisting of a web of six regional offices and 150 country offices (WHO, 2017a). The regional offices have evolved to become highly autonomous from WHO headquarters in Geneva as the regional office model was based on the PAHO that was formed and operated as a regional health office prior to the WHO's formation in 1948. Country offices have also developed into autonomous entities and in crisis situations often are unable to or choose not to communicate with regional offices to coordinate emergency responses (see the example of Guinea during the 2014 Ebola outbreak in Rushton, 2011: 780 and Gostin and Friedman, 2015:1904).

Hawkins, Lake, Nielson and Tierney (2006:5) highlight the importance of IOs as actors that behave strategically. Hawkins and Jacoby (2006:200), similarly conceptualize agents as “strategic actors with agency,” as they see IOs as independent actors that also interact with states and their wider environment. According to principal-agent theory, principals are actors who cede some of their authority to an agent in order for that agent to fulfill a role that the principal outlines in the delegation contract (Hawkins, Lake, Nielson and Tierney, 2006:4). Delegation contracts are always conditional, and the principal has the authority to revoke the delegation contract (Hawkins, Lake, Nielson and Tierney, 2006:7). An agent who is responsible for carrying out the tasks outlined in the delegation contract can be individuals, small groups, or

organizations (Hawkins, Lake, Nielson and Tierney, 2006:25). Principals and agents participate in a delegation relationship in which there is a conditional grant of authority from the principal, to the agent to accomplish a particular goal, or mandate (Hawkins and Jacoby, 2006:7).

Principals delegate to agents to lock in credible commitments, reduce transaction costs, and resolve problems in a mutually beneficial way (Hawkins and Jacoby, 2006:205). There are varying degrees of delegation that have to do with the composition of the principal (single or multiple), the information available to the principal, the specialization of the agent (e.g. the World Health Organization's highly specialized medical and scientific staff), and the willingness by the principal to cede some sovereignty to the agent (Hawkins, Lake, Nielson and Tierney, 2006: 12).

Hawkins, Lake, Nielson and Tierney (2006:24) warn that agency slack is a common by-product of delegation to an agent with specialized knowledge. This phenomenon heightens problems of hidden action and hidden information (Hawkins, Lake, Nielson and Tierney, 2006: 25). As such, they note that the agent can choose to conceal information that the principal may want, and such specialization makes it harder for the principal to control its agent. Specialization is important to consider in the case of the WHO and its regional offices, as the WHO staff is highly specialized and trained at dealing with global health issues. The regional offices are occupied by staff who are often specialists in diseases endemic to their region (Patterson, 2016). For instance, the PAHO has a wealth of prior experience with mosquito-borne viruses and employs many experts in this field. Instances of "shirking", where an agent deviates from the conditions outlined in the delegation contract are also common in PA relationships (Hawkins, Lake, Nielson and Tierney, 2006:8 see also Hawkins and Jacoby, 2006:206). Shirking is difficult for the principal to monitor because monitoring is costly in time, effort and money, and agents

can hide information from the principal due to their highly specialized knowledge that the principal does not have (Hawkins, Lake, Nielson and Tierney, 2006:13).

More specifically related to the case of the WHO, Cortell and Peterson (2006:257) note that once states grant a significant amount of discretion to an IO, there is a greater chance for IO slack to occur, and this is highly probable when an IO is staffed by international personnel, as opposed to government officials who are seconded to serve in the IO. Cortell and Peterson (2006) show how the WHO staff engaged in agency slack during the 2003 SARS outbreak. They suggest that the WHO enjoys a high degree of autonomy from its principal (the Member States of the World Health Assembly), due to the two-thirds majority voting rule (that makes agreement nearly impossible), and as a result of their international staff (Peterson and Cortell, 2006:263). There are a variety of instances in which the highly specialized staff within the WHO push for the WHO to extend further into new domains of health and wellness (Peterson and Cortell, 2006:266). One case of slack occurred when the WHO used non-governmental sources to learn more about the 2003 SARS pandemic. This allowed the WHO to then publicly blame the Chinese government and criticize their lack of cooperation with the WHO.

In addition to expanding its information sources beyond government channels, the WHO issued an emergency health alert for various parts of the world where SARS had been reported. In this instance, Cortell and Peterson (2006:270) note that the WHO acted beyond its delegation contract, and also outside of the International Health Regulations that required reporting from national governments rather than non-state sources.

Scholars studying IOs and bureaucratic structures argue that organizational bureaucracies appear neutral, but are actually highly political, and this is one way in which they derive their power and autonomy, resulting in what Barnett and Finnemore (1999:702) call “pathologies” of

IOs (also see Ascher, 1983:415; Clift, 2014:viii). An IO's autonomy is a result of "specialized knowledge, training, and experience that is not immediately available to other actors" (Barnett and Finnemore, 1999:708). Ascher (1983:415), likewise states that IOs take on a life of their own as a result of not only their professional staff, but also their internal structure and organizational norms which is often very different from the interest of the delegating Member States. Through his study of the World Bank, Ascher (1983:418-429) concluded that resistance to reform was because the Bank staff perceived any recommendations as a threat to the professional integrity and the traditional economic framework at the World Bank. Nielson and Tierney (2003:264) similarly find in their case study on World Bank environmental reform that once the World Bank went about hiring more environmental scientists, economists, and engineers, the number of environmental projects significantly increased between the 1980s and the early 2000s. IOs, Barnett and Finnemore (1999:718) note, "frequently develop distinctive internal cultures that can promote dysfunctional behavior" as a by-product of their insulation and highly specialized knowledge that allows for organizational subcultures that are distinct from the wider environment (Barnett and Finnemore, 1999:719). These cultures form as a result of like-minded professionals who create their own distinct worldview, within an insulated organizational environment, thus, cementing individual preferences (Barnett and Finnemore, 1999:723). In the case of Nielson and Tierney (2003), economists within the World Bank were isolated from actors with environmental influence, and only once environmental professionals worked at the Bank did loans become more environmentally conscious.

The literature on PA theory and organizations is useful in examining how the WHO's decentralized structure could explain the diverging responses to Ebola and Zika. Peabody (1995) notes that according to organizational theory the structure of an organization influences its

agenda, and, thus, influences outcomes. The decentralized structure of the IO and its highly specialized staff allow for greater autonomy of the WHO from its Member States in the World Health Assembly and also afford greater autonomy for the regional offices within the WHO. Decentralization, due to the number of principal-agent relationships in a delegation chain, slows down decision making and leads to slower responses to situations that demand a more immediate response. In the case of the WHO, its decentralized organizational structure could lead to miscommunications between headquarters, regional and country offices and allow WHO bureaucracies to hide hiding information from each other.

Additionally, budgeting rules affect the kinds of policy that the WHO enacts. The WHO budget is split into two main categories: assessed contributions that are mandatory and voluntary contributions that are not. Assessed contributions comprise about 25% of the WHO's annual budget, while voluntary contributions from both Member States and other organizations make up the remaining 75% (Biswas, 2014; Clift, 2014:6; Kelland, 2016; Vilhelmsson, 2015). This composition poses problems for outbreak and crisis response, and emergency-preparedness. The greater the amount of voluntary-specified contributions (that come directly from Member States through the WHO, but not from organizations and entities) the more influence wealthy WHO Member States have in how regions and individual countries spend their share of the budget. A large amount of voluntary-specified contributions is spent on special programs like polio eradication that wealthy donor states and corporations feel is in their best interest (Vilhelmsson, 2015). For instance, of voluntary specified contributions dedicated to the African region (\$373.55 million USD), \$92.53 million alone is specifically allocated to Nigeria to fund polio eradication programs (WHO, 2016k). There is often a need for spending on special programs, however spending on these programs comes at the expense of spending on other categories such

as emergency and crisis response. Tying up funds in specific program areas undermines the ability of regions and countries to respond to emergency situations as these spending areas are not the focus of wealthy donor states and organizations; allocating extra resources for an emergency that is not yet happening constitutes a “waste” of Member States’ financial contributions (Biswas, 2014; Vilhelmsson, 2015). Instead, these funds are dedicated to programs, like polio eradication and spending on endemic diseases, where Member States know their financial contributions will make a difference.

The bureaucratic structure of the WHO does not vary between the two cases, and thus cannot offer predictions on the speed or amount of resources dedicated to the Ebola or Zika responses. The PAHO was formed before the WHO, and has historically functioned autonomously as an independent health office for the Americas, taking little direction from Geneva. The PAHO responded to Zika before the WHO headquarters, however I argue that this response was a function of the PAHO’s strong and proactive leadership. AFRO, on the other hand, has been criticized for patronage relationships within its organizational hierarchy between the Regional Director and the staff in the regional office and country offices in the WHO’s African region. In the Ebola case AFRO’s leader ignored communications from headquarters and country offices, which could have contributed to a slower initial response to the Ebola outbreak. Though decentralization does not vary, leadership emerges from the case studies as a fourth independent variable that could affect the speed of response and amount of resources allocated by the WHO and its Member States.

In the following section I briefly summarize the effect of the WHO’s decentralization and budgetary mechanisms, and how these two independent variables relate to the observed responses in my two case studies.

Decentralized structure and budgetary mechanisms

Structure: regional offices. The WHO's decentralized arrangement provides the regions with greater autonomy than if headquarters was directly responsible for all regions itself. The longer the chain of delegation within and between the offices, the greater the likelihood for bureaucratic pathologies and slippage between offices to occur (Hawkins, Lake, Nielson and Tierney, 2006:25). Thus, one expects for the WHO and Member State response to be slower, with fewer resources allocated due to the delegation relationships between headquarters and regional offices, and also between the regional offices and country offices.

Budgetary mechanisms. The WHO's budget is split into two main categories: assessed contributions and voluntary-specified contributions, with voluntary-specified contributions comprising approximately three-quarters of the overall budget each year. The large amount of assessed contributions allows individual Member States to decide how the WHO spends the funds that the Member States allocate. Voluntary contributions are largely focused on special programs that address issues plaguing a region. In the case of AFRO these funds are concentrated in polio eradication, vaccine-preventable diseases and HIV/AIDS-related programs. There is an emphasis on voluntary spending for special programs because those Member States contributing large amounts to these programs are internationally recognized for their efforts, and become known for their efforts in polio eradication or malaria prevention. The growth of earmarked voluntary funds flowing to special programs, and diminished assessed contributions results in fewer available resources when an emergency situation, such as a pandemic outbreak, arises. As a result of the WHO's budgetary mechanisms, one would expect the emergency

response to be slower, and consist of fewer resources.

Hypotheses

The three literatures produce the following hypotheses, which guide my analysis of the WHO and Member States' response to Ebola and Zika. Hypotheses one and two (H1 and H2) relate to the epidemiological literature, hypothesis three (H3) relates to the securitization literature, and hypotheses four and five (H4 and H5) guide the organizational structure and budget aspect of my case study analysis.

H1a: The more lethal the disease, the more quickly the World Health Organization (WHO) and Member States will respond.

H1b: The more lethal the disease, the more physical and financial resources the WHO and its Member States will allocate to the response.

H2a: The more easily transmissible the disease, the more quickly the WHO and its Member states will respond.

H2b: The more easily transmissible the disease, the more resources the WHO and its Member States will allocate to the response.

Hypotheses one and two that arise from the epidemiological explanation explain both dependent variables: the speed of WHO and Member State response, plus the amount of financial and physical resources that are allocated to the response.

Similarly, the securitization literature produces complementary hypotheses that reinforce H1 and H2 from the epidemiological explanation:

H3a: When securitizing actors emerge and frame an outbreak in a persuasive way the outbreak is

securitized, and as a result the WHO and its Member States will allocate more physical and financial resources to the emergency.

H3b: When no securitizing actors emerge to frame an outbreak in a persuasive way the outbreak will not be securitized, but remain a long-term public health issue. As a result, the WHO and its Member States will allocate fewer resources to the public health issue.

Hypotheses 3a and 3b (H3) are related to Hypotheses H1b and H2b, as securitization of a pandemic arises due to the greater lethality and transmissibility of the disease. Hypotheses 3a and 3b, however, do not offer any prediction about how quickly the pandemic emergency will become securitized. In fact, it takes time to securitize a disease outbreak, as securitizing actors must reframe the issue and persuade other actors. The securitization explanation can explain the extent to which the WHO and its Member States allocate resources to the emergency. The following four hypotheses arise from the organizational structure literature:

H4a: The more decentralized the bureaucratic structures, the slower the WHO and Member States' response to the outbreak.

H4b: The more centralized the bureaucratic structures, the quicker the WHO and Member States' response to the outbreak.

H5a: The more the budgeting mechanism allows Member States to voluntarily fund public health issues on a case by case basis, and the less these contributions are mandatory, the slower the response and the fewer resources that the WHO and its Member States will allocate to the response.

H5b: The less the budgeting mechanism allows Member States to voluntarily fund public health

issues, and the more contributions are mandatory, the faster the response and the greater the amount of resources that the WHO and its Member States will allocate to the response.

The decentralization/centralization hypotheses can explain the speed of response. The budget hypotheses can explain both the speed of response and the amount of resources that the WHO and its Member States allocate to the response.

Explanations	Hypotheses
Epidemiological Explanation	H1a: The more lethal the disease, the more quickly the World Health Organization (WHO) and Member States will respond.
	H1b: The more lethal the disease, the greater the physical and financial resources that the WHO and its Member States will allocate to its response.
	H2a: The more easily transmissible the disease, the more quickly the WHO and its Member States will respond.
	H2b: The more easily transmissible the disease, the greater the physical and financial resources that the WHO and its Member States will allocate to its response.
Securitization Explanation	H3a: When securitizing actors emerge and frame an outbreak in a persuasive way the outbreak is securitized, and as a result the WHO and its Member States will allocate more physical and financial resources to the emergency.
	H3b: When no securitizing actors emerge to frame an outbreak in a persuasive way the outbreak will not be securitized, but remain a public health issue. As a result, the WHO and its Member States will allocate fewer resources to

	the public health issue.
Organization Structure Explanation	H4a: The more decentralized the bureaucratic structures, the more slowly the WHO and Member States will respond to the outbreak.
	H4b: The more centralized the bureaucratic structures, the more quickly the WHO and Member States will response to the outbreak.
	H5a: The more the budgeting mechanism allows Member States to voluntarily fund public health issues on a case by case basis, and the less these contributions are mandatory, the slower the response and the fewer resources that the WHO and its Member States will allocate to the response.
	H5b: The less the budgeting mechanism allows Member States to voluntarily fund public health issues, and the more contributions are mandatory, the faster the response and the greater the amount of resources that the WHO and its Member States will allocate to the response.

Methodology

In my analysis I use the method of structured, focused comparison to evaluate the WHO and its Member States' responses to Ebola and Zika. To satisfy the "structured" portion of my comparison, I apply the same set of questions to both case studies to evaluate Ebola and Zika in the same way. George and Bennett (2005:67) state that the method is "focused" as it deals with specific aspects of each case in question; a case study cannot contend with all aspects of a given phenomenon. In my analysis, I focus exclusively on the WHO and its Member States' response

to Ebola and Zika. The response from the wider international community was also important in Ebola, and features prominently in the on-going Zika response. Nevertheless I choose to focus on the WHO's response to the two outbreaks to provide a more satisfying in-depth analysis. In addition to structured, focused comparison I use process tracing to identify the steps along the way that relate each independent variable to each dependent variable. Process tracing illustrates the causal pathways relating the independent variables to the dependent variables in a meaningful way. The following section outlines the questions that I use to conduct the structured, focused comparison and process tracing in my two case studies.

Questions Guiding My Structured Focused Comparison and Process Tracing

The method of structured, focused comparison requires a set of questions that are asked of each case study to assess cases in the same way. I formulated my questions based on the three explanations I developed above. I begin first by establishing the dependent variable:

What was the nature of the WHO and Member States' response to the disease outbreak? What kinds of resources were expended, and by whom?

The epidemiological response produces the following questions:

1. How lethal is the virus?
2. How transmissible is the virus?
3. What kind of long-term implications does the virus have for affected societies, countries, or regions? What are its long term effects?

The following questions arise from the securitization explanation:

4. Who were the security actors who were active in framing each case?
5. Was the case framed as a rapidly evolving emergency, or framed as a public health issue requiring sustained engagement?
6. What security frames were circulating at the time? What was the dominant discourse around each disease? Were there any competing frames put forth by other actors that did not become the dominant frames through which the outbreaks were described and directed at the audience?
7. What was the intended audience for these frames? Was the audience convinced/not convinced by the securitizing actors' framing?
8. How did the media portray the frames put forth by the securitizing actors? Did the media attempt to alter the frames in any way?
9. To what extent did financial and human resources flow to the affected regions following the framing of the outbreak by securitizing actors?

The last questions are products of the organizational structure and budget explanation:

10. What bureaucracies were involved in responding to each case?
11. How centralized were these bureaucracies?
12. Had these bureaucracies experienced similar outbreaks in the past?
13. Did the bureaucracies involved have existing emergency response coordination mechanisms?
14. What budgetary mechanisms (specifically Assessed Contributions, and Voluntary-Member State Specified Contributions) do these bureaucracies use to fund their emergency response efforts?

15. What mechanisms existed for allocating budget resources to disease outbreaks?

Strengths and weaknesses of structured, focused comparison and process tracing

Structured, focused comparison allows for a systematic comparison between two case studies as each case study is evaluated using the same list of questions. Moreover, the questions used in a structured, focused comparison allow for an in-depth evaluation of each case study making structured, focused comparison a technique amenable to process tracing. Individual case studies, while making important knowledge contributions, arguably lack a “basis for systematic comparison” (George and Bennett, 2005:68). Case studies should use variables that allow for explanation across cases and provide policymakers with information that acts as leverage with which they can influence other outcomes beyond the selected case(s) used for analysis. Evaluating two (or more) cases using the method of structured, focused comparison avoids the trap of single case studies that have difficulties in contributing to a larger theory about the phenomenon that the case is an instance of (George and Bennett, 2005:70). Structured, focused comparison directs research using specific questions about a particular aspect of historical cases, hence contributing to theory development.

While my analysis may not result in a theory that weaves together epidemiological, securitization and bureaucratic approaches to understand the World Health Organization’s response to pandemic outbreaks, my selected methods prevent me from falling into the trap of relying on a single theory or approach for explaining each case. As a result, my analysis explains more than a single theory could on its own, and thus leads to a better understanding of the factors that contribute to the WHO and Member States’ response in my two case studies (George and Bennett, 2005:68).

The strengths and weaknesses of process tracing go hand-in-hand with those of structured, focused comparison. Process tracing pays “close attention to sequences of independent, dependent and intervening variables” (Collier, 2011:823). This methodology can shed light on potential causal mechanisms (Collier, 2011:824). Process tracing does have weaknesses, however, such as problems of missing variables and determining the extent of a causal relationship between independent and dependent variables (Collier, 2011:828). In general, with case study analysis, it is difficult to extrapolate the causal process delineated by process tracing in one or two cases to a wider variety of cases.

A structured, focused comparison with a focus on the World Health Organization (WHO) and Member States response is useful for understanding the speed of response and the resources allocated to the response in each case. The method of structured, focused comparison allows for a more complete explanation that considers various independent variables that result in variances in the dependent variables, the speed of response and the amount of resources allocated to the response in each case. To begin, there is more information on the WHO and its Member States’ response than on individual countries’ responses to the outbreak. In evaluating the WHO response, I take into account responses led by WHO Member States when this information becomes relevant for explaining the WHO response as a whole.

Additional literature analyzes and critiques the WHO’s response, likely because it serves as the world’s coordinating health agency. Incorporating critiques from other scholars into my analysis of the WHO’s response to Ebola and Zika allows for a multi-faceted analysis that considers various aspects of my two cases that I would not have otherwise considered. Situating research within the existing literature demonstrates how my research contributes to the existing scholarship and help predict WHO response to future outbreaks (George and Bennett, 2005:71).

By situating my research within the existing literature, I hope to demonstrate how my thesis fills gaps in existing knowledge and contributes to theory that helps predict the WHO and Member States responses to future outbreaks.

I chose Ebola and Zika as case studies because the cases produce an interesting empirical puzzle that warrants further analysis. Ebola is a much more lethal disease than Zika, however the WHO and its Member States took eight months to recognize the extent of the emergency in West Africa. Ebola, however, is much less transmissible than Zika. Once securitizing actors framed Ebola as a threat to national and international security did the WHO declare a PHEIC, and its Member States come to understand Ebola as a security threat. The PHEIC announcement is not the securitizing act; securitization of Ebola was a process occurring prior to the PHEIC announcement. The framing of Ebola as a security issue by heads of government and leaders within other organizations prompted the WHO's Member States to contribute large amounts of resources to the response efforts. The extent of the response included large amounts of financial aid to set up clinics and send doctors to Guinea, Liberia and Sierra Leone. The response also included a military response from the United States, Canada, China, the United Kingdom and Germany (London School of Hygiene and Tropical Medicine, 2015). In addition to this, Ebola occurred in a region with a dysfunctional WHO regional office, the African Regional Health Office (AFRO). The decentralized nature of the WHO, and bureaucratic pathologies within this particular regional office arguably prevented a quicker response to the 2014 Ebola outbreak. The African Regional Health Office does have quite a large budget dedicated to emergency and crisis response, however the observed response to Ebola initially is delayed. There must be another explanation for AFRO's initially slow response, and I predict that the slow response is attributable to the decentralized nature of the WHO system and the structure of the WHO's

budget.

Independent and Dependent Variables

The epidemiological explanation has two independent variables: the lethality and transmissibility of each virus. The lethality of the virus is measured through the case fatality rate, while the transmissibility of a virus is measured through the reproductive number, R_0 . The securitization explanation likewise has two independent variables: the security actors and the security frames set by key securitizing actors. Securitizing actors are high-profile political leaders, academics, and leaders of international and regional organizations who frame an issue as a threat to national/regional/international security. Security frames will elevate a phenomenon from “politics as normal” to something that represents an existential threat requiring greater resources.

Lastly, the organizational structure explanation has two independent variables: decentralization of WHO bureaucracy and the budgetary mechanisms (specifically the split of the annual budget between assessed and voluntary-specified contributions). For centralization/de-centralization I looked at the overall structure of the WHO, and the organization of the regional offices (AFRO and the PAHO). I looked at the WHO budget for 2014-2015 in the Ebola case, and the WHO 2016-2017 budget for the Zika case. I specifically separated my analysis into assessed (i.e. mandatory) contributions by Member States and voluntary-specified contributions. From here, in each budgetary year I examine the percentage of the overall WHO budget, and budgets for the respective regional offices that was allocated to the categories of “outbreak and crisis response”, “emergency risk and crisis management”, “alert and response capacity”, and “epidemic- and pandemic-prone diseases” to determine whether the

regional offices allocated spending to epidemic/pandemic-prone viruses like Ebola and Zika. These sub-categories are grouped within a larger category in the WHO budget titled Preparedness, Surveillance, and Response. Beyond the budgets for the regional offices and WHO headquarters, I look at the funds flowing into the worst affected countries in each case, and how the country offices spent both assessed and voluntary contributions in the relevant budgetary year. I also provide additional insight with excerpts from an interview with a WHO official who worked on funding for the Ebola response.

There are two dependent variables in my analysis that I think are causally related, or at the very least correlated with the independent variables. The dependent variables are the speed of response by both the WHO and its Member States, and the extent to which resources are allocated by the WHO and its Member States. The speed of response is measured in the following way: the starting date at which the outbreak is reported; and the amount of time between the start of the outbreak and the declaration of the PHEIC. Finally, the time between the declaration of the PHEIC and the flow of financial and human resources to the affected areas is used to measure the speed of response. The extent to which resources are allocated by the WHO and its Member States is measured by examining the financial resources contributed to the Preparedness, Surveillance, and Response category within the WHO's budget at both the regional and country office levels.

Explanation	Independent Variable
Epidemiological Explanation	Lethality
	Transmissibility
Securitization Explanation	Presence of securitizing actors
	Security frames deployed by securitizing actors

<p style="text-align: center;">Bureaucratic Structure/Budget Explanation</p>	<p style="text-align: center;">Centralization/Decentralization</p>
	<p style="text-align: center;">Budgetary Mechanisms (assessed contributions vs voluntary-specified contributions)</p>

Data Description

The data for my analysis comes from an array of sources. The data for the epidemiological explanation primarily comes from the Centers for Disease Control and World Health Organization websites. Both organizations provide basic scientific facts about Ebola and Zika, such as their lethality, transmissibility and modes of transmission. The securitization explanation requires large amounts of data from a variety of sources. I consulted a wide variety of journal articles, news reports, and official reports from organizations to identify the securitizing actors, and the frames that the securitizing actors construct. I used similar data sources to identify the size of response, that includes both financial and human resources dedicated to the emergency response in each case study. The financial response is measured in terms of the dollar amount allocated to the response, while the human resources aspect is measured in terms of the number of relevant personnel involved on the ground in the affected regions. I consulted the World Health Organization's budget website to gain information on the size of the budget, and the way in which the budget is allocated for the 2014-2015 period and 2016-2017 period. These two budgetary periods align as closely as possible with my two case studies. I specifically focus on two budgetary mechanisms: Assessed Contributions and Voluntary- Member State Specified Contributions. These two budgetary mechanisms make up the majority of the WHO's budget,

with the amount of voluntary contributions far surpassing the amount of assessed contributions. I think that this distinction between assessed and voluntary contributions is important in understanding the WHO and Member States' responses in each case. The centralization and decentralization of the WHO is the second and final aspect of the WHO's organizational structure that I evaluate. Centralization and decentralization are measured by examining coordination mechanisms in place in the event of a major health crisis. I mainly use news reports and academic journal articles to determine the number of relevant personnel involved on the ground, and the type of personnel involved in the emergency response in each case.

Case Studies

In the following section I use the epidemiological, securitization and bureaucratic structure and budget explanations to assess each case. I proceed chronologically with my analysis: first I examine the 2014 Ebola case and then I assess the 2016 Zika case.

2014 Ebola Pandemic in West Africa

Establishing the dependent variables: speed of response and amount of resources procured

Ebola virus is an infectious illness that can have a 90 percent fatality rate and is spread through bodily fluids. The 2014-2016 Ebola outbreak had a 60 percent fatality rate, which is comparable to previous outbreaks in Uganda and Democratic Republic of Congo (CDC, 2014a).

The Ebola outbreak began in Meliandou, a Guinean village, in December 2013. Cholera, a

disease endemic to the region, has similar symptoms—including severe stomach pain, diarrhea, and vomiting—which led to initial reports of a cholera outbreak (CDC, 2014c; CDC, 2016f).

Later in March Liberia reported its first cases of Ebola (Sifferlin, 2014). At this time there were suspected but no confirmed cases in Sierra Leone. Guinea’s Ministry of Health issued the first alert of an “unidentified disease” and the WHO published this notice on its website on March 23 (WHO, 2017c). Later that same day the African Regional Health Office (AFRO) opened its Emergency Management System to address the emerging outbreak, however it mistakenly labeled the outbreak as Lassa fever. Medicines Sans Frontiers (MSF) was called into Guinea to investigate the outbreak alongside the Ministry of Health and AFRO from March 14th to 25th. Mid-way through the investigation, Institut Pasteur also joined the investigation activities. Near the end of this extensive investigation, the WHO confirmed on March 23, 2014, after receiving reports from Guinea, that the outbreak was Ebola virus disease (EVD), and confirmed twenty-nine Ebola-related deaths (WHO, 2015a).

As of August 6, 2014 there were 961 confirmed, probable, and suspected cases across the three worst-affected countries, including Nigeria that had two probable Ebola deaths (WHO, 2016l). The Emergency Committee for Ebola, convened under the International Health Regulations (IHR 2005), concluded that the “Ebola outbreak in West Africa constitute[d] an ‘extraordinary event’ and a public health risk to other States”, and that further spread is particularly serious due to the high case fatality rate of Ebola virus (WHO, 2015b:12). Subsequently, the Committee called for a coordinated international response to prevent the international spread of the virus (WHO, 2014b). On August 8, 2014, WHO Director-General Dr. Margaret Chan declared Ebola a public health emergency of international concern (PHEIC). Shortly after Dr. Chan declared the PHEIC, the number of confirmed cases and deaths across

Guinea, Liberia and Sierra Leone began to grow at an alarming rate. Throughout August and September 2014 world leaders spoke out against the dangers of the Ebola epidemic and the need for a quick response on the ground in Liberia, Sierra Leone, and Guinea. The United Nations (UN) General Assembly and Security Council were also instrumental in pushing for international support as they each passed resolutions (69/1 and 2177 respectively) characterizing Ebola as a threat to international peace and security.

Though the majority of financial resources arrived to the three worst affected countries following Dr. Chan's PHEIC declaration, there were regional organizations, such as the African Development Bank Group, that allocated resources to the outbreak before the WHO declared a PHEIC. Countries such as Australia, Brunei, Canada, Croatia, Germany, Japan, India, Italy, Luxembourg, South Korea, Slovakia, and the United States also allocated small financial sums to the Ebola outbreak before the WHO declared Ebola a PHEIC, however the dollar amounts for most donations were each less than one million USD, with the exception of Denmark (\$3.4 million USD), Norway (\$2.7 million USD), and Kuwait (\$5 million USD) (WHO, 2016a). The only agency within the United Nations to send funds to West Africa before the PHEIC on August 8, 2014 was the Central Emergency Response Fund (CERF), which sent an initial \$500,000 USD on May 25, 2014 followed by an additional \$103,000 on June 16 and \$311,000 on July 1, 2014. The CERF relies on donations mainly from Member State governments, as well as foundations, companies, charities and individuals, compiling donations into a fund that in theory is ready for "immediate use at the onset of emergencies" (UNCERF, 2017). The CERF, despite its promise to use its funds at the "immediate onset of emergencies" took five months to dedicate funds to the Ebola response in West Africa that amounted to less than \$1 million USD.

On September 19, 2014, a day after the General Assembly and Security Council resolutions, the United Nations Secretary General, Ban ki-Moon in cooperation with the WHO, established the United Nations Mission for Emergency Ebola Response (UNMEER) to coordinate national health systems, international organizations and Member States efforts in Liberia, Sierra Leone and Guinea (WHO, 2014c:1). Financial resources began to flood into the three most severely affected countries while military resources followed in September, October, and November 2014. Military deployments led to a surge in the response on the ground in Liberia, Sierra Leone, and Guinea (London School of Hygiene and Tropical Medicine, 2015). The United States, United Kingdom, Canada, China, France, and Japan contributed military doctors, supplies, and transportation to assist with relief efforts in West Africa (London School of Hygiene and Tropical Medicine, 2015). Additionally, Cuba, Britain, France, China, and Brazil sent healthcare workers to Liberia, Sierra Leone, and Guinea (Mark, 2014).

By the end of the outbreak in March 2016, Ebola had claimed 11,310 lives, and resulted in 28,616 total cases (CDC, 2016b). The WHO officially terminated the PHEIC on March 29, 2016 once Liberia was declared Ebola-free after experiencing no new cases for forty-two days (CDC, 2016b).

Eight months passed from the time of the outbreak to the point when Dr. Margaret Chan declared Ebola a PHEIC. Once Dr. Chan declared Ebola a global health emergency, the response from the WHO and its Member States followed with WHO Member States pledging significant additional voluntary contributions and bilateral donations outside of the WHO. Below, I test the three approaches as explanations for why the response came so late, but received a lot of resources.

Epidemiological explanation for the Ebola response. I predict that the more lethal and the more transmissible the disease, the more quickly WHO and its Member States will respond and the more physical and financial resources they will allocate to the response. In the following section I examine Ebola's lethality and transmissibility to predict WHO Member States' speed of response and level of resources allocated. I compare my predictions with evidence of response time and resources allocated to the crisis to determine whether lethality, transmissibility, or both impact my two dependent variables.

Case fatality measures the lethality of a particular infectious disease. During the 2014 Ebola outbreak the case fatality rate was sixty percent, with some sources reporting a case fatality rate as high as seventy percent (CDC, 2014a). This was the largest Ebola outbreak ever with 11,315 confirmed deaths worldwide, and 28,637 reported confirmed cases.

The Centers for Disease Control and Prevention (CDC) define transmissibility as the "estimations of the basic reproductive number, R_0 " (CDC, 2014b). For instance, if R_0 were 5, this would imply that for every one person infected with the virus, five additional people also would become infected. During the 2014 Ebola outbreak, the R_0 was similar to the R_0 in previous Ebola outbreaks in the Democratic Republic of Congo and Uganda (CDC, 2015). R_0 was estimated to range between 1.5 and 2.2, depending on the area where R_0 was initially measured (Althaus, 2014). While Ebola is contagious without the proper personal protective equipment, an R_0 between one and two is not very contagious, seeing as Ebola can only be spread through bodily fluids (CDC, 2015). Ebola transmission is minimized through proper sanitation and use of personal protective equipment such as surgical masks, protective suits, and latex gloves (CDC, 2015). The Centers for Disease Control cite improper use and lack of personal protective equipment as a main contributor to the rapid spread of Ebola (CDC, 2015).

For comparison purposes, the R0 of highly transmissible viruses, such as measles, is 18 (CDC, 2015).

In addition to Ebola being a highly lethal, but not very transmissible virus, it has serious long-term health consequences for survivors. These long-term consequences affect not only population health, but also national economies. Guinea, Liberia, and Sierra Leone have each experienced civil wars in the last two decades that devastated their ability to provide public services and develop productive economies. The health of Ebola survivors is a major concern as these countries seek to reconstruct following the largest Ebola outbreak in history. Ebola survivors contend with eye problems such as blurred or cloudy vision, or a burning sensation behind the eye (Yasmin, 2016). In addition to vision impairments, Liberian epidemiologist Mosoka Fallah reported that two third of his patients had severe neurological difficulties (Yasmin, 2016). Survivors frequently suffer from memory loss and chronic joint and muscle pain. This array of symptoms is referred to as post-Ebola syndrome.

The pandemic has caused economic disruption in countries that were already fragile. The World Bank estimated the total economic impact of Ebola at \$2.8 billion (World Bank, 2016). The worst losses occurred in Sierra Leone (\$1.9 billion), followed by Guinea (\$600 million) and Liberia (\$300 million) (World Bank, 2016). Economic decline led to a decrease in investor confidence, which in turn negatively impacted investment and private sector growth (World Bank, 2016). The significant contraction in GDP during the outbreak has resulted in even slower post-pandemic recovery (Mullan, 2015). Relatively large foreign aid inflows have helped cushion Ebola-related shocks to West African economies (World Bank, 2016).

Given the evidence on Ebola's high lethality but low transmissibility, the epidemiological explanation produces an inconclusive prediction. Ebola is not a highly transmissible disease with

an R_0 between 1 and 2, and thus, the response by WHO and its Member States should be slow and not receive many resources. Ebola, however, is a highly lethal disease with this particular outbreak having a 60 percent case fatality rate (CDC 2014a). The theory would suggest that the WHO and Member State response would be quick and receive many resources. Lethality appears to be correlated with increased expenditures but does not correlate with the speed of WHO and Member State response to the Ebola outbreak as the WHO and its Member States responded eight months after initial Ebola transmission in Guinea.

Both lethality and transmissibility likely matter for whether or not a securitizing actor frames an infectious disease outbreak as a security issue. It is the presence of securitizing actors, however, that ultimately determines the likelihood that an issue is securitized rather than the particular characteristics of a virus. I now move to the securitization explanation to investigate how speech acts, leading up to Director-General Margaret Chan's PHEIC declaration, and reinforcement of security frames following the PHEIC declaration affect the amount of resources that the WHO and its Member States allocated to the Ebola response. To understand factors that drive the speed of WHO and Member State response, it is helpful to examine political processes such as securitization and an organization's structure and budget. In the next section I turn to the first of these political processes, securitization, to explain the politics of securitization in the context of the 2014 Ebola outbreak.

Securitization explanation for the Ebola response. Securitization theory predicts that when securitizing actors emerge and frame an outbreak in a persuasive way, the outbreak becomes securitized, and as a result the WHO and its Member States will allocate more physical and financial resources to the emergency (H3a). In the absence of securitizing actors, the outbreak

will not be framed as a security issue but will remain a less threatening public health issue that will lead the WHO and its Member States to allocate fewer resources to the response (H3b). In the following section I examine the key actors responsible for securitizing Ebola. Once Ebola is securitized, if securitization theory is correct, we should see a surge in the WHO and its Member States' allocation of physical and financial resources to combat the Ebola virus in West Africa.

Other states in the region such as Uganda and the Democratic Republic of Congo experienced Ebola outbreaks, however the 2014 outbreak was the first time in the history of the region that an Ebola outbreak spread across national borders and occurred in Guinea, Liberia, and Sierra Leone (CDC, 2016h). The spread across national borders presented new challenges for containment and coordination across the three-worst affected countries. Arguably, the extent to which the Ebola virus spread throughout West Africa represented a more threatening issue that required measures extending beyond traditional public health protocols. Prior to WHO Director-General Margaret Chan declaring the PHEIC on August 8, 2014 prominent actors within the governments of Member States, international humanitarian organizations, and the media employed language that successfully framed Ebola as a security issue. The WHO and its Member States used the circulating security language in order to justify the PHEIC and subsequent increase in financial and physical resources to the Ebola response in West Africa. I then turn to other prominent actors who reinforced the framing of Ebola as a security threat through speeches, and symbolic actions. Concluding the securitization explanation, I synthesize the evidence and draw conclusions based on the securitization framework.

The initial securitizing move came from the United States when Laura Holgate, the senior director for Weapons of Mass Destruction, Terrorism and Threat Reduction at the National Security Council, announced the U.S. launch of the Global Health Security Agenda on February

16, 2014 amidst the growing Ebola outbreak in West Africa (USAID, 2016). In the announcement, Holgate explained that the Global Health Security Agenda was necessary to “strengthen the ability of the international community to prevent, detect, and respond to infectious disease outbreaks, such as Ebola” (U.S. Official News, 2014). On April 1 2014, humanitarian organization, Médecins Sans Frontiers that the Ebola outbreak could be an “unprecedented” epidemic, at the same time as the WHO downplayed the extent of the Ebola virus citing that there had only been 80 deaths so far (World Digest, 2014). Throughout the summer of 2014 the Ebola outbreak exploded, and it was not until early August, before the PHEIC declaration, that more actors began speaking of Ebola as a serious security threat. On August 6, the Lagos State governor, Babatunde Fashola explicitly stated that Ebola was a “national security issue” that required more attention from the international community (BBC Monitoring Africa, 2014). That same day Senegalese President Macky Sall echoed Fashola’s statement: “Ebola is not an African disease. It is necessary to confront Ebola as a threat to humanity” (Landler, 2014). On August 8, 2014 Vice-President Ken Isaacs of Samaritan’s Purse, which is a Christian international relief organization, stated that “the outbreak has the potential to be a national security risk” (Associated Press, 2014). Liberian President Ellen Johnson Sirleaf argued that the worst recorded Ebola outbreak in history “requires extraordinary measures for the very survival of our state and for the protection of the lives of our people” (Associated Press, 2014). Talking about the Ebola outbreak as “a threat to humanity”, “a national security risk”, and an outbreak that requires “extraordinary measures” to ensure state survival successfully framed Ebola as an existential threat to international peace and security.

Prior to the PHEIC declaration, the first Emergency Committee meeting convened on August 6, 2014 and concluded that the “Ebola outbreak in West Africa constitutes an

‘extraordinary event’ and a public health risk to other States” and that further spread would be particularly serious due to the high case fatality rate of the virus (WHO, 2015b:12). Following the PHEIC declaration, funds from international organizations like the World Bank, and private foundations such as the Bill and Melinda Gates Foundation also dramatically increased their donations to the Ebola outbreak following the PHEIC announcement. For instance, prior to the PHEIC, the Bill and Melinda Gates Foundation donated \$1.1 million USD on July 1, 2014. However, following the PHEIC declaration, the Foundation made four subsequent donations in August, September, October and November 2014 that totaled more than \$12 million USD (WHO, 2014b). Though other international organizations like the Gates Foundation and World Bank are not the subject of my analysis, it is important to note the scaling up of these contributions alongside contributions arriving at the WHO from Member States.

The declaration of the PHEIC is symbolic as the WHO only declared two previous PHEICs for swine flu in 2009 and polio in 2014. A PHEIC can be interpreted as a symbol that the WHO has recognized the threat to stability and security in West Africa given that PHEICs are only declared in extreme circumstances. Following the declaration of the PHEIC on August 8, 2014, large amounts of resources began to flow into the three worst-affected West African countries from the WHO and its Member States, but also from other UN bodies (like the UN Development Programme and Multi-Donor Trust Fund), and international organizations.

Other actors subsequently reinforced the initial securitization of Ebola. These actors include political leaders within WHO Member States who explicitly framed Ebola as an international security threat through speeches and, implicitly, through symbolic acts. The media reinforced these frames, and in doing so directed public attention to the Ebola outbreak. Media reporting on the outbreak did not attempt to alter the frames put forth by government officials

and international organizations, but instead the media helped disseminate these frames to the rest of the world. According to Yusuf et al. (2015:1), the media coverage was “prolific and unbalanced,” as the media reported heavily on the few isolated Ebola cases in the United State. They argue that this over-coverage of American Ebola cases intensified fears and led to the spread of misinformation via social media, however did not constitute securitizing language (Yusuf et al., 2015:1).

Other securitizing actors who were not within the WHO or its Member States are important to mention briefly in the discussion of Ebola as a security issue. In an article for *Foreign Policy* published on October 8, 2015, prominent global health writer Laurie Garrett describes the 2014 Ebola crisis as a “9/11 moment of the global health leadership” and in particular for the WHO (Garrett, 2015). Garrett pushes for a review similar to the one that the 9/11 Commission conducted on terrorism and al-Qaeda following the September 11 terrorist attacks (Garrett, 2015). Garret likens Ebola to terrorism, a significant security threat to the United States, and in doing so implies that Ebola is a national security threat that is on the same level as terrorism. Charitable organizations also played a role in securitizing the Ebola pandemic in West Africa. Médecins Sans Frontiers, in an uncharacteristic move, called for military assistance as MSF has always strongly opposed military intervention during previous pandemic outbreaks (Garrett, 2014). MSF’s request for military assistance further reinforces that Ebola constituted a threat to international security as MSF’s call for help departed from the organization’s rejection of military intervention during previous pandemics.

World leaders followed suit. French President François Hollande spoke about the outbreak on August 28, 2014 as a threat to international security: “In West Africa, a major public health threat is added to the specter of terrorism, overwhelming countries that up to now had

been regarded as some of the world's most dynamic economically... We are not doing this simply out of generosity; we are doing it because we are aware that this misery and this poverty create a breeding ground for terrorism” (Holland, 2014). President Hollande framed Ebola as a phenomenon that could create the conditions for terrorism, thus suggesting that Ebola is not just a public health problem, but a transnational security issue that no one country could cope with on its own.

President Obama reinforced Hollande's framing of Ebola on September 16, 2014 when he delivered a speech at CDC headquarters in Atlanta, when he allocated 3,000 U.S. personnel and \$750 million USD to the relief efforts in Liberia. Accompanying this huge increase in U.S. military commitment to the cause, Obama explicitly framed the epidemic as a grave security threat to the region, and possibly to the whole world. He said, “In West Africa, Ebola is now an epidemic of the likes that we have not seen before. It's spiraling out of control. It is getting worse... And if the outbreak is not stopped now, we could be looking at hundreds of thousands of people infected, with profound political, and economic, and security implications for all of us. So this is an epidemic that is not just a threat to regional security— it's a potential threat to global security...” (Garrett, 2014). President Obama explicitly framed Ebola as a security issue in a speech at the CDC and reinforced this frame when he ordered a deployment of U.S. troops to Liberia. The United States established Operation United Assistance in September 2014 and partnered with USAID to build Ebola Treatment Units with larger patient capacity (Pellerin, 2014). Obama later spoke about Ebola as a “growing threat to global security” at the United Nations in September 2014 (Haglage, 2014). Obama's securitizing rhetoric cannot explain the increased resource allocation, seeing as it did not precede the increased resource allocation.

Obama's rhetoric, however, is consistent with the increased resource allocation that is observed throughout September, October and November 2014.

Shortly after Obama's speeches at the CDC and UN, United Nations Secretary General Ban ki-Moon circulated identical letters to the Security Council and General Assembly that stated that "the situation had gone beyond being a crisis only of public health" and threatened international security (United Nations Security Council, 2014). Following the Secretary General's warning, the United States, which held the presidency of the Security Council, called for an emergency meeting to discuss Ebola. At this meeting on September 18, 2014 all fifteen members unanimously passed Resolution 2177, with 130 countries in the General Assembly co-sponsoring it. Resolution 2177, combined with overwhelming support from non-Security Council members signals that Member States are willing to put aside the usual politics within the Security Council to address an imminent threat.

Resolution 2177 specifically noted the threat to post-conflict stability, deterioration of the political and security situation in a fragile region, and impact on food security (WHO, 2014c). The United Nations Security Council members used language explicitly framing Ebola as a security threat by stressing the fragility of the affected West African nations and potential for state failure. The resolution in the closing remarks stated the following:

It is clear that Ebola is no longer just a public health crisis, but has become multidimensional, with significant political, social, economic, humanitarian, logistical and security dimensions. No one country, no one organization has the resources to stem the tide of the Ebola crisis. Each Government is ultimately responsible for its own people. The governments of West Africa have asked for our help. We must come together as one United Nations and we call upon Member States to join us (WHO, 2014c).

The Security Council's further reinforcement of Ebola as a security threat is also symbolic: this was only the second time that the Security Council addressed a public health emergency. The Security Council first addressed HIV/AIDS when it began to spread at an alarming rate in the early 2000s (Associated Press at the United Nations, 2014). In addition to the Security Council resolution, the United Nations General Assembly adopted Resolution 69/1, one day after, on September 19, 2014. The language contained in the Resolution 69/1, mimicked that of the Security Council resolution, and reinforced the framing of Ebola as a security threat. General Assembly Resolution 69/1 furthermore expressed "deep concern about the potential reversal of the gains made by the affected countries in peace building, political stability, and the reconstruction of socioeconomic infrastructure in recent years." The states urged the international community to take action to contain the crisis because of its "possible grave humanitarian, economic and social consequences" (WHO, 2014c).

UN Secretary-General Ban ki-Moon, in cooperation with the WHO formed United Nations Mission for Ebola Response (UNMEER) one day after the Security Council and General Assembly resolutions (WHO, 2014c:1). UNMEER's establishment serves as a symbol: it was created because Ebola had progressed beyond the capabilities of existing WHO coordination and response mechanisms, thus reinforcing the gravity of the threat (WHO, 2014c:3). UNMEER's founding documents describe that the mission was established because it "was clear that the Ebola outbreak was unprecedented and had outstripped the capacity of governments and international responders to contain using traditional outbreak approaches" (WHO, 2014c:3).

In addition to the surge in financial resources flowing to West Africa following the PHEIC declaration, military assistance arrived shortly after the Security Council and General Assembly passed Resolution 2177 and 69/1 respectively (Garrett, 2014). Operation United

Assistance began its mission in early October 2014 and peaked by December 2014 when 3,000 U.S. military personnel arrived in Liberia to construct Ebola treatment units (Haglage, 2014). On the heels of the U.S. deployments, in mid-October 2014, the United Kingdom deployed an extra 600 military personnel to Sierra Leone to back up the 150 personnel who were already helping with relief efforts in Sierra Leone (London School of Hygiene and Tropical Medicine, 2015). The initial 150 personnel deployed to the region in the first week of October 2014 following the various speeches from Presidents Obama and Hollande and Prime Minister David Cameron (London School of Hygiene and Tropical Medicine, 2015). Alongside the U.S. and British militaries, Germany and China deployed troops in September while France and Canada deployed their militaries in November and December respectively (Grunau, 2014; Aljazeera, 2015; Canadian Armed Forces, 2014). In total, the six countries deployed approximately 5,000 troops to Liberia, Sierra Leone and Guinea. Médecins Sans Frontiers and the International Red Cross operated alongside foreign military personnel across the three worst-affected states (London School of Hygiene and Tropical Medicine, 2015).

The securitization approach highlights the fact that security language was used to justify the PHEIC and subsequent surge in financial and physical resources dedicated to the response. The process involved numerous actors who began speaking about Ebola as a growing threat that required urgent attention. World leaders, the media, and international and humanitarian organizations further reinforced the framing of Ebola as a security issue through explicit action and implicit gestures. Securitization theory demonstrates how securitizing actors altered the way that Ebola was framed, from a health issue to a security issue, and predicts that the Ebola response therefore would receive more resources. Evidence suggests that there were key securitizing actors within Member States, the WHO, and other international organizations that

fully securitized Ebola before the WHO declared the PHEIC. While the securitization approach can explain the amount of resources that the WHO and Member States allocated to the outbreak, securitization theory suggests a relatively slow response. Since securitization is a lengthy process, rather than a single event, one expects a slow response time. The audience, in this case the WHO Member States and international and humanitarian organizations, must first become convinced that Ebola is a threat to security. They then require additional time to coordinate the response. While the securitization explanation cannot provide causal evidence that securitizing Ebola either increases or decreases the speed of response, the logic of securitization theory would suggest that as securitization is a slow process, securitizing Ebola produces a slower response by the WHO and its Member States.

In the last section I turn to the decentralization and budgetary mechanisms at the WHO and AFRO in order to complete my analysis of the speed of response and resources allocated to the Ebola response.

Organizational structure and budget explanation. I predict that the more decentralized the bureaucratic structures (H4a), and the fewer available assessed contributions dedicated to emergency response categories in the WHO's budget (H5a), the slower the response from the WHO and its Member States. Conversely, the more centralized the bureaucratic structures and the greater the available assessed contributions allocated to emergency response categories, the faster the WHO and its Member States' response. In the following section I first address the WHO's decentralized bureaucratic structure and how— as a result of miscommunications and misunderstandings between headquarters, the African Regional Health Office (AFRO) and three WHO country offices—the observed response was slower than if the WHO had been more

centralized. I then turn to the WHO's 2014-2015 budget and examine the split between assessed and voluntary-specified contributions of AFRO's budget and the budgets of the country offices in Liberia, Guinea, and Sierra Leone.

The WHO and AFRO were the two main bureaucracies that responded to the Ebola pandemic: the WHO is the world's leading health authority, and AFRO is the African region's branch of the WHO. I focus on these two bureaucracies in my analysis, as I examine the effect of decentralization and specific budgetary mechanisms to understand the speed of response and the amount of resources allocated to the Ebola outbreak. It is important to note that other bureaucracies, including inter-governmental organizations, humanitarian aid organizations, private organizations and non-governmental organizations, were involved in the response. I chose to limit my case study to the WHO and its Member States as they function as the WHO functions as the leading health authority in coordinating and responding to health emergencies.

Decentralization. The more decentralized an international bureaucracy, the slower the response, and the fewer the resources allocated to a public health problem. The WHO system is a highly decentralized bureaucracy consisting of six regional offices and 150 country offices one within each WHO Member State (Lee, 2009:34). The phenomenon of decentralization dates back to before the WHO's founding, when the Pan-American Sanitary Bureau (PASB) existed as a separate organization that, once the WHO was established in 1948, refused to become part of the WHO (PAHO, 2015). The PASB subsequently became the Pan-American Health Office's secretariat, following the WHO's establishment in 1948, and provided the current model for the WHO's regional offices (Clift, 2014:24). The PAHO is now classified as a regional office. According to Charles Clift (2014:24), a prominent scholar studying the WHO, decentralization

“effectively created seven WHOs rather than one” providing each regional office with a high degree of autonomy. Previous efforts to centralize the WHO, under “One WHO” have failed, and resulted in greater autonomy for regional offices, thus further decentralizing the WHO’s structure (Hanrieder, 2015:93).

The regional offices have near full autonomy to determine their own budget and program planning (Yamey, 2002). AFRO develops programs targeted to address regional issues such as polio eradication. Headquarters, however, develops its own programs that it expects *all* regional offices to also implement alongside individual regional agendas. As a result of the diverging roles and goals, cooperation between headquarters and AFRO often fails (Gale, Lauerma and Bennett, 2014). In the past AFRO has been forced to follow paths defined by the headquarters, rather than focus on regional health issues, such as strengthening local and national health systems within the region to handle pandemics more effectively (Gale, Lauerma and Bennett, 2014).

The second key attribute contributing to autonomy within regional offices is the fact that the Member States in each region elect their own Regional Director. The only role for the WHO Executive Board in Geneva is “rubber stamping” the selected Regional Director following elections (Kelland, 2016). This other aspect of regional autonomy built into the WHO’s organizational structure makes it impossible for the WHO to act as a cohesive unit, particularly during infectious disease outbreaks (Hanrieder, 2015:105). Peter Piot, a well-known epidemiologist and former head of UNAIDS, points to the opaque selection process of the regional directors as a likely source of some of the dysfunction as the process captures specific interests that benefit personal agendas of the candidates (Biswas, 2014; Boseley, 2014). Patterson (2016) likewise notes that “the African Health Office was relatively ineffective against

Ebola, in part because of cozy political relationships and inefficiency and because it wasn't as well-funded or staffed" as other regional offices. According to Charles Clift, in his 2014 report on the WHO for Chatham House, the lack of direct control over AFRO from the WHO headquarters in Geneva was the chief reason the WHO could not respond as a coordinated unit to the Ebola crisis in West Africa.

Decentralization crippled the Ebola response, and evidence suggests that decentralization is causally linked to a slow response, and the small amounts of resources dedicated to the WHO's limited involvement prior to the health authority issuing a PHEIC. Guinea refused to report its first Ebola cases to the WHO (CDC, 2014b). The Guinean Health Ministry shared information on confirmed cases and deaths, but withheld information on suspected cases, which distorted the extent of Ebola's spread (CDC, 2014b). The Guinean economy depends on the country's mining industry, and the government felt that reporting suspected cases would negatively impact the Guinean economy (AP, 2015). Guinea's government ignored the mandatory reporting requirements under the IHR (2005) out of fear that expatriates working in the mining industry would flee the country (AP, 2015).

The governments of Liberia and Sierra Leone also downplayed the extent of the outbreaks in their countries as they feared similar economic repercussions (Kamradt-Scott, 2016:408). Eventually, Liberian President Ellen Johnson-Sirleaf called for international assistance but was harshly criticized by Sierra Leone and Guinea, which feared that her calls for help would alarm expatriate populations and cause them to flee from the region (Kamradt-Scott, 2016:408). The WHO Secretariat in Geneva failed to further investigate the calls for help by President Sirleaf on multiple occasions after her initial plea (Kamradt-Scott, 2016:409).

AFRO subsequently convened an emergency teleconference on March 25, 2014, relatively early in the Ebola outbreak, and suggested that the regional director declare an internal WHO grade 2 emergency in order to deploy a regional emergency support tasks force to provide support (Kamradt-Scott, 2016:408). This message never reached headquarters (Kamradt-Scott, *ibid*).

Director-General Margaret Chan feared that declaring a PHEIC would hurt West African economies, and thus provide incentive for Ebola-affected states to withhold future voluntary contributions to the WHO's annual budget. Other instances show that senior directors in Geneva were informed about the deteriorating situation in West Africa, but refused to declare a PHEIC because the Director-General viewed an emergency declaration as a last resort (AP, 2015). According to Bruce Aylward (AP, 2015), the Director-General believed that labeling Ebola as a global emergency would not have done anything to address the issue, and would have instead hurt the economies of Liberia, Sierra Leone and Guinea.

WHO headquarters could not respond to the crisis because prior to March, 2014 headquarters had little knowledge of the situation on the ground. Once headquarters knew of the outbreak, it dropped its responsibility to respond to the growing crisis in order to remain a neutral party out of fear that the three worst-affected West African states would refuse to donate voluntary contributions and that declaring a PHEIC would negatively impact West African economies (Gostin and Friedman, 2015:1903). This would only further exacerbate the WHO's zero-growth budget issues. The "WHO kept saying it's not our role to do it, we just advise the health ministry" (Sun et. al., 2014). Dr. Chan stated earlier in the crisis that she felt that national governments needed to take the lead. Dr. Laurence Gostin argues, however, that "if you have governments with such fragile health systems and wide distrust among its own population, WHO

needs to take the lead” (Flynn and Nebehay, 2014). On July 29, 2014 the WHO headquarters, after receiving three previous cables and ignoring them, received a fourth cable from the UN peacekeeping mission in Liberia that informed Geneva that the Ebola situation was “unprecedented and rapidly deteriorating” (Sun et. al., 2014). The country offices and AFRO, however, turned to the WHO for help because national health ministries could not manage the outbreak; this is when the UN Secretary-General Ban ki-Moon stepped in and created UNMEER.

Shortly thereafter, the WHO declared a PHEIC and it became evident from earlier coordination issues that the WHO system was not coordinated enough to deal with a complex emergency. At this point, resources began flowing into West Africa alongside technical help from foreign doctors and military personnel. The Security Council had to establish the United Nations Mission for Ebola Emergency Response (UNMEER) on September 19, 2014 in order to provide a coordinated, and centralized response to the outbreak (WHO, 2014c:2). The UN Secretary-General and WHO Director-General both recognized that earlier failures in containing the outbreak were a result of “logistics capacities, air transportation, mobilizing international expertise, availability of adequate isolation, care and treatment facilities and essential supplies” and the decentralized set up of the WHO headquarters (WHO, 2014c:1). UNMEER, according to the Interim Ebola Assessment Panel, successfully garnered high level political and financial support but failed to coordinate efforts on the ground in Ebola-affected countries (WHO, 2015b:8). UNMEER was comprised of six units that reported to the Special Representative of the Secretary General, Bruce Aylward, who reported directly to WHO Director-General Dr. Margaret Chan. The six units included Mission Support, Performance Monitoring and Reporting, Prevention and Preparedness, Emergency Operations and Emergency Operations Support. Dr. Anshu Banerjee was the Director of UNMEER’s Emergency Operations (WHO, 2014c). He set

up offices in Guinea, Sierra Leone, and Guinea with each one led by an Ebola Crisis Manager who reported directly to the Special Representative of the Secretary-General (WHO, 2014c).

The evidence suggests that the WHO's decentralized structure contributed to a slow response due to coordination issues. The WHO's decentralized structure, however, did not vary across cases so while decentralization is important to the Ebola case, decentralization alone cannot explain the difference in WHO and Member State responses between the Ebola and Zika cases. The decentralized structure resulted in significant autonomy for AFRO, whose Member States did not have sufficient financial and medical resources to operate independently from WHO headquarters. In the final section of this case study, I turn to the budgetary mechanisms of the WHO as the last explanation for understanding the speed of the response and the amount of resources that WHO and its Member States allocated to the Ebola response.

Budgetary mechanisms. I hypothesize that the more the budgeting mechanism allows states to voluntarily fund public health issues on a case by case basis, and the less these contributions are made mandatory, the slower the response and the fewer resources allocated to the response. The WHO has had a zero-growth budget for assessed contributions since the early 1980s forcing Member States to rely on a funding category called "extra-budgetary funds," which include voluntary-specified contributions from individual Member States. In addition to voluntary-specified contributions, private and humanitarian organizations and other United Nations agencies allocate additional funds to the programs of their choice.

First, I analyze the composition of AFRO's budget, and outline whether the Preparedness, Surveillance and Response categories that are outlined in the overall WHO budget are funded by assessed or voluntary-specified contributions. These Preparedness, Surveillance

and Response categories are: 1) emergency risk management, 2) epidemic- and pandemic-prone diseases, 3) outbreak and crisis response, and 4) alert and response capacities. Second, I separate the budgets of Liberia, Sierra Leone, and Guinea into assessed contributions and voluntary-specified contributions, paying specific attention to the four categories that I identify above, in order to discern whether financing emergency response operations from voluntary-specified contributions is problematic for speed and level of response.

AFRO's 2014-2015 budget was \$331.24 million and was made up of 24.1 percent voluntary specified contributions (\$79.7 million USD) and 22.7 percent assessed contributions (\$75.29 million USD) (WHO, 2016k). The remainder of AFRO's budget is comprised of funds from private organizations, other UN organs, and non-governmental organizations, which each contribute a small percentage to AFRO's larger budget and are separate from assessed and voluntary-specified contributions. AFRO spends none of its assessed contributions on outbreak and crisis response. As percentages of its overall budget, AFRO spent small amounts on epidemic- and pandemic-prone diseases (\$2.70 million USD, 4 percent), emergency risk and crisis management (\$1.78 million USD, 2.6 percent), and alert and response capacity (\$1.31 million USD, 1.9 percent) (WHO, 2016k). While there is no official data, the small amounts that AFRO spends on these three pandemic response categories suggests that AFRO relies on country offices to handle infectious disease outbreaks within its territories. Alternatively, the low level of spending by AFRO could be evidence that the organization relies on outside contributions from international organizations and non-regional WHO Member States in the event of a health emergency in the African region.

From examining the budgets of the three country offices based on assessed and voluntary contributions I find that the four crisis response sub-categories were funded through voluntary

contributions made by WHO Member States. The voluntary contribution mechanism allows Member States to scale up their donations for public health events when a health crisis erupts.

The country offices have substantially smaller budgets from which to operate. Liberia received \$2.42 million USD in assessed contributions with \$63,000 USD allocated to outbreak and crisis response, while the three other categories received less than 0.1 percent of assessed contributions (WHO, 2016k). Liberia received \$59.85 million USD in voluntary-specified contributions for 2014-2015 with \$48.05 million USD or 96.9 percent of Liberia's assessed contributions spent on outbreak and crisis response (WHO, 2016k). Voluntary-specified contributions did not fund any of the remaining three categories (WHO, 2016k).

Guinea received \$3.16 million USD in assessed contributions and spent the most on leadership and governance. Within the Preparedness, Surveillance and Response subcategories, Outbreak and Crisis response in Guinea received \$94,000 USD from assessed contributions with the three other subcategories receiving minimal amounts from assessed contributions (WHO, 2016k). Guinea received \$44.96 million USD in voluntary-specified contributions, with \$33.27 million USD (93.9 percent of Guinea's voluntary-specified contributions) dedicated to outbreak and crisis response (WHO, 2016k). Guinea did not spend any more of its voluntary-specified contributions on Preparedness, Surveillance and Response sub-categories (WHO, 2016k).

Lastly, Sierra Leone received \$2.5 million USD in assessed contributions, and no assessed contributions were allocated to outbreak and crisis response (WHO, 2016k). Emergency risk and crisis management received \$62,620 USD and epidemic- and pandemic-prone diseases received \$28,000 USD from Sierra Leone's assessed contributions (WHO, 2016k). It did not spend any of its assessed contributions on other sub-categories in Preparedness, Surveillance and Response (WHO, 2016k).

Conversely, Sierra Leone received \$35.75 million USD in voluntary-specified contributions, and spent \$30.58 million USD or 93.4 percent on outbreak and crisis response (WHO, 2016k).

Office	Assessed Contributions	Voluntary Specified Contributions
AFRO	\$79.7 million USD	\$75.29 million USD
Liberia	\$2.42 million USD	\$59.85 million USD
Liberia: Preparedness, Surveillance and Response	Outbreak and Crisis Response: \$63,000 USD	Outbreak and Crisis Response: \$48.05 million USD
Guinea	\$3.16 million USD	\$44.96 million USD
Guinea: Preparedness, Surveillance and Response	Outbreak and Crisis Response: \$94, 000 USD	Outbreak and Crisis Response: \$33.27 million USD
Sierra Leone	\$2.5 million USD	\$35.75 million USD
Sierra Leone: Preparedness, Surveillance and Response	Emergency Risk and Crisis Management: \$62, 620 USD Epidemic- and Pandemic- Prone Diseases: \$28,000 USD	Outbreak and Crisis Response: \$30.58 million USD

Given the budget evidence, it is clear that Liberia, Sierra Leone, and Guinea relied on voluntary-specified contributions to respond to the Ebola outbreak. The three worst-affected countries each spent approximately 90 percent of their voluntary-specified funds on outbreak and crisis response (WHO, 2016k). The amount of funds overall proved insufficient to contain the outbreak, as the financial support came too late to effectively stem the tide of Ebola transmission (WHO, 2015b:6). The WHO and Member State response was slow and lacked resources as a result of the WHO, AFRO and country-office budgets being comprised of mainly voluntary-

specified contributions that began to arrive in large sums only after the WHO declared Ebola a PHEIC. The voluntary contributions mechanism allowed Member States to quickly scale up the response once they recognized Ebola as a threat to international security.

Further compounding the problems created by reliance on voluntary-specified contributions is the disrepair of health systems in the three most affected countries. The WHO headquarters delegates to the country offices the task of being the first line of defense against infectious disease outbreaks, however the WHO budget prevents country offices and AFRO from fulfilling this task. Decentralization, thus, in tandem with the WHO's budgetary mechanisms, produced an initially slow, and resource-poor response from the WHO and its Member States. The United States published a report titled "U.S. and International Health responses to the Ebola Outbreak in West Africa" which concluded that "insufficient financial resources to fund local responses and pay health personnel" had contributed to "human resource and commodity shortages" (Salaam-Blyther, 2014:5).

While financial resources may explain part of the response, the poor health infrastructure within the three worst affected states is another point to consider. In Liberia, for instance, the country has only 173 doctors, according to the Liberia Medical and Dental Council (Sieff, 2014). Other sources, such as the Liberian Ambassador to the United States, say that the number is closer to fifty, meaning that there is only one doctor for every 90, 000 Liberians (Sieff, 2014). In Guinea the information on health personnel per 10,000 people is not available, while in Sierra Leone there are 1.9 health personnel per 10,000 people (Salaam-Blyther, 2014:6). Local and foreign doctors responding to the outbreak in mid to late 2014 were left with no choice but to conduct exams on potential Ebola cases without personal protective equipment and outside of

specially designed treatment units (Sieff, 2014). The result was more Ebola cases and a reduction in medical personnel (Sieff, 2014).

In addition to the composition of the WHO's budget, reductions in staff due to budgetary concerns likely contributed to the slow Ebola response. The first area targeted for job cuts was at headquarters and at the African Regional Health Office between 2011 and 2012. Headquarters eliminated 495 posts with 235 of these jobs housed at AFRO. The job cuts at AFRO were "informed by a financial vulnerability analysis" according to the WHO Executive Board (WHO, 2012:2). Dr. Margaret Chan declared that the WHO would "do more with less" and continue to expand its mandate despite downsizing (WHO, 2012:2). The WHO justified job cuts to improve the independence, professionalism, fairness, and timeliness at both the headquarters and at AFRO (WHO, 2012:6). Reducing WHO staff at both headquarters and AFRO resulted in too much work, and too few people to do it. The drastic reduction in staff at AFRO is one potential explanation for the five-month delay in the WHO response after Guinea reported its first Ebola cases to headquarters in late March 2014.

The cuts in emergency response personnel at AFRO could have resulted in a slower response as AFRO scrambled to coordinate sufficient personnel trained in emergency response to help contain the Ebola epidemic. There were no core funds reserved for emergency response, and the Interim Ebola Assessment Panel argued that this contributed to the WHO's slow response, which lacked sufficient resources to handle a rapidly evolving outbreak (WHO, 2012:6). The budget issue exacerbated the problem of decentralization. Dr. Luis Sambo, then director of AFRO, was in charge of AFRO's spending and key decisions. Evidence suggests that Sambo was incompetent, and the incompetence of a single individual leading the organization primarily responsible for dealing with the Ebola outbreak led to a total breakdown in coordination,

funding, and emergency response. At the same time, if AFRO were not an autonomous organ of the WHO, and if Dr. Luis Sambo had been a member of the larger WHO bureaucracy, his incompetence would not have resulted in total failure. Centralization might help pick up the slack where leadership fails in the regional offices. While the WHO headquarters delegate a significant amount of autonomy to AFRO, the regional office lacks the capacity to fully accept the responsibility of containing an outbreak like Ebola. The health systems within Guinea, Liberia and Sierra Leone are severely under-funded and under-staffed for the number of people they serve. Decentralization and budget explanations are tightly interconnected, and the two processes create issues where agencies that are tasked as the primary responders, namely AFRO and the country offices in the affected Member States, lack the capacity to respond quickly and with enough resources to quell a major outbreak.

Evidence supports the hypotheses about decentralization and budgetary mechanisms: throughout the WHO and Member State response to the Ebola crisis, the WHO's decentralized structure (H4a) was a barrier to a quick response. This led to the PHEIC declaration eight months after the initial outbreak. The effects of the WHO's budgetary mechanisms (H5a, H5b) on the speed of WHO and Member State response is also clear. Liberia, Sierra Leone, and Guinea, along with AFRO, did not receive much in the way of assessed contributions that they could allocate to emergency response sub-categories; there were too many other categories that these country offices had to fund. As a result, Liberia, Sierra Leone and Guinea relied on voluntary-specified contributions that only came into the region once the WHO declared the PHEIC. Evidence thus suggests that the initially slow and resource-poor response is causally related to the budgetary mechanism. Other aspects of the budget and budgetary considerations such as reduction in staff due to budget cuts, and lack of health infrastructure played a role in the WHO

and Member States' slow, limited response. At the same time, decentralization and the main budget mechanism that allows WHO Member States to choose when and whether to provide funds for public health issues does not vary across my two cases. These similarities limits their explanatory value in helping us understand why the Ebola and Zika responses varied so significantly.

2016 Zika Pandemic in the Americas

Establishing the dependent variables: speed of response and amount of resources procured

The first cases of local transmission of the Zika virus were reported in Brazil in May 2015. Since then, more than twenty countries in the Americas have reported local transmission (Ladhani et. al., 2016:600). Soon after Brazil reported its first local transmission, Colombia also began to report cases of local transmission. The PAHO declared a regional emergency in May 2015 and released advice to the affected Member States (PAHO, 2016c). The PAHO began coordinating an emergency response, which it modeled on previous mosquito-borne virus outbreaks in the region involving dengue and chikungunya (PAHO, 2016c). Devi Sridhar, a professor of global public health at the University of Edinburgh in Scotland, stated that “the World Health Organization is only as strong as the regional office in charge,” an important statement to consider in analyzing the PAHO’s response to Zika (Whitman, 2016). The PAHO’s prior experience and strong leadership of Regional Director Carissa Etienne led the regional office to model the Zika response on previous responses to chikungunya (PAHO, 2016c).

In October 2015, four months after the initial reports of local transmission in Brazil reached the PAHO, Brazil reported an increased number of infants being born with microcephaly in its northern Pernambuco state (Ladhani et al, 2016:600). Microcephaly is a congenital neurological

abnormality resulting in smaller skull and brain size in infants (Landhani et al., 2016:600). Once the number of Zika cases exploded and began spreading rapidly throughout Central and South America during the summer and fall of 2015, the WHO responded quickly with its PHEIC despite having no scientific evidence of a demonstrated link between Zika and microcephaly. Many health professionals and news reports focused on the treacherous “down-stream effects” on newborn babies, in reference to microcephaly (Whitman, 2016). Microcephaly occurs as a birth defect during pregnancy where a baby is born with a much smaller head than is normal. Microcephaly can result when a baby’s brain does not develop properly during pregnancy, or stops growing after birth (CDC, 2016e). Babies born with microcephaly often experience severe neurological problems throughout their lives such as seizures, hearing and vision problems, coordination and balance issues, intellectual disabilities, and developmental delays such as learning to speak or walk (CDC, 2016e). Scientists researching the Zika virus and its effects on pregnant women believe that the risk for an unborn baby to have microcephaly is highest in the first trimester, being between one and thirteen percent (Schnirring, 2016).

Brazil, El Salvador, and Venezuela shortly thereafter reported an alarming number of patients with Guillain-Barre syndrome (GBS), a neurological disorder that causes short and long term paralysis (Ladhani et. al., 2016:600). By December 2015 Brazil reported 56,318 suspected cases of Zika virus in 29 states (WHO, 2016e:8). On December 8, 2015 the PAHO Director Carissa Etienne activated the Incident Management System (PAHO, 2016a). The PAHO subsequently alerted the WHO headquarters to the rise in microcephaly cases despite there being no scientifically demonstrated link between Zika virus and microcephaly. The increasing alarm within the region led the WHO Director-General to declare the clusters of microcephaly and GBS a public health emergency of international concern (PHEIC). The WHO expressed

particular concern of the long-term health and economic consequences for the governments and citizens of the affected countries. This emergency declaration came four months after the link with microcephaly was first hypothesized (Rathi, 2016).

The time from initial reports of Zika transmission and subsequent increase in microcephaly and GBS to the time when the WHO declared a PHEIC was approximately eight months. At the time of the PHEIC declaration, the WHO estimated that there were approximately one million cases of Zika in 28 countries in the Americas. By June 2016 microcephaly and other nervous system disorders thought to be related to Zika virus infection had been reported in twelve countries and territories in Central and South America, plus reports from Slovenia, Spain, and the United States of babies born with microcephaly from mothers who had travelled previously to countries with current Zika transmission (WHO, 2016e:9). Though Zika is not a highly lethal virus, it is extremely transmissible because it is carried by mosquitoes that know no borders. The main risk with Zika is its capacity to infect hundreds of thousands of people some of whom may be expecting mothers.

For the remainder of the case study I first proceed with the epidemiological explanation for the Zika response. I examine the impact of lethality and transmissibility on the speed and amount of resources allocated to the response. I then turn to two political approaches for understanding the WHO and Member States' response to Zika. I employ the logic of securitization theory to understand the extent to which Zika was securitized and how this impacted on the amount of resources allocated to the response. Finally, I look at the WHO's decentralization and budgetary mechanisms to assess the impact of organizational and budgetary structure on the speed of the WHO and Member State response to the Zika outbreak. I argue that Zika did not receive a quick response or many resources because it failed to become a security issue. As a result, WHO

Member States did not dedicate additional voluntary-specified contributions to the countries affected by the Zika outbreak.

Epidemiological explanation for the Zika response. The more lethal and easily transmissible the disease, the quicker and more resource plentiful the WHO and its Member States' response should be. Conversely, if a disease is less lethal and less easily transmissible, the WHO and its Member States will respond slower and allocate fewer resources to the response. In the following section I assess the lethality and transmissibility of the Zika virus and how these two independent variables affect the speed of response and resources allocated by the WHO and its Member States. I find that though Zika is a highly transmissible virus, it is not a lethal virus. As a result, the epidemiological explanation produces inconclusive predictions that require further political explanations. Examining lethality and transmissibility of Zika in greater detail as I do in this section provides greater understanding of the complexity of international health emergency responses.

There is no measured case fatality rate for Zika because most people who are infected either experience no or very mild symptoms, and almost everyone recovers quickly. According to Ladhani et al. (2016:800) 80 percent of those infected with Zika remain asymptomatic and those who do develop symptoms experience mild muscle aches, headache, or fever for a period of four to seven days. A very small proportion of people infected with the Zika virus in the most recent outbreak have suffered from GBS, which is a nervous system disorder where the immune system attacks areas of the nervous system (CDC, 2017a). The syndrome destroys the myelin sheath surrounding axons on peripheral nerves, thus inhibiting transmission of nerve signals and resulting in temporary or long-term paralysis.

Some individuals with underlying health conditions, however, have died from Zika. Though doctors hypothesize that the small number of deaths are Zika-related, they have not been able to demonstrate a causal linkage between the virus and subsequent death as a result of underlying health issues. In April 2016 a man in his seventies with Zika died primarily from internal bleeding that doctors say could have been a “rare immune reaction to the virus” (Fox, 2016). Later, in July 2016, an elderly Zika-infected patient at a Utah hospital died, however he had underlying medical conditions that made it impossible for doctors to determine the definitive cause of death (Goldschmidt, 2016a). Though the link between Zika and neurological abnormalities was unclear, in March 2016 researchers from Johns Hopkins University, Florida State University, and Emory University found overwhelming evidence that Zika leads to birth defects in fetuses (Dennis and Sun, 2016).

Though Zika is not highly lethal, it is a highly transmissible virus because it is spread through a common species of mosquito known as the *Aedes aegypti*. This species of mosquito resides in Central and South America as well as in the Caribbean. Though primarily transmitted through the *Aedes aegypti*, Zika can also be transmitted through sexual contact with an infected individual (CDC, 2017a). The Zika virus remains in the bloodstream of an infected individual for approximately a week after initially contracting the virus. (CDC, 2017b). In some cases, however, Zika RNA was detectable in the blood up to 54 days after the individual was initially infected (Rosen, 2017). Adding to the confusion over Zika’s longevity in the human body, recent studies demonstrated that the Zika virus can remain in semen for up to three months. This finding raised concerns about continual Zika virus transmission even after health authorities quell mosquito populations (Rosen, 2017). Due to the high numbers of babies born with microcephaly, particularly in Brazil and Colombia, national health systems will be strained as

they deal with larger numbers of patients requiring intensive medical care. As microcephaly is a life-long condition, parents and caregivers will also have to care for children born with microcephaly, which could impact on their ability to work outside of the home. As of March 2016 the WHO predicted that 2,500 babies would be born with microcephaly if the current trends continue throughout 2017 (Sun, 2016b),

Given the long-term neurological effects that are linked to Zika, the virus represents a much different threat than the Ebola virus. While it is much less lethal, it is highly transmissible. The Zika virus does not hurt the majority of people it affects, yet it has the potential to cause long-term consequences for babies born with microcephaly, a life-long condition with larger economic consequences for governments. Parents and national health and education systems will face greater economic challenges in caring for and educating growing numbers of children with severe developmental delays and other health complications related to microcephaly.

As mentioned at the beginning of this section, the hypotheses on lethality and transmissibility produce inconclusive predictions. The high transmissibility of Zika necessitates a quick and resource-rich response from the WHO and its Member States. On the other hand Zika's low lethality should lead to a slower response with fewer resources allocated by the WHO and its Member States. Further explanations that focus on the politics of securitization and bureaucratic structure are necessary to develop a more complete understanding.

Securitization explanation for the Zika response. When securitizing actors emerge and frame an outbreak in a persuasive way, this should lead the WHO and its Member States to allocate more physical and financial resources to the emergency (H3a). When no securitizing actors emerge, however, the outbreak will not be securitized and will remain a public health issue, resulting in

fewer resources allocated to the outbreak (H3b). In this section I assess the extent to which Zika was securitized. I examine statements from national leaders and international organizations along with media reports to identify potential securitizing actors and security language. Based on the predictions of securitization theory, I expect that if Zika were fully securitized large amounts of financial resources would flow to the affected states from the WHO and its Member States. I find that Zika was not securitized—that is, securitizing actors did not effectively reframe the outbreak as a security issue. Instead, the outbreak remained a public health concern that necessitated a long-term response and as a result received few resources from the WHO and its Member States. Affected Member States were left to regional and national strategies despite WHO headquarter involvement in the coordination of the response and disbursement of financial resources.

The PAHO treated Zika as a regional emergency beginning in May 2015 (Kelland, 2016). Prior to notifying the WHO headquarters, the PAHO issued a statement on Zika describing the virus's potential to infect millions (Kelland, 2016). In November 2015 the Brazilian government declared that Zika constituted a “national emergency” due to its unprecedented spread, however the government did not cite any other security concerns resulting from Zika (WHO, 2016e:8). On January 28, 2016 Laurie Garrett quoted the minister of health in Brazil, Marcelo Castro, as saying that Zika “has already gone from being an epidemic to an endemic disease... meaning Zika may now be a permanent feature of the nation's ecology” (Garrett, 2016). Garrett ended the *Foreign Policy* article by saying that “public health leaders and politicians had better brace for a very long haul on Zika,” suggesting that Zika was not an emergency but a long-term public health issue. Such a health issue would require a sustained response, rather than a surging response similar to the WHO Ebola response in 2014 (Garrett, 2016).

Also in January 2016 Jeremy Farrar, the head of the Wellcome Trust, said that the Zika outbreak was even worse than the Ebola outbreak because of its potential negative consequences for pregnant women and their unborn babies (McKie, 2016). Farrar also did not speak about Zika as a security issue; he just emphasized the negative long-term consequences for pregnant women and babies. The WHO announced a PHEIC shortly after the dramatic rise in the number of microcephaly and GBS in Brazil and Colombia in the latter half of 2015. The WHO declared the clusters of microcephaly and GBS a PHEIC on February 1, 2016 despite the fact that there was no evidence that Zika was the cause of the growing number of microcephaly and GBS cases in Zika-affected countries. Importantly, the Zika virus was *not* the rationale behind the PHEIC; the increasing cases of microcephaly and GBS were the primary determination for the Emergency Committee on Zika to declare a PHEIC to draw international attention to the outbreak (WHO, 2016e:8). In their statement, the Emergency Committee justified the PHEIC as the clusters occurred in areas newly infected with Zika virus, and there was no other plausible explanation for the clusters of microcephaly and GBS (WHO, 2016i). The WHO did not use any security language to describe the Zika outbreak, but instead emphasized its long-term effects on those affected by microcephaly and GBS (WHO, 2016i). By March 22, 2016 Margaret Chan stated that “the status of Zika has changed from a mild medical curiosity to a disease with severe public health implications” (WHO, 2016i).

The WHO subsequently released the Zika Strategic Response Plan in June 2016 in which the Director General explicitly stated that Zika was a “global health emergency” as a result of its “profound mobility” and “risk profile [that] has changed from a mild threat to one with serious consequences” (WHO, 2016e:5). The report also framed the Zika virus as a “new type of health threat” that “required a unique and integrated response strategy” however made no mention of

Zika as a security threat (WHO, 2016e:5). Part of the rationale behind announcing Zika as a health emergency was to intensify research efforts to identify possible links between the Zika virus and other neurological and congenital malformations as these links were not well understood (WHO, 2016l).

Contrary to earlier discourse from affected governments, health writers, and the WHO, Vice Presidential candidate Tim Kaine classified Zika as a “national security issue” (Gostin and Hodge, 2016:1100). His rhetoric echoed earlier framing from U.S. Health Secretary Sylvia Burwell who explicitly stated that “Zika has a significant potential to affect the security of U.S. citizens” (Gostin and Hodge, 2016:1100). Gostin and Hodge (2016), two prominent global health researchers, similarly characterized Zika as a national and global health security threat (Gostin and Hodge, 2016:1100). Gostin and Hodge (2016:1100) explicitly stated that they called Zika a national and global health security threat to encourage greater resource allocation.

American news outlets, in particular, portrayed the Zika outbreak as a highly dangerous virus whose effects on newborn babies were much more common than scientific evidence demonstrates (CDC, 2016a). The risk of a baby being born with microcephaly to a Zika-infected mother is between one and thirteen percent, thus representing a minority of babies who are born to mothers who were infected with the Zika virus during pregnancy (Sun, 2016a). Mainstream media focused on images of mothers holding infants with microcephaly as if to demonstrate that any pregnant woman infected with Zika would give birth to a baby with microcephaly (Halvorssen, 2016). One CNN report announced that Zika is “prompting worldwide concern because of an alarming connection to a neurological birth disorder and its rapid spread across the globe.” Even though microcephaly cases were increasing, calling microcephaly “rapidly spread[ing]” was a stretch given it was only affecting between one and thirteen percent of babies

born to mothers who had the virus (LaMotte, 2016). The media particularly emphasized Zika's impact on major events such as the Olympics in Rio de Janeiro, Brazil, and professional golf events. Several male golfers dropped out of international tournaments to protect their wives from potentially contracting Zika through sexual intercourse (Bonesteel, 2016).

Other circulating stories within the American media focused on Zika's purported "deadliness." CNN reported on three Zika-deaths in Venezuela and one in Utah, however left out key details to make the deaths appear to be a result of the virus. Headlines made it seem as if Zika was definitively the leading cause of death, when other factors also played a role (Halvorsen, 2016). In the Venezuelan cases the report failed to mention the lack of adequate medical supplies to treat those infected with Zika and in the Utah case CNN did not concede that the man had a pre-existing medical condition that made determining his cause of death impossible (Karimi, 2016).

The American media also reported heavily on local transmission once Zika began spreading throughout Miami. Reports on local transmission in Miami, one of the most heavily infected places in the continental United States, failed to mention that despite there being a high number of Zika cases due to local transmission, none of the infected people were hospitalized since most recovered from Zika without medical attention (CDC, 2017b). The media also did not focus on why the WHO declared a PHEIC; the PHEIC was not declared about Zika, but the babies being born with microcephaly, and the sharp increase in the number of people with Guillain-Barre Syndrome rather than the virus itself. The media reaction, in particular in the United States stoked fear within the American public leading many to believe that the virus caused birth defects in all babies born to Zika-infected mothers and that death as a result of Zika was also likely.

The security frames put forth by Burwell, Kaine, Gostin and Hodge, and the American media did not become the prevailing frame for the Zika outbreak. Contrary to earlier characterizations of Zika as a security threat, epidemiologist, D.A. Henderson who had led earlier programs to eradicate smallpox, in December 2016 advised the Obama Administration that Zika's threat to the United States did not warrant the fear and concern that it had triggered (Cohen, 2016). Henderson further characterized the United States government reaction as disproportionate to the threat level since most people who get Zika do not even know they have it (Cohen, 2016).

Following the initial framing of Zika as a new and highly transmissible global public health issue that required additional research to be fully understood, the fifth meeting of the Emergency Committee on Zika on November 18, 2016 ended the PHEIC for microcephaly and GBS related to Zika. Instead, the statement from the meeting urged affected countries that a long-term plan for Zika would be necessary as health and education systems would have to bear the burden of more children with neurological complications and cognitive delays as a result of microcephaly (WHO, 2016b). The report also stipulated that affected Member States in collaboration with the WHO required a "sustained programme... with dedicated resources to address the long-term nature of the disease and its associated consequences" (WHO, 2016b). The framing of Zika and its related long-term effects as requiring both a short and long term approach suggests that Zika did not become a security threat, but remained a public health issue (WHO, 2016b).

The WHO's decision to announce a PHEIC for the clusters of microcephaly and GBS thought to be linked to the Zika virus is likely path-dependent based on the WHO's late response to the Ebola virus in 2014. Two years earlier, the WHO faced harsh criticism for the

Organization's slow response to the Ebola virus in West Africa, possibly prompting the WHO to quickly address the Zika outbreak even though Zika has mild effects for the majority of individuals infected. Similar arguments were made contrasting the WHO's response to H1N1 in 2009 and Ebola in 2014 (WHO, 2010). The WHO was harshly criticized for causing what many Member States viewed as unnecessary alarm when it announced H1N1 constituted a PHEIC (WHO, 2010). In response to the Ebola crisis the WHO, it could be argued, waited to declare a PHEIC to avoid similar criticism. Then in the case of the Zika virus, due to previous criticism that the WHO had not responded quickly enough to Ebola, the international organization decided to respond as early as possible.

Since the WHO announced the PHEIC on February 1, 2016 and implemented its Strategic Response Framework and Joint Operations Plan beginning on February 14 2016, the total amount of funding from February to July 2016 increased from the initial \$56 million USD (WHO, 2016n:5). The WHO and Member State response to the Zika crisis lacked resources. Funding requests show glaring gaps between the funds requested and the funds actually received. Following the PHEIC declaration, the WHO's Contingency Fund, an emergency fund established following the Ebola pandemic, released \$3.8 million USD to implement the first stages of the WHO's Strategic Response Framework (WHO, 2016n:5).

The WHO acknowledged in its report announcing the Strategic Response Framework that the funding received did not come close to the funding that was requested. The WHO requested \$17,721,484 USD and received \$2,338,084 USD, leaving a funding gap of \$15,383,400 USD (WHO, 2016n:6). For the WHO to implement its Zika Strategic Response Framework and Joint Operations Plan for the period of July 2016-December 2017, the WHO report stipulated that \$122.1 million USD would be required (WHO, 2016m). The PAHO experienced a similar

funding gap after the regional arm for the Americas requested \$8,132,000 USD, and received a mere \$1,640,000 USD leaving a funding gap of \$6,492,000 USD when the WHO published the Strategic Response report in May 2016 (WHO, 2016n:7). The PAHO estimated its total budget for all objectives, including detection, reducing risk exposure, support response, promoting coordination and developing a research agenda at \$17,300,000 USD Other organs within the WHO and United Nations, such as the UN Development Programme and the UN Population fund also experience glaring funding gaps (PAHO, 2016a:4). The UNDP requested \$4,175,000 and received only \$40,000 while the UNPF requested \$9,600,000 and receive \$250,000 USD (WHO, 2016n:8-9). Additionally, the UN Secretary General Ban-ki Moon created the Multi-Partner Trust Fund for Zika, which was subsequently administered by the UN Development Programme to centralize the financing for the overall Zika response (WHO, 2016n:8).

In the end, however, Zika received few resources from the WHO and its Member States, as I argue they were not convinced that Zika was a security issue. Had Zika been fully securitized, we would expect to see large amounts of financial resources dedicated to the emergency response. Instead, WHO Member States were reluctant to allocate resources to respond to Zika. Characterizing Zika as a long-term public health issue requires a steadier, years-long stream of resources to address health and economic consequences of the Zika virus. Securitization theory on its own cannot explain the WHO and Member states' response to the Zika outbreak. One final explanation that focuses on the WHO's decentralized structure and budgetary mechanisms, provides additional insight into the politics of responding to international health emergencies.

Organization structure and budget explanation. This section proceeds in two sub-sections. First, I address the issue of decentralization and how the WHO's decentralized network of headquarter, regional, and country offices results in a slower WHO and Member State response. Second, I move to the budget explanation where I examine the composition of the PAHO's budget, and the Brazilian and Colombian country office budgets. Similar to the Ebola case, I look for the four sub-categories within the larger budget category of Preparedness, Surveillance and Response within the assessed and voluntary-specified contributions of the PAHO and each regional office budget.

Decentralization. Building on the logic of organizational theory and principal-agent approaches, I predict that when the bureaucratic structure of an organization is more decentralized, the organization's response to an outbreak will be slower. Alternatively, the more centralized the bureaucratic structure the quicker the organization will respond. I argue that the WHO's decentralization is the same across both the Ebola and Zika cases, however the difference in response is a result of stronger leadership at the PAHO.

As noted in the previous case study on Ebola, the WHO is a highly decentralized bureaucracy. The decentralization variable does not vary between the two cases, as the WHO's structure did not become more centralized following the Ebola pandemic. The Pan-American Health Office (PAHO) was the regional arm of the WHO responsible for handling the Zika outbreak. The quicker response from the PAHO does not relate to greater centralization, but to stronger leadership at the PAHO versus AFRO's leadership during the 2014 Ebola crisis.

The PAHO had an existing emergency coordination mechanism in the form of its Emergency Operations Centre (EOC), which functions as the PAHO's centralized location to

coordinate and control health emergency responses (WHO, 2017b). The PAHO also has two separate task forces: the Disaster Task Force and Epidemic Alert and Response Task Force which operate through the EOC framework. The EOC then collects, analyzes and disseminates information to PAHO Member States in the event of a health crisis. The EOC publishes weekly reports, moreover, even during periods of no health emergencies, to update regional Member States of any new and emerging health threats. The Center carried out this function during the Zika outbreak (WHO, 2017b).

Alongside the strong leadership and existing emergency coordination at the PAHO, developments in emergency response coordination at WHO headquarters are crucial to consider in evaluating the WHO and Member states' response to Zika. Both the Health Emergencies Programme and its Contingency Emergency Fund were established in the wake of the Ebola response to improve on coordination and financial shortcomings that became evident as the Ebola outbreak continued through 2015 and 2016. In a March 2016 progress report on the development of the WHO Health Emergencies Programme, the report acknowledges that “evaluations of the Ebola crisis... emphasized the need to use ‘familiar’ emergency coordination mechanisms in future and to leverage the investments that donors and agencies have made in such entities” (WHO, 2016g:4).

The WHO established the WHO Health Emergencies Programme in cooperation with all six Regional Directors to streamline the workforce, budget, rules, and chain of authority under a single framework for emergency response (WHO, 2016g:6). The new Programme has a single budget and staff plan that is developed in consultation with regional directors and senior WHO staff (WHO, 2016g:3; Zintzmeyer, 2017). The Health Emergencies Programme created a single set of standard operations procedures for rapid disbursements of funds from the newly created

WHO Contingency Emergency Fund (CEF) that was finalized in February 2016 and ready in time for the Zika response (WHO, 2016g:1).

The global response to Zika was coordinated through the WHO headquarters when it activated the Incident Management System (IMS); the IMS was another new program created in the wake of the Ebola outbreak, to coordinate the international, regional and country level responses by assigning responsibility to each level on the basis of the WHO-designated threat level (WHO, 2016e:12). The Incident Management System, based on the level of health threat (Grade 1 being the lowest threat level, and Grade 3 being the highest) dictates which level of the organization is responsible for coordinating all aspects of the response (Zintzmeyer, 2017). A Grade 3 emergency, such as Zika, places all coordinating responsibility with headquarters. The IMS, essentially creates a separate hierarchy that aligns the directors at headquarters, regional offices and country offices to form a clearly delineated chain of command and direct responsibility to one level within the organization (Zintzmeyer, 2017). Within 10 days of the PHEIC declaration the WHO headquarters, the organizational level responsible for coordinating the Zika response as per new IMS guidelines, coordinated efforts across 23 agencies to respond to the Zika outbreak (WHO, 2016g:7). Ultimately, the reformed emergency and response system coordinated WHO expertise with the Office for the Coordination of Humanitarian Affairs (OCHA). OCHA then deployed staff to assist with inter-agency coordination and communication amongst 23 United Nations agencies, and prepare a Zika strategic response plan, and budget within ten days of the PHEIC declaration (WHO, 2016g:7).

As of March 2016, however, the Programme remains critically underfunded after receiving only \$26.60 million USD in funds and pledges out of the \$100 million USD target. Only \$6.89 million USD, as of March 25 2016 had been disbursed to handle four other crises in

addition to the Zika virus (the other crises were: Cyclone Winston, El Niño effect in Ethiopia, deteriorating health conditions in Libya as a result of the ongoing civil war and Yellow Fever outbreak) (WHO, 2016g:6). Since the March 30, 2016 progress report on the Emergencies Programme there have been no further reports on progress (WHO, 2016g).

Given the evidence from the Zika case, decentralization did not appear to slow the response. Rather the decentralized nature of the organization allowed the PAHO's strong leadership to respond autonomously within the Americas even before the WHO recognized the need for international involvement. The strong leadership within the PAHO was able to draw attention towards the Zika outbreak, which likely encouraged a quick response from the WHO and its Member States even though Zika was not securitized.

Budget. When there are more available assessed contributions for emergency response, the WHO and its Member States should respond quickly to the outbreak (H5b). Conversely, the fewer the assessed contributions available for emergency response, the more slowly the WHO and its Member States should respond (H5a). I find that the worst-affected states, Brazil and Colombia, did not receive additional resources in the form of assessed contributions. This is likely due to my earlier findings that suggest WHO Member States did not view Zika as a security threat.

The PAHO receives 2.8 percent (\$111.01 million USD) of the total overall WHO budget, which includes both assessed and voluntary contributions alongside contributions from local governments, partnerships, UN organizations, and philanthropic foundations (WHO, 2016f). The PAHO budget includes 54.1 percent (\$33.72 million USD) assessed contributions from Member States; 6.8 percent (\$4.22 million USD) of contributions are in the form of voluntary-specified contributions; and the remainder of the PAHO budget comes from the other categories

mentioned above (WHO, 2016f). The rest of the budget allocated for the Americas (\$111.01 million USD) was distributed among the Member States within the WHO Americas region (WHO, 2016f). The PAHO's largest budget category was 20.9 percent (\$7.59 million USD) spent on management and administration, with the third largest category being outbreak and crisis response, which received 7.2 percent (\$2.72 million USD) of the PAHO budget (WHO, 2016f). No other subcategories within the Preparedness, Preparedness, Surveillance and Response budgetary category are currently active within the PAHO's 2016-2017 budget (WHO, 2016f).

Given the large number of countries that experienced, and continue to experience, local transmission, I focus on the country office budgets for Brazil and Colombia, given that Brazil was the epicenter of the outbreak and Colombia experienced a rise in the number of cases of microcephaly and GBS (CBS, 2016). Brazil's country office received \$2.55 million USD, however it implemented only \$98,000 USD worth of programs. The majority of its budget (61.9 percent, or \$1.58 million USD) came from assessed contributions, while only 0.9 percent (\$23,710 USD) came from voluntary-specified contributions (WHO, 2016f). Notably, Programme support costs (which were funded entirely by assessed contributions) and philanthropic foundations contributed more to the Brazilian country office's budget than voluntary-specified contributions from Member States. This is in stark contrast to the country offices in Liberia, Sierra Leone and Guinea that relied heavily on voluntary-specified contributions with very little assessed contributions at their disposal. One hundred percent of Brazil's voluntary-specified contributions came from donations from the United States and Norway that totaled \$23,710 USD, of which Brazil spent \$18,660 USD on outbreak and crisis response (WHO, 2016f). Brazil's top spending category was management and administration

(39.5 percent, \$390,000 USD) and malaria (16.3 percent, \$161,200 USD) (WHO, 2016f). Others included neglected tropical diseases (7 percent, \$69,450 USD) and tuberculosis (6.8 percent, \$67,230 USD) (WHO, 2016f).

Colombia's budget for 2016-2017 was comprised of 90.8 percent (\$2.11 million USD) assessed contributions and only 0.4 percent (\$8,700 USD) voluntary-specified contributions (WHO, 2016f). Larger categories of funding included programme support costs (3.3 percent, \$7,770 USD), philanthropic foundations philanthropic foundations (2.1 percent, \$49,370 USD), private sector entities (1.6 percent, \$37,000 USD), and partnerships (1 percent, \$24,000USD) (WHO, 2016f). Colombia, however only implemented \$1.07 million in programs for 2016-2017 (WHO, 2016f). Its voluntary-specified contributions mainly went to outbreak and crisis response (70.7 percent, \$4.13 million USD), and non-communicable diseases (29.3 percent, \$1,710 USD) used up the rest of these funds (WHO, 2016f). The assessed contributions were provided by the United Kingdom (65.5 percent) and Brazil (34.5 percent) (WHO, 2016f). Colombia's assessed contributions were mainly used for budget categories such as social determinants of health (17.1 percent, \$147,390 USD), management and administration (14.3 percent, \$123,690 USD) and people-centered health services (13.8 percent, \$119,250USD) (WHO, 2016f). Outbreak and crisis response—or any other Preparedness, Surveillance and Response sub-categories—did not receive any assessed contributions.

Although the PAHO is comprised of Member States who all have their own country offices and budgets, the PAHO is also resourced by its own charitable foundation, the PAHO Foundation. The PAHO Foundation is a non-profit organization independent of the WHO with its own board of directors comprised of international health experts, business leaders, and academics specializing in public health within the Americas region (PAHO Foundation, 2017a).

The PAHO Foundation partners with the PAHO and also works through public-private partnerships with large corporations such as GE, Google, Coca Cola, and Pfizer Foundation (PAHO Foundation, 2017b). In addition to the PAHO Foundation, the PAHO relies on donations from wealthy private individuals and even accepts donations from anyone through the PAHO website (PAHO Foundation, 2017c). The PAHO called for a Zika virus campaign on February 16, 2017 shortly after the WHO declared the PHEIC concerning the clusters of microcephaly and GBS in Brazil (PAHO Foundation, 2016). While not the focus of my analysis since the PAHO Foundation is not a WHO Member State, it is important to highlight that the PAHO has outside sources of funding that are often larger than voluntary-specified contributions from WHO Member States.

Office	Assessed Contributions	Voluntary-Specified Contributions
PAHO	\$33.72 million USD	\$4.22 million USD
Brazil	\$1.58 million USD	\$23, 710 USD
Brazil: Preparedness, Surveillance and Response	No assessed contributions spent.	Outbreak and Crisis Response: \$18, 660 USD
Colombia	\$2.11 million USD	\$8, 700 USD
Colombia: Preparedness, Surveillance and Response	No assessed contributions spent.	Outbreak and Crisis Response: \$4, 130 USD

Similar to the Ebola response, the majority of funds allocated to Zika the response came almost entirely from voluntary-specified contributions. The Zika response in general, however, did not receive similar levels of resources (from inside and outside the WHO) that the 2014 Ebola response received. Zika-affected countries relied heavily on private organizations and

other donors outside of the WHO for funding. Colombia's budget, though 90.8 percent assessed contributions actually had more donations from philanthropic organizations (2.1 percent) and private sector entities (1.6 percent) than voluntary-specified contributions from Member States (0.4 percent). Likewise, Brazil's budget was composed of 61.9 percent assessed contributions plus 2.8 percent of contributions from philanthropic foundations while only 0.9 percent came from voluntary-specified contributions at the WHO. This suggests that the securitization explanation may connect with the budget explanation: since Zika was not securitized, but rather remained a public health issue, the WHO and its Member States and philanthropic organizations did not feel the need to contribute extra resources to the Zika response. Instead, the burden of responsibility fell to the affected WHO Member States to control mosquito populations and handle the long-term health consequences from the Zika virus.

From the Zika case study I find that Zika's low lethality, but high transmissibility did not have any determinate effect on the speed or response or resources allocated to the response. I also find that Zika was not securitized. Actors had framed Zika as a security threat, however the security framing did not become the dominant frame. Instead, Zika remained a long-term public health issue. Although the outbreak received a quick WHO response, Member States were slow to dedicate any funds to the response. I find that decentralization remained the same between the two cases and that there was not the same surge in voluntary-specified contributions for outbreak and crisis response that occurred in the Ebola case. My findings suggest that the securitization and budget mechanisms work together. When securitization happens, it encourages voluntary contributions from WHO Member States but when securitization does not occur the affected states receive fewer voluntary-specified contributions. In the case of the PAHO and Zika,

however, the role of leadership was important for a quick and well-resourced response at the regional level.

In addition to the stronger leadership at the PAHO that contributed to a quicker and more resource-plentiful response, it is important to take into consideration the location of the respective outbreaks and previous experience with mosquito-borne viruses. Zika occurred in a wealthier region with more developed health infrastructure, while Ebola occurred in some of the poorest countries in the world that have minimal health infrastructure and resources to spend on emergency operations. The second factor to consider is prior experience: many mosquito-borne viruses are endemic to the Americas and required specialized emergency responses. Ebola struck three West African states with no prior experience with Ebola.

First, the Zika outbreak occurred in a region with better (though not great) health infrastructure than West Africa. Brazil and Colombia have 1.89 doctors per thousand and 1.47 doctors per thousand, respectively (World Bank Group, 2016). In comparison, Liberia, Sierra Leone, and Guinea have 0.01, 0.02, and 0.1 doctors per thousand, respectively (World Bank Group, 2016). Second, health authorities at local and national levels, as well as the PAHO at the regional level had prior experience with mosquito-borne viruses such as dengue and chikungunya, whereas Liberia, Sierra Leone, and Guinea had no previous experience with Ebola outbreaks. Prior experience with mosquito-borne viruses in the Americas formed the basis for the PAHO's regional emergency response plan, suggesting that prior experience with a virus can impact on response time and coordination.

Lastly, though I find Zika was not framed as a security issue, the leadership of the PAHO was able to draw attention and resources to the cause. The strong and responsive leadership at the PAHO initiated a regional response and then called the issue to the attention of the WHO and

rest of the international community. The WHO Member States did not respond with the same degree of financial resources that they dedicated to the Ebola outbreak, which Member States interpreted as a security threat. The attention that the PAHO leadership drew to the Zika outbreak, however may have been influential in garnering some resources despite Zika's status as a public health issue.

Conclusion

I find that the securitization and budgetary explanations work together in influencing the speed of response and resources that the WHO and its Member States allocated to the response. When securitization occurs, as in the Ebola case, this encourages WHO Member States to donate voluntary contributions to the response. The Ebola response was slow likely because securitization is a long process that requires time to frame an issue as a security threat and convince the relevant audience that issue is a security threat. When securitization does not happen, the WHO's Member States are less inclined to give more voluntary contributions as the disease is perceived as less threatening, thus requiring fewer resources to contain it. I find that the role of leadership was important in coordinating a fast response to the Zika outbreak and galvanizing some resources when securitization did not occur. African Regional Director, Dr. Luis Sambo was complacent as the regional director. He repeatedly ignored calls and emails from WHO headquarters and country offices in the region, in turn slowing down the WHO's response time. On the other hand, the Pan-American Regional Director, Dr. Carissa Etienne recognized the Zika outbreak shortly after Brazil and Colombia reported sharp increases in the number of microcephaly and GBS cases. Yet, when securitization does not occur a strong leader at the regional level, such as Dr. Carissa Etienne at the PAHO, can mobilize attention toward a

pandemic outbreak. In the absence of securitizing actors to successfully frame Zika as a security threat, Dr. Etienne's responsive leadership was essential for directing international attention toward the Zika outbreak and possibly garnering more resources as a result.

I also suggest that the number of doctors per thousand and prior experience with a specific disease or mode of transmission is important for coordinating a quick response to a disease outbreak. The countries affected by Zika had more doctors per thousand than those countries affected by Ebola, suggesting that more doctors per thousand leads to a quicker response. Further empirical research on health emergencies is necessary to draw a causal conclusion. The countries affected by Zika had prior experience with mosquito-borne viruses, while the countries affected by Ebola had never experienced a prior outbreak. The Zika response was modeled on the American region's previous response to other mosquito borne diseases, suggesting that having a prior model for pandemic response is useful in shortening response time.

In sum, the securitization and budget explanations work together, along with the leadership variable that emerges from my case study analysis. Securitization convinces the WHO Member States that a health issue constitutes a security threat, which prompts Member States to provide additional voluntary contributions to the WHO. Even with irresponsible regional leadership, a resource-rich response can occur. In the absence of securitization, however, the affected states will not receive as many voluntary contributions from WHO Member States. Responsive leadership in this case can direct attention towards the outbreak, and in this way convince Member States and other organizations or actors to allocate funds to an outbreak.

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