

THE POLITICS OF OPERATIONALIZING THE WORLD HEALTH ORGANIZATION ACTIVITIES

Global Politics, health security and the Global Outbreak Alert and Response Network

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Master's Thesis

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Scientific Abstract

Infectious diseases attract a lot of mediatic, cultural and political attention. But are those diseases like Ebola, or ‘disease x’ actually what kills us? Since 1946, the WHO is the most authoritative figure in the fights against infectious disease outbreaks. So how does the WHO maintain this power and authority after tremendous budget cuts, competition for authority, and a shift to non-communicable disease epidemiology? This thesis uses a mixed-methods approach of quantitative analysis of ‘Disease Outbreak News’ reports, and qualitative analysis of key WHO literature, to develop the alternative narrative answering those questions. This thesis found that the WHO activities surrounding the collection and distribution of data create a political and institutional environment in which the WHO seems to be the only logical solution to prevent them. Additionally, the narrative put forth by the WHO prioritizes the ‘alert and response’ and operational capabilities of the organization to further expand authority in outbreak response. This study concludes that the WHO, through the collection and distribution of knowledge, and efforts to increase operational capability as seen through the Global Outbreak Alert and Response Network (GOARN), seeks to maintain normative authority and power as an international organization.

General Audience Abstract

Globalization of trade and travel has only increased the fear of infectious disease transmission. There is a great demand for a global health security system that is alert and capable. Based on this ‘threat’ the WHO justifies their role as global health leader. The Global Outbreak Alert and Response Network (GOARN) is the system that currently acts as the operational arm of the WHO, monitoring and coordinating response to infectious disease outbreaks globally. Despite the critical role of GOARN, its day-to-day endeavors remain unexplored by the public health field. This thesis analyzes how the WHO uses GOARN and its surveillance capabilities to collect and transform data as a method to maintain normative authority, and projects a powerful narrative as the leader of ‘alert and response’. In a competitive environment with limited financial resources, the WHO has adapted in terms of surveillance and operational capability to maintain its leadership and authority in the global public health field.

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Table of Contents:

Scientific Abstract.....	ii
General Audience Abstract.....	iii
Acknowledgment.....	iv
Table of Contents:.....	v
Acronyms:.....	viii
Table of Figures and Tables.....	ix
Introduction – Solving the global health equation: Global Health + Global Politics = The WHO?	10
The relevance of IHR (2005) to global health politics and security	12
GOARN as the saving grace.....	13
Bringing back the researcher: problematizing research interests	14
Primary and Secondary Research Questions: Questioning the politics and policies beyond GOARN activities	16
International Relations and Global Governance:	18
The foundations of IO's and II's:	18
Realist Interpretation of IO's and II's:.....	18
The role of IO's in the Liberal tradition:.....	19
Constructivists and critical approaches:	20
Normative Authority of IO's and II's:.....	21
Transitioning from 'Government' to 'Global Governance'	22
The birth of the World Health Organization:	23
The Rise and Role of the WHO:	24
The unlikely political origins of the IHR (2005).....	25
Shift from state based to health-based security:	27
GOARN and its Network:	28
GOARN Goals and Objectives:	30
GOARN Problematization:.....	30
GOARN and a New Type of Surveillance:	31

GOARN and Health Security:	32
The need for an Operational Arm of the WHO:.....	33
What does GOARN Produce?	34
Chapter 1 – Theoretical and Conceptual Framework: network, complexity and methodology.....	35
Utility of Network and Complexity Concepts:	35
Actor Network Theory and The Sociology of Translation: Global Health security and the translation process	37
1. Problematisation: Redefining the problems of health.....	41
2. Interessement: Building alliances.....	41
3. Enrolment: Deploying the actors.....	42
4. Mobilization: Identifying the spokesperson	42
Methodology: Leveraging network complexity for a mixed methodology approach.....	44
Network complexity	44
Quantitative and Qualitative Design: a mixed-methods protocol	45
Chapter 2: Visualizing the priorities of the WHO and GOARN through the DON reports	47
Quantitative Analyses of DON Reports:.....	48
What diseases are considered threatening?	48
Where are the reports coming from?	52
Summary: the object, subject and temporality of infection disease surveillance	59
Chapter 3: Qualitative analysis of WHO and GOARN official documents	62
QDA Miner analysis of WHO and GOARN documents:.....	63
Comparison of documents.....	67
Summary: shaping the operationalization narrative.....	72
Chapter 5 - Putting it all together: How the WHO maintains normative authority	75
Production of Data and Distribution of Knowledge:.....	77
What disease should we worry about?	77
What countries are we told to worry about?	78
The WHO narrative of Normative Authority:	79
How GOARN fits in:.....	80

Mapping GOARN through the ANT:	80
Operational Role of the WHO thanks to GOARN:	82
Limitations.....	84
Conclusion and Future Research	84
Works Cited.....	86

Acronyms:

AFRO – Regional Office of Africa

ANT – Actor-Network Theory

DON – Disease Outbreak News

EBV – Ebola virus

GOARN – Global Outbreak Alert and Response Network

IHR (2005) – International Health Regulations (2005)

MERS-CoV – Middle East Respiratory Syndrome Coronavirus

PHEIC – Public Health Emergency of International Concern

SARS – Severe Acute Respiratory Syndrome

TB - Tuberculosis

WHO – World Health Organization

WTO – World Trade Organization

UN – United Nations

Table of Figures and Tables

TABLE 1. EIGHT ‘CORE CAPACITIES’ OF THE IHR (2005)	12
FIGURE 1. GOALS OF THE GLOBAL OUTBREAK ALERT AND RESPONSE NETWORK	14
FIGURE 2. TOP 5 DISEASE EVENTS INCLUDING THE COMBINED ‘ALL OTHER EVENTS’	48
TABLE 2. COMPARISON DON REPORTS VERSUS TOP 10 CAUSES OF DEATH BY COMMUNICABLE DISEASE	49
TABLE 3. TOP 15 OUTBREAKS PER TOTAL NUMBER OF UPDATES	50
FIGURE 4. SIX REGIONAL OFFICES OF THE WHO	52
FIGURE 5. FREQUENCY OF DON REPORTS PER DON ORIGIN	53
FIGURE 6. TOTAL REPORTED NUMBER OF CASES AND DEATHS BETWEEN 1996 AND MAY 2018	54
FIGURE 7. DON REPORTS PER WHO REGION FROM JANUARY 1996 TO MAY OF 2018	56
FIGURE 8. DON REPORTS FOR MULTI-REGION	58
TABLE 4. REGRESSION OF DON REPORTS	58
TABLE 5. KEY FINDINGS OF DON REPORT ANALYSES	61
TABLE 6. DOCUMENT SELECTION CRITERIA FOR QDA MINER	62
TABLE 7. DOCUMENTS ANALYZED USING QDA MINER	63
TABLE 8. THREE MAJOR CATEGORIES AND CORRESPONDING THEMES	64
FIGURE 9. DISTRIBUTION OF ALL CODES IN WHO AND GOARN DOCUMENTS	65
FIGURE 10. DISTRIBUTION OF CODES BY CATEGORY	66
FIGURE 11. DISTRIBUTION OF ‘DATA COLLECTION & SURVEILLANCE’ CATEGORY	68
FIGURE 12. DISTRIBUTION OF ‘INTERVENTION & RESPONSE METHODS’ CODE	69
FIGURE 13. DISTRIBUTION OF ‘COORDINATION & INTERNATIONAL PARTNERSHIPS’ CODES ..	70
FIGURE 14. DENDROGRAM SHOWING RELATIONSHIP OR SIMILARITY BETWEEN CODES	71
FIGURE 15. DENDROGRAM SHOWING RELATIONSHIP BETWEEN DOCUMENTS	72
TABLE 9. KEY FINDINGS FROM DOCUMENT ANALYSES WITH QDA MINER	73
TABLE 10. MAPPING ANT WITH THE WHO AND GOARN	75
TABLE 11. FINAL OBSERVATIONS	76
TABLE 12. RECOMMENDATION OF THE HIGH LEVEL PANEL ON THE GLOBAL RESPONSE TO HEALTH CRISES	83

Introduction – Solving the global health equation: Global Health + Global Politics = The WHO?

The dark side of the consciousness of globalization is the fear of contagion [...] Nothing can bring back the hygienic shields of colonial boundaries. The age of globalization is the age of universal contagion.

Michael Hardt & Antonio Negri, *Empire*, 2000, p. 136

Infectious diseases and health problems are more useful than expected to explain and understand the social and political world in which we live. Paradoxically, if there is only one thing we can be sure about, it's that the epidemiological world doesn't match the political one (Roemer, 1994). In this global epidemiological environment where states are deemed irrelevant, new actors are emerging, especially those involved in so-called "global health governance" (Dodgson, Lee, & Drager, 2002). Search the terms '*infectious disease outbreak*' and you will for example quickly realize that the World Health Organization (WHO) is spearheading the global health security fight against the spread of infectious disease. In particular, there is a dominant narrative presenting the WHO as the main leader for multiple global and local health problems, ranging from tobacco uses to lifestyle diseases. There is, however, a particular domain where the WHO constantly expressed its dominant and leadership position: infectious disease surveillance. This is the main focus of this thesis.

The WHO follows – and performs – this narrative in multiple of its working documents. For example:

- *Nearly one billion people in Africa to be protected against yellow fever by 2026* (WHO Director-General, 2018);
- *WHO calls for urgent action to end TB* ("WHO calls for urgent action to end TB," 2018)

- *WHO delivers medicine as Diphtheria spreads in Yemen* (“WHO delivers medicines as diphtheria spreads in Yemen,” 2017).

The WHO presents itself as the global leader in defending “health security”¹, foremost in the crusade against international spread of infectious disease (Aldis, 2008; Publ. World Organization, 2007). Health security as a whole is largely presented as being increasingly strained through globalization² of trade, travel, and mass migrations due to global conflict, ethnic and religious discord, and environmental inequalities. Particularly important in this process is that the advent of globalization coincides with the last two decades in which at least one new infectious disease has been discovered per year (Burkle, 2015; Institute of Medicine, 2003; Merianos & Peiris, 2005). Health insecurity thus involves a global context with more infectious diseases and increase opportunities for transmission. The fear surrounding the contraction of these diseases, warranted or not, only amplifies calls to control transmission. The changing epidemiological world thus requires the involvement of a global and legitimate actor: the WHO.

Based on this emerging ‘global threat’ the WHO justifies its role as the main global health leader, stating for example they are “directing and coordinating authority on international health within the United Nation’s system (“WHO | What we do,” n.d.). The WHO constitution is also an excellent illustration of that narrative, as it states that “the objective of the World Health Organization shall be the attainment by all peoples of the highest possible level of health (World Health Organization, 1946).” The WHO presents itself as the cornerstone of international work on health, and more recently, of infectious disease surveillance. To this end the WHO leverages the International Health Regulations (IHR (2005)), and Member States commitment to meeting IHR (2005) requirements as the basis for its authority in global health security matters (Frieden et al., 2014).

¹ We are conscious of the problematical use – and abuse - of health security (Aldis, 2008). Health security as a concept will be presented later in this thesis, but it is important to note that we refer to its uses by actors themselves (see for example WHO (2007)) and not necessarily current academic debates regarding this concept. More on this later.

² I am conscious of the term ‘globalization’ as it has been commandeered as a generalized term in both academic and popular culture. Therefore, I use it based on its commonness in this vein of literature.

The relevance of IHR (2005) to global health politics and security

The IHR (2005) “represents the main rules through which global health policies are practiced” (Blouin Genest, 2015). The IHR (2005) proposes eight ‘Core Capacities’ through which Member States are supposed to satisfy in annually assessed benchmarks, to aid in the protection of global health security (Table 1, below) (“WHO | International Health Regulations (2005),” n.d.). Additionally, the IHR (2005) emphasizes the “specific measures” to limit the spread of infectious disease to prevent unnecessary interruptions of trade and travel, (“About IHR,” n.d.). The WHO plays the coordinating role in implementing the IHR (2005) ‘core capacities.’ Consequently, politics as expressed throughout this thesis, is the representation of the fear, trade, and security threats conceptualized through the Western lens.

Table 1. Eight ‘Core Capacities’ of the IHR (2005)

<i>Eight ‘Core Capacities’ of the IHR (2005)³</i>	
1	National legislation, policy, and financing
2	Coordination and National Focal Point Communication
3	Surveillance
4	Response
5	Preparedness
6	Risk Communication
7	Health Workforce
8	Laboratory

³ Adapted from the International Health Regulations (2005). The online edition is available from:
http://apps.who.int/iris/bitstream/handle/10665/43883/9789241580410_eng.pdf;jsessionid=1EA4EA998A80D0B74D0D8D7EB223A7D8?sequence=1

GOARN as the saving grace

As one of the most powerful international organizations of the United Nations (UN) system (Chan, 2010), the WHO seeks to continuously promote and maintain its authority. As the WHO appeals for global health security leadership through the setting of normative and technical standards, a global disease alert and response system is presented as the next step to develop the additional desired operational capability of the WHO (Burkle, 2015; Gostin & Friedman, 2015; Le Duc & Sorvillo, 2018, 2018; Mackenzie et al., 2014). In this context, operational capacity is defined as the ability of the WHO to not only detect or alert to outbreaks, but also respond with adequate personnel, and resources both physical and financial in the event of a Public Health Emergency of International Concern (PHEIC).⁴

The Global Outbreak Alert and Response Network (GOARN⁵) is the system that currently acts as the operational arm of the WHO, monitoring and responding to infectious disease outbreaks on a global scale. The network describes itself as “a collaboration of existing institutions and networks, constantly alert and ready to respond [...] The network pools human and technical resources for rapid identification, confirmation and response to outbreaks of international importance (Figure 1 below)(GOARN, 2017).”

⁴ A Public Health Emergency of International Concern (PHEIC) is an event that the WHO deems to be a threat to global public as described by the International Health Regulations (2005). The event is usually the international spread of an infectious disease that may require internationally coordinated response efforts. See <http://www.who.int/ihr/procedures/pheic/en/>, accessed on ...

⁵ GOARN officially acquired its dominant role with the 2005 IHR. It is however important to note, as Fidler did, that “[t]he rapid and effective emergence of GOARN occurred in this 1998–2003 period, however, without an international legal framework to support it. The absence of an international legal framework was not, apparently, seriously restraining WHO’s development and implementation of the global health security approach (Fidler, 2005, p. 349).



Figure 1. Goals of the Global Outbreak Alert and Response Network

The development of the operational capacity of this international organization seeks to target one of the main deficiencies of global health: the uneven distribution of health risks and the inequalities in healthcare infrastructures, services and investments (Ruger, 2006). Most often, the worst outbreaks occur in areas with the least amount of monetary and health resources, putting not only those countries, but surrounding countries at risk through trade, travel and migration. GOARN serves not only to identify outbreaks through disease surveillance but also as a tool to increase core health capacities in countries that are otherwise unable to do so on their own (Mackenzie et al., 2014). Despite the vital role of the GOARN in preserving and building surveillance and global public health capacity, little is known about the network and its importance to the WHO.

Bringing back the researcher: problematizing research interests

At this point it is important to note that my interest for the operational development of the WHO and GOARN is closely related with my own personal experiences. I have had a lifelong fascination for infectious diseases. To me they exist, to some extent, outside the scope of human mastery. As scientists, just when we think we have a disease under control, it finds a way to

grow and change, becoming ever more deadly. Therefore, I have crafted my personal and educational pursuits in and around those subjects. Before joining the Department of political science in 2017 my background was primarily in public health and biology.

I completed my Master of Public Health with a concentration in infectious diseases in May of 2015. For my corresponding practicum and capstone experience, I looked into the ‘lessons learned’ from the 2014-2016 Ebola outbreak, as my studies coincided with the end of this outbreak. My goal was to determine themes from literature, both positive and negative, about alert and response efforts initiated by the WHO.

From this critical analysis I found the WHO faces major budget cuts, limited operational capacity, and weak governance delegitimizing its mandate as the global health leader and ability to execute IHR (2005) policy. The policy surrounding the IHR (2005) has foundered due to inability to implement capacities in a timely manner, insufficient methods to monitor and review compliance of Member States, and an inadequate framework to finance low and middle-income nations. However, I found changes to policy reflect awareness towards recommendations and implications of IHR (2005) ‘Core Capacity’ in preventing and responding to future infectious disease outbreaks. For example, by December 2017, the WHO published the first edition of the ‘Joint External Evaluation’ tool (“WHO | IHR (2005) Monitoring and Evaluation framework,” 2018). My overall conclusion was that greater efforts from the international community to fortify the WHO and IHR (2005) are necessary from Member States to increase global health security. I concluded that politics play a central role in the majority of these issues.

From this determination I wanted to understand how the WHO functions, what are its faults, what are its strengths, what are reasonable and rationale policies that could ‘fix’ the well-defined but complex problems. Asking these questions, I came to realize that politics, power and their interaction seemed to play key roles in that equation. While I did move on from my previous research I did not forget what I had learned. Through my previous research I was aware of GOARN and its potential to act as the operational arm needed by the WHO. This rounded out how I chose to approach the following thesis through the lenses of the global politics surrounding WHO and GOARN activities. That led to the following research questions explored in this thesis and that show the increasingly relevant interaction between the biological and political worlds.

Primary and Secondary Research Questions: Questioning the politics and policies beyond GOARN activities

This brings key questions, especially in terms of the politics and policies shaping the work, deployment and activities of the GOARN.

The main research question guiding this research project is the following:

How can we explain the rise and continuous role of the Global Outbreak and Response Network (GOARN), as the operational arm of the World Health Organization (WHO) program and practices focusing on infectious diseases?

The rise and continuous role of GOARN as the operational arm of the WHO opens additional questions of the function of the WHO's prioritization of infectious disease and challenges faced by this organization. Therefore, the thesis will also seek to answer the following secondary research questions:

1. While epidemiologists begin to shift focus on to burgeoning cases of non-communicable disease,⁶ why are GOARN activities targeting infectious diseases still a priority for the WHO?

2. What role does GOARN play in terms of the WHO's global health leadership position?

⁶ See Omran (2005) for the complete understanding of the epidemiologic transition theory. The basis of the epidemiological transition is the conclusion that the patterns in burden of disease have shifted from infectious disease to non-communicable or socio-demographic diseases, like diabetes or Ischemic heart disease. This raises questions, partially explored in this thesis, on why the WHO continues to focus mainly on infectious diseases.

The goal of these questions is to gain greater clarity and understanding on the function and politics of GOARN to maintain its role as the operational arm of the WHO. Health security, both nationally and globally, is a politically charged subject and actors that seek to play a major role in the field must subject to great scrutiny (Frieden et al., 2014). At this point, the methods and resources of GOARN are mostly based on conjecture with little understanding of the mechanisms in place that maintain the network. In particular, internal perspectives coming from WHO/GOARN documents and practices appear to be missing. This thesis seeks to address, at least partially, this problem by looking at the politics of WHO/GOARN activities. Prior to exponentially growing global markets of trade and travel, distance served as an invisible yet impenetrable barrier to ‘foreign’ diseases. Therefore, politics in this context is the surveillance and policy narratives put in place by the WHO to mitigate the fear of these diseases. These ‘politics’ are the attempt of the WHO or more likely, its Member States to preserve the economic markets of international trade and travel.

The questions above have the intent to tease out the politics, prioritization, and the position of GOARN as the operational arm of the WHO. This line of inquiry is especially relevant following major infectious disease outbreaks requiring multi nation response and costing billions of dollars (e.g. Ebola outbreak of 2014 -2016), but also the somewhat weak responses toward either lifestyle-related diseases or endemic ones (like diarrhea, the number one leading cause of deaths globally).

In the face of outbreak response, the WHO faces competitors like the United Nations Mission for the Ebola Emergency Response, Global Health Security Agenda, Doctors without Borders, and other Non-governmental organizations (“Global Health Security Agenda,” n.d.; “UN Mission for Ebola Emergency Response (UNMEER),” 2014). Therefore, it is likely that the WHO prioritizes the use of GOARN and infectious disease to maintain the financial support of Member States in the effort to strengthen authority and leadership in the global health security field, and hypothesis explores in this thesis. To do so, I first analyze the Disease Outbreak News reports (chapter 3) to understand the focus of disease reporting both by origin and type of disease. I then analyze 15 WHO and GOARN documents using QDA Miner, to identify themes and thus direction of the WHO narrative. Finally, I will use a series of interviews with GOARN

operational support staff to tease out more nuanced tensions in maintaining the network and harmonizing network goals

International Relations and Global Governance:

The foundations of IO's and II's:

International organizations play an ever-increasing role in global governance. IO's authoritative reach extends from domestic issues like reproductive rights to international nation-building efforts (Barnett & Finnemore, 2004, p. 3; Duffield, 2007). Therefore, it is necessary to first understand the context IO's and II's grew out of, to later depict how the WHO as a major IO maintains authority in a contested environment.

The rise and role of IO's has no singular defining theory but subsists on a patchwork of literature and ideas (Duffield, 2007). Conceptualizations of post-World War II IR, chiefly based on the creation of the United Nations, encouraged scholarly interest in the increasing role of IO's and II's in global governance (Martin & Simmons, 2012, p. 326). In the 1990s, an important foundational distinction was made between 'International Institutions' and 'International Organizations.' In that *institutions* are "sets of rules meant to govern international behavior (Martin & Simmons, 2012)." *Organizations*, however, are the formal entities embodying the people, places, and things that enact these rules. Four primary theoretical arguments serve as the foundation of IO's and II's, (1) Realist, (2) Rationalist/Functionalist, (3) Constructivists and (4) the Liberal ideal.

Realist Interpretation of IO's and II's:

Due to the intrinsic relationship between of International Relations and Realism, IO's and II's were first recognized as a tool to promote state interests in the preeminent ambitions to increase state security (Martin & Simmons, 2012). This is understandable owing to the Realist tradition of nation-states existing and surviving in a primarily anarchic environment. Martin and Simmons summarize this relationship between Realists and IO's saying, "virtually all realists see power exerting the true influence behind the façade of these structures (Martin & Simmons, 2012)." The IO as an object has little value, rather than influence that states are able to

perpetuate through IO's is where the power lies. Critical of the Realist interpretation, Abbott and Snidal suggest that the traditional Realist renounce IO's out of jealousy and are apprehensive towards the "distributive consequences of their actions (Abbott & Snidal, 1998, p. 8)." This leaves us with a very puzzling question. Why do states, even powerful ones, promote or succeed even partial sovereignty to IO's and II's (Martin & Simmons, 2012)?

Rationalist and Functionalist Logic:

Duffield, bridging this question, conceptualizes the Rationalists argument for the role of IO's and II's in that agents (states) seek to rationally expand and influence their utilities, but are subject to external constraints, primarily those institutions (i.e. rules) they create (Duffield, 2007). This would indicate, as Abbott and Snidal conclude, that the utility of IO's and II's is greater than Realists admit (Abbott & Snidal, 1998). Moreover Duffield asserts, these rules "reduce transaction costs, establish benchmarks for evaluating the behavior of others ... [and] facilitate enforcement (Duffield, 2007, p. 5)." This is also seen as somewhat of functionalist argument, and is likely the reason the two theories are frequently coupled.

Martin and Simmons suggest the dual 'Rational Functionalism' argument attaches a level of 'efficiency' to the rational states assenting to institutional rules (Martin & Simmons, 2012, pp. 331–332). States work through IO's and for the most part follow II's to streamline access and interaction throughout the global world echoing Duffield's comments on the purpose of II's. The success of the rational functionalist approaches is in the "method of analysis treats institutions both as environmental constraints and as objects that are consciously chosen and manipulated by actors," but does fail in identifying those interests driving manipulations (Martin & Simmons, 2012). The Rationalist and Rational Functionalist merge the Realist interpretation of power and influence through IO's and a functionalist logic to ease international interactions in an anarchic society through the rules of II's.

The role of IO's in the Liberal tradition:

The Realist and Rationalist approach emphasize IO's and II's as agents of state security and cooperation, while the Constructivist emphasizes their bases on intersubjective societal

norms. Guy Sinclair identifies an important paradox in the liberal promotion of IO's and II's and highlights what I would argue is a more humanistic rationalization for the role of IO's and II's. Sinclair asserts that Liberalism, on the one hand, promotes the liberty and equality through individualism through limits on "governmental action," but sanctions international interventions "at the level of both society and the individual (Sinclair, 2015)." This paradox is directly based in what John Stuart Mills refers to as the "struggle between Liberty and Authority (Mills, 1859, p. 6)." IO's are a necessary evil in the liberal tradition. Individuals must have the capacity to exercise liberty and freedoms. Therefore, states must assert authority and intervene to grow and protect those 'pre-conditions' from freedom (Sinclair, 2015).

Constructivists and critical approaches:

Critical of the Rational/Functionalists focus on anarchy as the primary determinant for the role II's, social constructivists reintroduce the 'social context (Martin & Simmons, 2012, p. 333).' International society being the states attempt to negotiate common ground and goals through the development of institutions because of the intersubjective nature of society. Where the Rationalist approach assumes a deliberate construction of IO's and II's, the constructivist approach argues IO's and II's are unintentional and a result of collective social norms (Duffield, 2007, p. 6). A definition of English school constructivism, as quoted in Martin and Simmons (2012), with the assumption that organizations enact intuitional rules, imparts that institutions are

—

'[a] Cluster of social rules, conventions, usages, and practices... a set of conventional assumptions held prevalently among society-members ... [that] provide a framework for identifying what is the done thing and what is not in the appropriate circumstances' (Suganami, 1983)

Ultimately, the social constructivist finds the utility of the IO and II as a reflection of the intersubjective nature of society. However constructivists also accept that state interests are equally important to the maintenance and function of II's (Martin & Simmons, 2012). Martin and Simmons (2012) assert that the result of both of these lines of thinking links norms and institutions.

Normative Authority of IO's and II's:

I will maintain the constructivist thinking that IO's and II's are both influenced by state interests but also serve as a norm setting institutions for international society. However, the question still remains as to where and how does the normative authority of IO's become accepted by states? Empirical research based in this thinking suggest that increasingly IO's not only introduce norms shouldered by international society, but are also key in influencing state adoption (Martin & Simmons, 2012). In this context International Organizations serve as a feedback loop, digesting institutional rules and diffusing them back to states. Entailing that information must first be accepted and then distributed by IO's, placing the IO's in a legitimized role of judgment.

Finnemore and Sikkink, break down norms and the role of organizations into three different phases, norm emergence, norm acceptance, and internalization (Finnemore & Sikkink, 1998). For the sake of our study the first phase, "norm emergence," is where our argument lies. In that accepting the emergence of norms, an entity must be in place to digest and distribute those norms at a larger, more global level. Here, Finnemore and Sikkink say that an 'organizational platform' is the entity through the which norms are perpetuated internationally specifically through the use of "expertise and information to change the behavior of other actors."

The use of expertise and knowledge, thus altering how the public perceives information, is a key component in the normative authority of IO's. Mike Zapp suggests International Organizations gain authority through the power of the production of knowledge. Zapp introduces 'soft' power as seen through normative and cognitive mechanisms appearing in the constructivist approach to IO's in IR (Zapp, 2018). The goal of the constructivist approach being that IO's are more than traditional 'hard' governance mechanisms, but a source of 'epistemic communities' (Haas, 1992; Zapp, 2018). In this understanding IO's gain value in their production of knowledge, and resulting normative power in distributing this knowledge as deemed relevant. Zapp and Duffield's, 'epistemic communities' and 'constitutive norms' place emphasis on the lesser apparent role of International Organizations norm setting power through the collection, digestion, alteration, and influence through distribution of knowledge.

The expression of this authority, as Duffield (2007) suggests, is the constructivist approach to norms that is split into two camps. On one side norms are “regulative” in that they constrain and set boundaries of interaction, much in line with the Rationalist approach (Duffield, 2007). On the other side, norms are “constitutive,” in that they define social activities, generate agents, and “endow them with certain capabilities and power, and determine their underlying identities, interests, and preferences (Duffield, 2007).”

International organizations promote and influence international norms through the production, modification, and distribution of knowledge. As a society we have learned to place faith and trust, on empirical evidence and regulation. The convergence of this promotion of international norms and the influence based on collection of data is the basis of the normative authority of the international organizations. The WHO is no exception. The first ‘function’ of the WHO as stated in its constitution is “to act as the directing and coordinating authority on international health work (World Health Organization, 1946, p. 2).” While the 1946 constitution never states that the WHO is normative authority, the organization has refined and embraced its role in “normative and standard-setting work (Nordic Consulting Group, 2017; World Health Organization, 2017).”

Transitioning from ‘Government’ to ‘Global Governance’

In the attempt to continue to understand why states recognize and confer sovereignty of certain healthcare features to IO’s and II’s, it is important to explore a recent trend in contemporary social sciences. Contemporary research has termed this the ‘transition from government to governance’ (Peters, Pierre, & Randma-Liiv, 2011). In this context, government is the traditional understanding of the entity exercising authority. Governance is the “coordination of institutions and agency in a given policy sector toward collective objectives” (Dickinson & Pierre, 2016). Health as Dickenson and Pierre contend is one of the most complex policy and governance sectors, with institutions defining the majority of health objectives (Dickinson & Pierre, 2016).

Health has become a commodity, while most commonly found in discussions on health finance and insurance, it is a marketable ‘material.’ Like most commodities, markets drive the price and resulting accessibility of healthcare. While most apparent in developing nations, but also increasingly in developed-nations, the rising prices of basic healthcare and decreasing

accessibility, serves to continue the cycle of poverty and disease (Adegboyega & Abioye, 2017). Public health care systems vary globally, as do their constituents, but all struggle to absorb rising costs based on the global economy (Ney, 2012). Pierre and Peters, argue that increasing globalization and market-based economies, drive states to reorganize in response to their new environment (Pierre & Peters, 2000). Thus states enter into voluntary partnerships with IO's and II's to reap the certain benefits of these organizations but to also influence development of norms. Finally, the inter-subjectivity of society and rise of non-state health actors, IO's must now compete to maintain salience (Ney, 2012).

The birth of the World Health Organization:

As previously mentioned, much of scholarly literature related to IO's and II's was influenced by the formation of the United Nations following WWII. Similarly, the WHO was born out of the UN, during the 1945 UN Conference on International Organizations (McCarthy, 2002). However, the true origins of global health governance predate even the UN. The Industrial Revolution beginning in 1790, is considered the catalyst for much of what now consider modern global public health cooperation (Lee, 2009). Spurred by the revolution, mobilized populations, increasing socio-economic inequalities, and hasty urbanization introduced large swaths of populations to new diseases and unsanitary conditions (Lee, 2009).

In 1854 John Snow introduced the concepts of 'disease mapping' and 'investigation' to solve the deadly cholera outbreak originating in the Broad Street pump in London (S. Johnson, 2008). John Snow is considered the father of modern epidemiology and emphasized the role of surveillance and data collection to track disease outbreaks. Along with medical and epidemiological discoveries, governmental and non-governmental international health institutions proliferated over the next century. By 1920 there were three major competing international public health organizations - the League of Nations Health Organization, the Pan American Sanitary Bureau (PASB) (est. 1902), and the Office International d'Hygiene Publique (OIHP) (est. 1907) (Lee, 2009). However, in 1946 the new WHO absorbed the epidemiological and surveillance jurisdiction of the OIHP, and the PASB became the first regional office of the new global organization ("PAHO/WHO | About the Pan American Health Organization

(PAHO),” n.d.; “WHO | Archives of the Office International d’Hygiène Publique (OIHP),” n.d.). Thus the WHO became the preeminent global organization, recognizable even today.

The Rise and Role of the WHO:

The preeminent mandate of the WHO as stated in Article 1 of its constitution is “the attainment by all peoples of the highest possible level of health (World Health Organization, 1946).” To this end, the WHO was initially intended to provide undertake ‘normative activities’ like establishing nomenclature and setting international standards and regulations for public health practice (Lee, 2009, p. 18). Later, at the request of developing Member States, the WHO sought to expand involvement the ‘technical assistance,’ to aid in health-system building (Lee, 2009) Interestingly as Lee notes, the WHO was intended to recommend but not implement these policies, placing this distinction on the Member States (Lee, 2009, p. 19).

Member States play a somewhat contentious role for the function of the WHO. Major states influence the distribution of resources, either accept or deny regulations and even determine eligibility of membership for non-UN states and territories (Lee, 2009, p. 23). The WHO is the Social Constructivists IO, acting as the formal entity for the distribution of norms but influenced equally by states willingness to accept and abide by norms. Moreover, the WHO based on its mandate to set norms, secures authority and legitimization through the collection of epidemiological data and production of knowledge.

Gostin, Sridhar, and Hougendobler (2015) argue that traditionally the WHO expresses normative authority in two different ways. First, through ‘soft’ power by informal actions of the World Health Assembly or ‘recommendations (Gostin, Sridhar, & Hougendobler, 2015).’ Second, and rarely, does the WHO express its normative power through “binding international law (Gostin et al., 2015).” Gostin et al., suggest the establishment of GOARN is an example of ‘soft’ power in exercising the WHO’s normative authority, and the IHR (2005) as an example of ‘hard’ power (Gostin, Sridhar, and Hougendobler 2015). The IHR (2005) plays a unique role in establishing much of the WHO’s surveillance capabilities. Therefore it is relevant to discuss the implications of the IHR (2005), in depth, before analyzing the role of the GOARN.

The unlikely political origins of the IHR (2005)

The origins of IHR (2005) begin with the first International Sanitary Conference (ICS) in 1851, located in Paris, France. The ICS signified a new type of global governance seen through ‘international health cooperation’ (“WHO | Origin and development of health cooperation,” n.d.). Moving to the late nineteenth century, Europe faced an unusual predicament. The intensification of international trade and travel was producing internal revenue and prosperity but consequently introduced a new set of ‘external threats’ (Gostin & Katz, 2016). In this case the primary ‘external threat’ of concern was an infectious disease, cholera.

Gostin and Katz assert that the recognition of these new threats, influenced the predecessors of IHR (2005) to be primarily for the protection of power for countries, rather than the genuine safe-guarding of human health (Gostin & Katz, 2016). David Fidler, a frequent co-author with Gostin, asserts that the framework of the global health security at this point reflects the global governance framework of the “classical regime” (Threats, Knobler, Mahmoud, Lemon, & Pray, 2006, sec. Appendix B).⁷ Fidler cites the IHR statement of purpose to ensure the maximum against the international spread of disease with minimum interference with world traffic” as the quintessence of this “classical regime” (Threats et al., 2006).

By 1995, the original regulations of the 1892 International Sanitary Convention, by then known as the International Health Regulations, only mandated reporting of cholera, plague, and yellow fever (Gostin & Katz, 2016). In 2007, the newly revised IHR (2005) now prescribes as an ‘all-hazards’ risk approach to include threats to public health encompassing not only biological, but additional chemical and radionuclear events (so-called human made risks, potentially including bioterrorism). Echoing Gostin and Katz (2016), Blouin-Genest suggests that the shift to the new ‘all hazard’ surveillance system is based in the neo-liberal approach of “protection of specific globalization routes [and] not the protection of health *per se* (Blouin Genest, 2015).”

⁷ This concept is taken from the document “International Law, Infectious Diseases, and Globalization” authored by David P. Fidler. However, this work is found in Appendix B of “The Impact of Globalization on Infectious Disease Emergence and Control: Exploring the Consequences and Opportunities: Workshop Summary.”

Fidler also noting this significant shift refers to the WHO's official statement of the failure of the IHR in 1995 and the establishment of the World Trade Organization as the motive for major revisions to the regulations (Threats et al., 2006; World Health Assembly, 1995).

Fidler equates this new approach with the updated IHR (2005) to a “trade regime” (Threats et al., 2006). The introduction of the WTO altered the referent normative authority of global public health away from the WHO and the failing IHR (2005). Between 1995 and 2005, we begin to see the initiation of the Global Outbreak Alert and Response Network (GOARN - officially in 2000) by the WHO. Interestingly, Fidler suspects that the WHO is promoting the success of this new epidemiological tool to both a move away from “binding legal rules” and to position the Global Outbreak Alert and Response Network⁸ (GOARN) as a critical component of IHR (Threats et al., 2006). However, as Fidler points out, what is most critical at this point is the WHO's use of GOARN to monitor disease outbreaks under the IHR framework before the 2005 revisions were entirely illegal (Heymann, 2002; Threats et al., 2006).

As stated previously, the original IHR was only accountable to monitor three diseases that frequently disrupted trade and travel, cholera, yellow fever, and plague. Moreover, Member States agreed to the WHO's monitoring and surveillance of these diseases under the IHR through information transmitted directly from the referent government (Fidler, 1999; Threats et al., 2006). The GOARN relies on both governmental and nongovernmental surveillance of diseases with essentially an “all-hazards” approach – meaning any disease that can become a PHEIC (Threats et al., 2006). To be declared as a PHEIC, an event must be approved by the decision instrument of the IHR (2005: 43) by answering positively to these questions:

1. Is the public health impact of the event serious?
2. Is the event unusual or unexpected?
3. Is there a significant risk of international spread?
4. Is there a significant risk of international travel or trade restrictions?

That identification process raised many concerns and criticisms, especially regarding the seriousness and unexpectedness of events but also the trade/travel orientation of global health security (Calain, 2006; Davies & Youde, 2013; Fidler, 2009, p. 1). The true nature of the

⁸ GOARN as a concept is described in detail in the following section

adoption of the “all-hazard” approach has been proposed as either a neo-liberal agenda to a shift to counteract the “trade regime” to protect global trade and travel (Blouin Genest, 2015; Threats et al., 2006).

Key changes introduced by the IHR (2005) can be summarized as follows:

1. The all hazard and risk approach
2. The use of informal sources of information
3. The power given to the WHO to declare PHEIC without state approval

These changes were considered by several as revolutionary and providing a supra sovereign form of power to an international organization (Bashford, 2006; Weir & Mykhalovskiy, 2010). What is readily apparent as is that the WHO has – and still continues to – change appearances, strategies and priorities to maintain normative authority, leadership and power in the global public health field, especially recently through the deployment of operation capabilities under the GOARN. GOARN, as an extension of the WHO shares many of the same ‘supra sovereign’ powers⁹ mentioned previously (Fidler & Gostin, 2006; Weir & Mykhalovskiy, 2010).

Shift from state-based to health-based security:

In the new millennia IO’s shifted from state centered security to regimes that prioritized ‘population’ or ‘collective security (Zanotti, 2011).’ Zanotti states that “knowing and monitoring populations ... toward promoting their health and wealth is seen as a shared task between states administrations and IO’s” (Zanotti, 2011, p. 33). Moreover, socially constructed and common conceptions of the threat and scale of infectious disease outbreaks, has created a need for international cooperation (Davies, Kamradt-Scott, & Rushton, 2015). Therefore I assert that the WHO can and does extend its normative authority through the production of knowledge and data about infectious diseases through increased surveillance.

As described in more detail in the introduction, revolutionary changes to the IHR (2005) including an ‘all-hazards’ approach allowed the WHO to increase surveillance by legitimizing

⁹ These suprasovereign powers include, among others, the capacity to declare PHEIC (i.e. epidemics and pandemics) without state approval and using unofficial sources of information, as legally recognized by the 2005 International Health Regulations (WHO, 2005)

collection of both ‘formal’ and ‘informal’¹⁰ sources of information. Moreover, the WHO through the IHR (2005) widened the scope of mandatory reporting by Member States beyond a defined list to include, risks, events, and the PHEIC (Weir & Mykhalovskiy, 2010, p. 126). Weir and Mykhalovskiy, argue these changes and shift of surveillance as an extension of the role and powers of the WHO, and “shift the focus on notification to known infectious disease ... to notification of events (Weir & Mykhalovskiy, 2010, p. 126).”

The IHR (2005) still struggles immensely, while legitimized through states acceptance of behaviors outlined through the regulations, in aiding states to meet these capacity requirements (Davies et al., 2015, p. 9). Therefore, I argue that the GOARN provides an avenue to further intensify surveillance and build state capacity and aid in operational capability.

GOARN and its Network:

GOARN is housed in the WHO headquarters located in Geneva, Switzerland (World Health Organization, n.d.). Due to the over 400 partners of GOARN, The network is represented by a Steering Committee, comprised of 21 member institutions that act as the overseer’s of yearly business and actions (“WHO | GOARN Steering Committee 2015,” n.d.). The WHO is the only permanent member of the steering committee, acting as the coordinator of all international outbreak response (“WHO | GOARN Steering Committee 2015,” n.d.; World Health Organization, n.d.). The GOARN Operational Support Team based at the WHO retains approximately 8 staff members to oversee all response missions, activities, and communication of network partners (“Operational Support Team | GOARN,” n.d.)

Recent examples of GOARN’s involvement include the deployment of experts to South Africa where over 200 South Africans have died since January 2000 due to a *Listeria* outbreak (“WHO supports 16 African countries to protect against Listeriosis,” 2018). GOARN is also credited with outbreak success stories including stopping outbreaks of Marburg in Uganda in 2017, and coordinating response efforts during the plague outbreak in Madagascar (WHO |

¹⁰ Formal sources are reports provided by Member States, informal reports being those achieved through a variety of methods like syndromic surveillance.

Uganda ends Marburg virus disease outbreak,” 2017; “WHO | WHO scales up response to plague in Madagascar,” 2017).

There is increasing pressure for the WHO to be able to provide the operational support and guidance that was, for example, severely lacking in the 2014-2016 Ebola outbreak in West Africa.¹¹ The 2014-2016 Ebola outbreak in West Africa underscored weakness in both global preparedness and WHO capability during outbreak response, as highlighted in the many critical post-outbreak assessments and recommendations (High-level Panel on the Global Response to Health Crises, 2016; Moon et al., 2015; World Health Organization, 2016).

Despite the critical role GOARN plays not only in preventing the spread of disease but also in cementing the WHO’s position as health security leader, GOARN and its day-to-day endeavors remain largely unexplored by political science and international relations (Weir & Mykhalovskiy, 2010). It appears then imperative to assess the rationality behind the establishment of the GOARN as a component of the WHO in light of the WHO acting as the dominant global health leader since the end of the Cold War (“WHO | Origin and development of health cooperation,” n.d.). In short, we need to bring back the politics of WHO/GOARN activities and deployment, what lies behind the narrative of its dominant leadership role in global health governance, security and surveillance.

The WHO’s primacy is obviously not without contest and resistance (Lee, 2009), especially from “new” actors in global health governance such as philanthropic organizations and private actors more generally (Stuckler, Basu, & McKee, 2011), underlining key political and systemic factors shaping WHO’s activities. Continual regulatory budget decrease, increase in extra-budgetary scheme linked with predetermined issues (Lee, 2009) in combination with increasing health disparities forces the WHO to focus on a limited number of health issues (ref needed). GOARN relies on the patronage of the WHO and its Member States to survive in a contested organizational and financial environment, which is also dependent of the UN budget

¹¹ See the Report of the High-level Panel in the Global Response to Health Crisis (2016), Report of the Ebola Assessment Panel (2016), Report of the Review Committee on the Role of the IHR (2005) in the Ebola Outbreak and Response (2016), and Moon et al., (2015) for a complete analysis of the role of the WHO during the Ebola outbreak and response.

system again recently under threat by the Trump administration¹². As such, the question moves beyond what the structure of GOARN is, what GOARN does, to determining what are the motives and methods that maintain GOARN's salience in the global health security field by the WHO as well as the politics behind its activity. This is the politics of global health security explored in this thesis.

GOARN Goals and Objectives:

GOARN identifies three major goals and objectives (1) Supporting alert and response capabilities (2) collaboration of existing networks capacity (3) and the advancement of training field experts and standard setting (GOARN, 2017). The overarching mission of GOARN is to prevent the international spread of infectious disease, starting with global epidemiologic surveillance (World Health Organization, n.d.). GOARN uses the epidemiologic surveillance to 'investigate and characterize' events that may indicate a rapidly emerging disease outbreak (GOARN, n.d.).

In the event GOARN determines a possible international threat, the network pools human and technological support to assist affected areas (GOARN, n.d.). GOARN is a network of networks, creating the power to call upon a diverse group of laboratories, regional technical networks, non-governmental organizations, and other entities able to provide assistance to international alert and response (World Health Organization, n.d.). Additionally, GOARN seeks to institute sustainable epidemic preparedness capability in threat-prone areas by providing training of regional experts and providing assistance and preparedness standards for countries to strive towards (GOARN, n.d.; World Health Organization, n.d.).

GOARN Problematization:

The WHO is presented as having "supra-sovereign" abilities in accordance with the International Health Regulations (2005) policies (Weir & Mykhalovskiy, 2010; "WHO | IHR (2005)," n.d.). The primary goal of the IHR (2005) is to increase global health security and is an

¹² See for example <https://www.theguardian.com/world/2017/dec/26/us-to-make-at-least-285m-cut-to-un-budget-after-vote-on-jerusalem>, accessed on October 25 2018.

important policy giving the WHO jurisdiction to digest formal and informal data regarding possible disease outbreaks (“WHO | International Health Regulations (2005),” n.d.). The WHO then has the authority to declare a *Public Health Emergency of International Concern*, citing temporary recommendations and possible international response, with or without a sovereign state’s consent (“WHO | International Health Regulations (2005),” n.d.). However, the response to these declarations often requires many different moving parts, necessitating diverse resources and a breadth of expertise that the WHO alone cannot provide (GOARN, n.d.). In response to this problem the WHO created GOARN in 2000 to lead a collaboration between organizations, laboratories, and other relevant groups to assist in the identification and response to infectious disease outbreaks of global relevance (GOARN, 2017).

GOARN and a New Type of Surveillance:

Accessibility and legitimacy of information regarding possible infectious disease outbreaks are interesting sources of power for the WHO. Prior to the creation of GOARN, the WHO was only able to ‘legitimately’ survey disease information through weekly bulletins posted by Member States, generally at the state’s convenience (Davies & Youde, 2016). Consequently, this meant that the WHO could not request this information from doctors or other organizations without the states or government’s consent. In 2001, through the securitization of health in the World Health Assembly resolution 54.9, the WHO and furthermore GOARN, are now able to utilize informal sources like GPHIN, Pro Med Mail, and other NGO’s (Heymann, 2016). These informal data sources employ artificial intelligence to continuously scan the internet for indicators of disease outbreaks (Davies & Youde, 2016; Heymann, 2016; Weir & Mykhalovskiy, 2010).

In addition to formal reporting by states, the WHO and GOARN through network partnerships are able to monitor near real-time outbreak reports or unusual clustering of symptoms that point to a possible outbreak. Cooper and Kirton also found this type of informal reporting by non-governmental personal ‘empowering’ for citizens in countries that do not wish to cooperate with reporting standards for political or economic reasons (Cooper & Kirton, 2009). This realization allows the WHO to assert dominance over states that are not accountable or transparent concerning possible serious infectious disease outbreaks. The ability to employ both informal and formal sources of information gives the WHO the faculty to monitor country health

statistics without state's knowledge or ability to interfere. Ultimately GOARN increases the sensitivity of global monitoring by equally assessing every type or source of data information (Heymann, 2016).

We are a WHO network of over 200 technical institutions and networks globally that respond to acute public health events with the deployment of staff and resources to affected countries. Coordinated by an Operational Support Team based at the WHO headquarters in Geneva and governed by a Steering committee, we aim to deliver rapid and effective support to prevent and control infectious diseases outbreaks and public health emergencies when requested. (GOARN, 2017)

GOARN and Health Security:

The WHO's success in containing the severe acute respiratory syndrome (SARS) outbreak in China in addition to the implementation of the IHR (2005), suggests that the WHO has the ability to act as a supranational health security leader (Fidler, 2004; Hanrieder & Kreuder-Sonnen, 2014; Kelle, 2007). The act of securitizing something historically means that an issue is presented in a manner that perceives it as a threat, resulting in the increased allotment national resources and attention (McInnes & Rushton, 2013). In this context the WHO has securitized health by underscoring the threat of the spread of infectious disease and by developing GOARN.

The WHO aims to guide health security practices and maintain normative authority through the implementation of the IHR (2005) and its core capacities. The practice of security shifted following the Cold War to encompass not just nation-state security, but as far reaching as international and as narrow as the individual (Baringer & Heitkamp, 2011). Traditional state-centered security is the securitization of the state by provision and analysis of the military and its capability (Kelle, 2007). In 1994 the United Nations Development Programme published the '*New Dimensions of Human Security*,' followed in 2003 by the '*Human Security Now*' report by the Commission on Human Security (Baringer & Heitkamp, 2011). These documents served as major foundational structures solidifying human security as a priority of the state to protect economic development in addition to the focus on individual freedom and ability to achieve this freedom through the protection of health (Aldis, 2008). The '*Human Security Now*' reports

additionally championed health as not only a component of the ‘new’ human security priority but also as one of state security. The report argues that health is vital to state security, in the sense that it enables the individual with the ability to make choices, pursue opportunities, and prepare for the future (United Nations, 2003)

A major proponent for the justification of health securitization occurred following the 1995 sarin gas attacks in Tokyo by Aum Shinrikyo, and the 2001 Anthrax attacks in Washington D.C through the United States postal system (Aldis, 2008). Both of these attacks were existential threats to both individual (human) security and nation-state security. However, media and research focus on the re-emergence of infectious disease’s like, HIV/AIDS Ebola, SARS, and H1N1 influenza further encourage the securitization of health to protect national trade and economy.

The need for an Operational Arm of the WHO:

Throughout the 2014-2016 Ebola outbreak, the WHO faced major backlash over the uncoordinated, untimely, and politically biased response to the international outbreak (High-level Panel on the Global Response to Health Crises, 2016; “WHO | Report of the Ebola Interim Assessment Panel - July 2015,” 2015). Despite a successful history in normative and technical leadership, the call went out for a more operationally dependent WHO.

The Advisory Group recommends that WHO position itself as an operational organization while maintaining its leadership in technical expertise. As an operational organization, WHO will need to be present in outbreaks and emergencies; be capable of leading, coordinating and implementing key public health functions; be equipped with adequate capacity; be ready to engage quickly and openly with other actors for health and be consistent in reflecting humanitarian principles (Advisory Group on Reform of WHO’s Work in Outbreaks and Emergencies, 2016).

The WHO has long faced financial burdens, limiting the ability of the organization to respond and equip nations with desperately need health resources. Beginning most notably in 1980’s, WHO’s budget shifted from depending on Member State dues to vacillating donations from multilateral agencies (Brown, Cueto, & Fee, 2006). These donations make up over 50% of the

budget and earmarked towards specific health priorities of donating state, this practice diminishes WHO's ability to set organization-wide sanctioned health priorities (Brown et al., 2006).

This system continues into the 21st century. Following the worldwide economic collapse in 2008 substantially less financial income was available to WHO, forcing cuts of over 10% of staff related to operational capability and dismantlement of existing emergency response resources (Moon et al., 2015). Referencing the most recent Ebola outbreak (2014-2016) the Regional Office for Africa (AFRO) was left with only ten representatives to respond and coordinate action in times of health emergencies and infectious disease outbreaks for the entirety of the region ("WHO | Report of the Ebola Interim Assessment Panel - July 2015," 2015). A conclusion that might be drawn from this information is that GOARN, much like the WHO, faces serious budget constraints hindering operational capabilities.

What does GOARN Produce?

Between 2000 and 2009 over 1023 GOARN staff were deployed to over 75 field missions ("WHO | Independent evaluation of the Global Outbreak Alert and Response Network," 2011). The most recent independent evaluation of GOARN lauded the work and purpose of the network, citing its relevancy and necessity in incredibly complex and resource intensive infectious disease outbreaks ("WHO | Independent evaluation of the Global Outbreak Alert and Response Network," 2011). However, the evaluators did find two major flaws, poor and fragmented record-keeping, and non-existent records on financial distribution and revenue ("WHO | Independent evaluation of the Global Outbreak Alert and Response Network," n.d.).

These leads to the conclusion that the idealized version of what GOARN is, is well known. However little information is available on the methods and measures of data collection, publishing of reports, and even practices to explain how GOARN manages to maintain salience for the WHO and relevancy in the greater goal of maintaining normative authority as an IO.

Chapter 1 – Theoretical and Conceptual Framework: network, complexity and methodology

Gentlemen, -Before laying before you the result of it labors, the Commission thinks its advisable to inform you of its mode of procedure, in order that you may appreciate the care which it has taken to elucidate the numerous questions submitted to its examination.

Report to the International Sanitary Conference of a
Commission from that Body, 1856

The research questions previously proposed are composed of a complex set of people, organizations, networks, narratives, power and politics. These are the elements, I argue, that need to be brought back into the analysis in order to reveal the politics of global health security. To effectively analyze the uncertainty surrounding GOARN, the work must be grounded in a theoretical/conceptual approach that equally explores all possible elements to the answer. As such, this thesis uses the Actor-Network Theory (ANT) to analyze each part, human or non-human that maintains GOARN. This theoretical and conceptual approach is presented in this chapter. It is followed by the methodology employed to answer the question presented previously.

Utility of Network and Complexity Concepts:

“Complex health problems require complex responses” plays a critical role in global health governance. This is of course not a new sentiment, but rather the mantra of almost every global

public health practitioner. This phrase particularly applies to the alert and response efforts preventing and countering infectious disease outbreaks. Meaning that effective alert and response requires logistical, political, medical, and diagnostic expertise to name only a few. Thus, the GOARN understands and embodies this concept through its eclectic collection of organizations, laboratories, and institutions. I argue that the WHO's promotion of GOARN and the use of a network approach is not spontaneous. The network approach to tackle global health goes beyond the simple understanding that complex health issues require complex resources. I argue that the utilization of the network and complexity concepts is based in the larger field of global governance and politics.

Latour describes the concept of a network as association and connections between actors (either human or non-human) without reference to traditional spatial metaphors (Latour, 2017). The WHO continuously struggles with the operational resources necessary for a fast and effective outbreak response. This is not necessarily at the fault of the WHO, running on a budget often smaller than the yearly budget of a single United States hospital. Additionally, what money the WHO receives from Member States is often earmarked for specific health initiatives (the so-called extra budgetary funds – Lee, 2008). The inability of the WHO to rely on a consistent and appropriate budget, strangles the WHO's attempts to solidify and outfit not only GOARN, but other preparedness and response initiatives with the necessary personnel and equipment.

With this in mind, Ansell et al., describes the ability of a network approach through its complex system of partners both public and private, human and non-human, that is better able to produce a more resourced and timely response to an often complex situation (Ansell, Sondorp, & Stevens, 2012). The authors identify four rationales for the network approach (Ansell et al., 2012):

- (1) It identifies and disperses expertise of partners through the central hub of WHO (meaning WHO headquarter in Geneva);
- (2) Countries in need are able to communicate needs through WHO, who is then able to facilitate allocation through GOARN partners;
- (3) It uses the deployment of multilateral resources and experts as field teams, and;

- (4) It provides two-way flow of information between WHO headquarters and field teams during outbreak.

However, if the global society is viewed as primarily anarchic, the WHO must therefore align its objective goals of GOARN with that of supporting member states and partnerships. GOARN, as a network of health stakeholders must carefully balance its individual goals with those of the financing member states (Ansell et al., 2012). Prioritization of the Member States places institutional constraints on the WHO, which in turn hinder development of the organization.

Actor Network Theory and The Sociology of Translation: Global Health security and the translation process

The prioritization of infectious disease through the securitization of health is a product of scientific knowledge, resource allocation, power and politics. Consequentially, this process asks us to step back and question how scientific knowledge is produced, actors are selected, and finally why GOARN and its policies exist (and maintain its leadership and position of authority in the global health ecosystem). Consequently, the ANT approach is an effective analytical tool to answer the larger questions about the maintenance of WHO normative authority.

ANT is described as bridging both theory and methodology, and acts as a constructivist approach to the analysis of networks and complex interaction among actors (Figueiredo, 2008, p. 1375). The ANT requires the initial acceptance of three “methodological principles”: (1) Agnosticism (2) generalized symmetry and (3) free association (Crawford, 2006). The intention of adopting the three principles is firstly to abandon any “priori assumptions” of networks and enter with impartiality (Callon, 1984). Secondly, to analyze every actor or *actant* equally, or as Callon originally wrote, without “shifting registers” (Callon, 1984; Crawford, 2006). Thirdly, through free association, ANT rejects predetermined categories or relationships to allow the analysis to have no distinction between the natural and social phenomena (Callon, 1984; Crawford, 2006).

The ANT is distinct as it characterizes networks as not merely social but ‘materially heterogeneous,’ where agents, technology, and architectures, are all requisite to the network of

the social. Network in this thesis is both utilized in the conceptual version of ANT, and the physical makeup of GOARN. The concept of network must then be understood here in its use by ANT where it refers to the process where information undergoes a series of transformations involving multiple actors, these modifying and interpreting information, and not for its common sense of “[...] transport without deformation, an instantaneous, unmediated access to every piece of information” (Latour, 1999: 15). As suggested by Law, “[...] entities take their form and acquire their attributes as a result of their relations with other entities” (Law, 1999, p. 3).

As mentioned previously, our use of the concept of network isn't limited by the particular relational and/or spatial understanding usually found with the use of that concept. On this subject, Latour deserves to be quoted at length:

[a] network notion implies a deeply different social theory: it has no a priori order relation; it is not tied to the axiological myth of a top and of a bottom of society; it makes absolutely no assumption whether a specific locus is macro- or micro- and does not modify the tools to study the element 'a' or the element 'b'; thus, it has no difficulty in following the transformation of a poorly connected element into a highly connected one and back. A network notion is ideally suited to follow the change of scales since it does not require the analyst to partition her world with any priori scale. The scale, that is, the type, number and topography of connections is left to the actors themselves. The notion of network allows us to lift the tyranny of social theorists and to regain some margin of maneuvers between the ingredients of society -its vertical space, its hierarchy, its layering, its macro scale, its wholeness, its overarching character- and how these features are achieved and which stuff they are made of. Instead of having to choose between the local and the global view, the notion of network allows us to think of a global entity -a highly connected one- which remains nevertheless continuously local [...]. Instead of opposing the individual level to the mass, or the agency to the structure, we simply follow how a given element becomes strategic through the number of connections it commands and how does it lose its importance when losing its connections. (Latour, 1997: 4)

What is interesting in that perspective is the results and effects of the networks, what is produced from these interactions. Especially relevant here is the (re) production of a uniformity, existence,

and ultimately a position of authority that emerge from the network, how the WHO emerges as the leader of global infectious disease governance. In that perspective, and according to the ANT, “[...] entities take their form and acquire their attributes as a result of their relations with other entities” (Law, 1999: 3) and “what appears to be topologically natural, given in the order of the world, is in fact produced in networks” (8). The GOARN and its relevance to the WHO to maintain authority in global health is both a process and the product of networked interactions among a complex system.

Moreover, GOARN exists as a ‘network of networks’ (Calain, 2007). As underlined by Zachery and Keefe, the “[...] GOARN can be seen as the consolidation of collaborative efforts since the mid-1990s - including the revision of the IHR between 1996 and 2005” and the inclusion of diverse actors and practices (Zacher & Keefe, 2008). This means that, while GOARN seeks to act as a unified actor in surveillance and response for simplicity, it is still a pool of many different institutions and technologies (Mackenzie et al., 2014), what ANT described as ‘*actants*’ (Latour, 1999). Therefore, GOARN maintains an incredibly complex infrastructure both human and non-human while facing equally complex resistance.

As John Law suggests ANT seeks to sort out those complexities between actors and networks in the effort not to fall to internal or external pressure, like individual over network ambitions (Law, 1992). This thesis will use the *Actor-Network Theory*¹³ (ANT) as developed by Bruno Latour, Michel Callon, and John Law (among others) to understand the intricacies of GOARN, to go beyond why it exists, but how it exists and maintain a particular position in the “global health ecosystem (Best & Walters, 2013; Horton, 2018; Nexon & Pouliot, 2013).”

This thesis will attempt to understand GOARN through the explanation of the following processes of networks by the ANT theory:

Overcomes resistance and strengthen internally, gaining coherence and consistence; how they organize and convert network elements; how they prevent actors from following their own proclivity; how they enlist others to invest or follow the program; how they

¹³ It is important to note that very few scholars have applied ANT to international relations and the role of international organization. See among others: Büger and Gadinger (2007), Büger (2007) and Legg (2009), Best and Walters and Nexon and Pouliot, 2013.

bestow qualities and motivations to actors; how they become increasingly transportable and ‘useful’; and how they come functionally indispensable. (Crawford, 2006)

As ANT illustrates, human (*actor*) and non-human factors (*actant*) are weighted equally to give consideration to all possible factors related to the structure and function of the network (Crawford, 2006). An *actant* as defined by Latour “can literally be anything provided it is granted to be the source of an action (Latour, 2017).” An *actant* can be an *actor* as it gains an “identity” through procurement of a role in the network (Figueiredo, 2008). This is a crucial approach as the technological capabilities of GOARN are equally consequential as the human knowledge networks. In fact, and following ANT, they are inseparable. They both participate to the emergence – to use ANT vocabulary – of uniformity and structure. As suggested by Latour:

[i]nstead of thinking in terms of surfaces - two dimension - or spheres - three dimension - one is asked to think in terms of nodes that have as many dimensions as they have connections. As a first approximation, the ANT claims that modern societies cannot be described without recognizing them as having a fibrous, thread-like, wiry, stringy, ropy, capillary character that is never captured by the notions of levels, layers, territories, spheres, categories, structures, systems. It aims at explaining the effects accounted for by those traditional words without having to buy the ontology, topology and politics that goes with them. (Latour, 1997: 2)

ANT allows further appreciation of the mechanisms used to organize the various pieces of the network. This process is referred to as ‘translation,’ or the action of transforming an actor so that it will stand for the network and provide the service the network requires (Crawford, 2006; Law, 1992). Sakai and Hamilton describe translation as the process of articulating and leveling different actors and *actants*, whose differences will always produce tension but not impact productivity of the network (Hamilton, 2011; Sakai, 2006). Based on the complexity of GOARN and its perceived resilience this thesis will therefore critically analyze the existence of GOARN through Michel Callon’s ‘*four phases of translation.*’ Callon’s four phases are as follows.

1. Problematisation: Redefining the problems of health

The goal of this first phase is to redefine a situation as not just a ‘problem,’ but also a plight of many. This allows other actors to recognize the complexity and implications of the proposed issue but also underscore the importance of the primary actor to be the only person(s) with the knowledge to solve the redefined problem (Fox, 2000). The researchers must first identify their own problem and solution, but secondly and crucially identify the requisite relationships to solve their problem. Through this step Callon imparts the indispensable nature of the primary researchers by the development of the questions and the intimate understanding of the network needed to fulfill the problem (Callon, 1984).

2. Interessement: Building alliances

As Callon describes, the proposing researchers should next identify a set of relationships or entities that will suit the goal of alleviating or fixing the problem (Callon, 1984). Fox and Callon suggest that it is the mission of the researcher in this phase to lock in these potential allies and relationships, through a commitment by the secondary parties (Callon, 1984; Fox, 2000). Callon refers to this as the ‘*obligatory point of passage*,’ by which the researcher must go beyond identifying necessary actors but also arguing to the actors the significance engagement in meeting the needs of the problem but also secondarily, meeting personal needs or goals of the actors (Callon, 1984). Callon (1984) and Fox identify the use of ‘devices’ or ‘trapping device’ including force, persuasion, and threat that results in “consolidating the roles and activities which the researchers initially suggested (Fox, 2000; Shiga, 2007).”

However, it is important to understand that as the Actor-Network Theory tells us, these actors can be both human and non-human. For example, in Callon’s representation of the translation phases, he identifies actors as *scientific colleagues*, *the fisherman of St. Brieuc*, and *the scallops of St. Brieuc* (Callon, 1984). Perhaps most important is the recognition that GOARN is not a network of individuals but a network of institutions composed of both human skills and relevant technologies (Mackenzie et al., 2014).

3. Enrolment: Deploying the actors

Enrolment can only occur following the success of *Interessement* (Callon, 1984; Fox, 2000; Shiga, 2007). The primary actor must successfully deploy ‘devices’ to snare actors commitment. This results in the cementing and consolidation, or *enrolment*, of actor roles achieved by the undertaking the course of action previously defined by the primary actor (Callon, 1984; Fox, 2000). The actors must accept the inter-definition of their role in the network, that may be untraditional to their individual mission, through the perceived benefits of the relationship described by the primary actor (Shiga, 2007). *Enrolment* is validated when actors follow through with prescribed actions of the network to alleviate the problem.

4. Mobilization: Identifying the spokesperson

The goal of the primary actor, in this case the WHO, is to ensure that there is an identifiable spokesperson for the mission that is representative of all actors involved. Callon idealizes this phase as the point through which the primary actor must ask and identify “who speaks in the name of whom and who represents whom (Callon, 1984)?” The ANT articulates the relationship between the primary and secondary actors as a network that is based on power through persuasion, rather than power by possession (Crawford, 2006). Crawford forwards that ANT is “the stabilization and reproduction of some interactions at the behest of others, the construction and maintenance of network centers and peripheries, and the establishment of hegemony (Crawford, 2006).”

ANT, through these four stages of the translation process, is the appropriate theoretical/conceptual approach to understand the ‘give and take’ vital to the advancement of GOARN by the WHO in an effort to project their presence as a global health leader.

The four stages of translation will be used to map the transformation of GOARN from a viable solution to the problem of operationalizing health security to a validated network of relevant organizations and entities. Beginning with *problematization*, this thesis will develop the problem of the international spread of infectious disease and subsequent securitization of health lead by the WHO. Additionally, this phase should help clarify the politics behind the prioritization of communicable over non-communicable disease. Next, *interessement* will be

used to underscore the WHO as the *obligatory point of passage* in which the WHO discerns actors both human and non-human necessary to answer the global health security problem. Then the *Enrolment* phase will be used to identify events in which GOARN has been successfully deployed and to gather relevant data pertaining to response efforts. Finally, the *Mobilisation* stage will be used to describe the narrative surrounding the WHO in its presentation of GOARN activities.

Using these different tools provided by ANT allows us to neither emphasize the material reality of the GOARN activity nor its social construction, but rather their interaction and transformation through the different phases identify previously. This is coherent with ANT, where this approach “privileges neither natural (realism) nor cultural (social constructivism) accounts of scientific production, asserting instead that science is a process of heterogeneous engineering in which the social, technical, conceptual, and textual are puzzled together (or juxtaposed) and transformed (or translated)” (Ritzer, 2005, p. 1)

This is, ultimately, an analysis of power relationships among the networked organization, and in this case, between the WHO and GOARN. This power materializes through persuasion; of what IOs scholars have term the power of IOs. This fits well into the ANT approach, as:

[w]ithin all sociotechnical networks, relational effects result from disputes between actors, such as attempts at the advancement of a particular program, which necessarily results in social asymmetry. Therefore, ANT can also be considered a theory of the mechanics of power: the stabilization and reproduction of some interactions at the behest of others, the construction and maintenance of network centers and peripheries, and the establishment of hegemony. Rather than power as possession, power is persuasion, ‘measured’ via the number of entities networked. Power is generated in a relational and distributed manner as a consequence of ordering struggles (Ritzer, 2005, p. 2).

An analysis of GOARN activities is thus an analysis of its relational power and effects. The methodology section below will explain the use of network complexity that will complement the four stages of translation by employing multiple types of analysis to produce a more comprehensive answer to the research questions.

Methodology: Leveraging network complexity for a mixed methodology approach

Network complexity

Due to the inherent complexity of networks and resulting variety of perspectives examined, this thesis will use the systematic triangulation of perspectives method of research design. Triangulation allows for the study of issues through several methods, analysis and types of data, which in turn, favors the strengthening of conclusions. As stressed by Dunne, Pryor and Yates, “[t]he idea of triangulation (in this case ‘methodological triangulation’) has often been used to suggest that by using different methods the researcher can compare results to lend validity to research” (Dunne, Pryor, & Yates, 2005). The use of systematic triangulation of perspectives allows for the spanning of genres of methodologies and validates results by reducing inherent limitations of specific designs, but still allowing for a comprehensive understanding of the research questions (Dunne et al., 2005; Scandura & Williams, 2000; Turner, Cardinal, & Burton, 2015).

In this context, complexity allows the analysis of GOARN to “stress organizational patterns, networked relationships and historical context” (Bousquet & Curtis, 2011). The goal is to eschew the reductionist approach of isolating individual components and/or methods and data, not to dissolve their importance but to underscore the possible synergistic effects (Bousquet & Curtis, 2011). Hesse-Biber describes the resulting mixed method approach to hold “greater potential to address these complex questions by acknowledging the dynamic interconnections that traditional research methods have not adequately addressed” (Hesse-Biber, 2010).

In order to do that, a mixed-method approach is used. According to Hesse-Biber, “[m]ixed methods research holds greater potential to address these complex questions by acknowledging the dynamic interconnections that traditional research methods have not adequately addressed” (Hesse-Biber, 2010, p.2). This approach allows us to incorporate into the analysis different empirical supports: “[...] words, pictures, and narrative can be used to add meaning to numbers” (R. B. Johnson & Onwuegbuzie, 2004, p. 21). What follows explain in precision these empirical materials.

Quantitative and Qualitative Design: a mixed-methods protocol

Disease Outbreak News: A quantitative exploration of GOARN

As previously described, information about the productivity of GOARN is limited. This thesis will use the ‘*Disease Outbreak News*’ (DON) to attempt to gather data on exactly what GOARN does (the objects and subjects of surveillance). The WHO publishes a DON upon receipt of an outbreak alert by their surveillance system (coming from any source, explain the current transition to the use of unofficial sources of information). These DON reports are separate than the ‘Weekly Epidemiological Record,’ and weekly report sent through email covering a few disease topics. From each DON report beginning in 1996 to May of 2018, I collected the location of the outbreak, the etiology of the outbreak, the number of cases, and the number of deaths. Additionally, I noted whether each report is either the first notification of an outbreak or an ‘update.’ An update is any report following the primary DON, labeled as such, and describes new information (i.e. new total cases or deaths).

After entering all relevant information into the Excel database, I used STATA to run a series of descriptive statistics and regressions. This information will aid in answering the questions of who, what, and where the WHO prioritizes infectious disease surveillance and possible response efforts. The production of information and knowledge is imperative to the normative authority of the WHO, these reports aid in altering the perception of what is and is not a threat any given moment.

QDA Miner: What is the WHO narrative?

A discourse analysis of GOARN and WHO documents was also performed to understand the narrative put forth about the network, its activities, and relationship to the WHO in context of maintaining leadership and health security. Generally, discourse analysis is “a particular way of talking about and understanding the world (Jørgensen & Phillips, 2002).” In this context, we will be using QDA Miner to understand how the WHO speaks and displays its actions and priorities in regards to global public health. I argue that the WHO seeks to present itself as a leader in the ‘fight’ to prevent infectious disease outbreaks to promote and maintain its position of power.

First a series of documents was chosen to provide a comprehensive summary of the WHO publications related to global public health.¹⁴ The documents were manually read two times to allow initial detection of themes. Then the documents were entered into the QDA Miner software platform and hand coded. The qualitative data analysis software ‘*QDA Miner*’ was used to analyze the codes of collected articles. This data analysis software package allows in-depth coding, annotating, and retrieval of possible themes and categories that appear as patterns in the interviews (“Qualitative Data Analysis Software for Mixed Methods Research,” n.d.).

A side note: Interviews with GOARN and missing opportunities

Finally, a series of semi-structured interviews with GOARN operational staff in Geneva, Switzerland were planned to be completed. The purpose of the semi-structure format was supposed to allow systematic and comprehensive exploration of the interviewee’s perceptions and evaluations of the GOARN program (DiCicco-Bloom & Crabtree, 2006). The qualitative data analysis tool ‘*QDA Miner*’ was planned to be used to further interpret participant’s responses to interview questions. Latour describes the importance of gathering actor’s perceptions as they are the only ones that can detail what why, and how they choose to participate in a network (Latour, 1999).

After contacting the GOARN Operational Support Team through the suggested route and provided email, an initial approval to proceed with interview questions was granted. The GOARN staff member suggested due to time constraints, sending an email with instructions and questions would be the most prudent route. After doing so, and after multiple attempts to contact GOARN, there has been no further response in regards to the interview questions or follow-up inquiries. Therefore, the interview portion of the qualitative analysis will no longer be mentioned in the further result and discussion sections.

¹⁴ Complete description of criteria is found in Chapter 4

Chapter 2: Visualizing the priorities of the WHO and GOARN through the DON reports

That's the world out there, little green apples and infectious disease...

Don DeLillo, *The Angel Esmeralda*, 2011

The following chapter aims to show the results of the quantitative analyses of the ‘Disease Outbreak News’ reports (DON). Within this analysis I look at the frequency of reporting per year, the most commonly reported diseases, most common locations of outbreak reports either based on country or WHO Regions, number of reported cases and deaths per year, and other relevant descriptive statistics. This provides a narrative, of who, what, when, and where the WHO chooses to collect and report information. The main objective is, in short, to show what is under surveillance and what are the points of attention of the WHO/GOARN surveillance apparatus.

The argument supported by these results is that the WHO, as a normative authority, is able to collect, organize, and report data as relevant to the aims of the organization. This, as I argue is an example of the normative power exerted by the WHO, as the organization/transformation of this data and reporting influences our interpretation and perception of “problems” or “threats” as determined by the WHO. We, as public health

practitioners, are typically on the receiving end of this information, and take it at face value relying on the validity of the WHO data based on its traditional leadership role in global public health.

Quantitative Analyses of DON Reports:

At the time of analysis there were 2,069 ‘*Disease Outbreak News*’ reports. The DON reports range from January 1996 to May of 2018. The information is left as reported in the DON.¹⁵ An “*updated case*” is a DON report that occurs in a series about one outbreak event. For example, SARS has 96 outbreaks, meaning after the first updated there are 95 succeeding reports related to the progression of the outbreak.

What diseases are considered threatening?

The following results demonstrate the top five reported diseases, origins of those DON reports, and a comparison of these results to what the WHO considers the most deadly infectious disease.

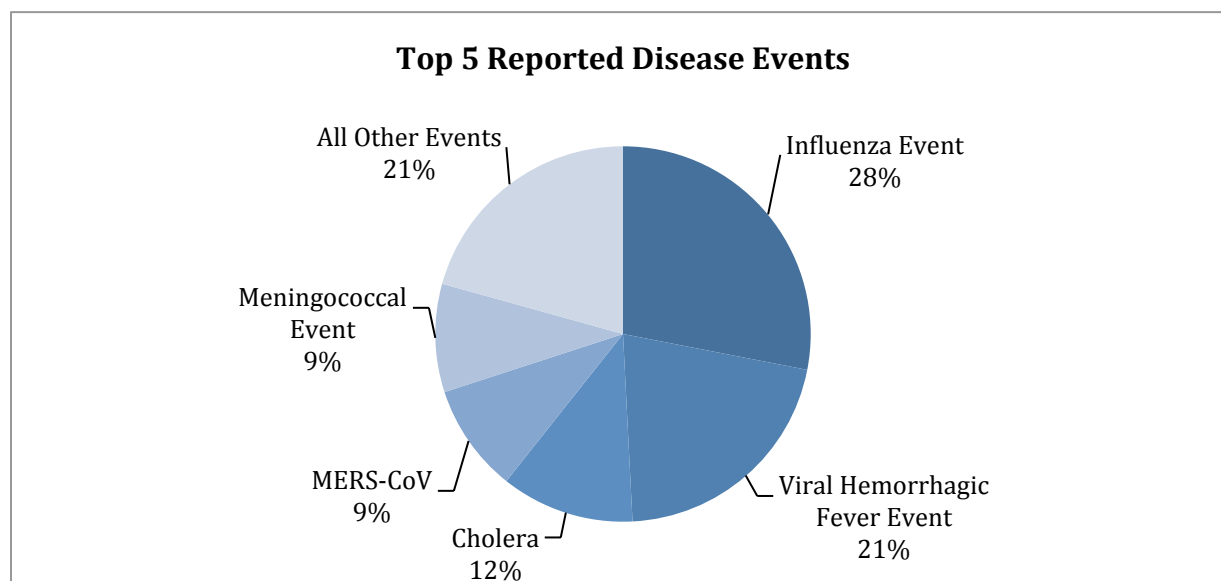


Figure 2. Top 5 disease events including the combined ‘all other events’

¹⁵ In some cases the information reporting of the DON’s did not use a consistent pattern. “*West Africa*” was left as is rather than identifying specific states, like most DON’s.

Figure 12, above, shows that ignoring the combined ‘All Other Events,’ influenza type disease events account for the majority of DON reports (28%). This is interesting because the WHO already has a dedicated influenza reporting and surveillance system known as the ‘*Global influenza Program*.’¹⁶ Both Influenza and many viral hemorrhagic fevers can be transmitted through direct person-to-person contact with the infected individuals bodily fluids. Meaning, to disrupt transmission people can either choose to isolate him or herself or wear personal protective equipment. In a society hyper-focused on globalizing through trade and travel, isolation is unfeasible and PPE is impractical.

Table 2. Comparison DON reports versus top 10 causes of death by communicable disease

Top 10 Reported Disease Events per DON 1996-2018	Global Health Estimates 2016: DALY's¹⁷ by cause
Influenza Events	Lower respiratory infections
Viral Hemorrhagic Fever Events	Diarrheal disease
Cholera	HIV/AIDS
MERS-CoV ¹⁸	Tuberculosis
Meningococcal Event	Malaria
SARS	Meningitis
Polio Event	Childhood cluster diseases ¹⁹
Dengue Event	Sexually Transmitted Diseases excluding HIV ²⁰

¹⁶ WHO Global Influenza Program http://www.who.int/influenza/surveillance_monitoring/en/

¹⁷ DALY's or Disability-Adjusted Life Year is a metric to annotate the burden of disease for a specific population. For more information see https://www.who.int/healthinfo/global_burden_disease/metrics_daly/en/

¹⁸ Middle East Respiratory Syndrome Coronavirus

¹⁹ Pertussis, Poliomyelitis, Diphtheria, Measles, and Tetanus

²⁰ Syphilis, Chlamydia, and Gonorrhea

Plague Event	Hepatitis (A, B, C, D)
Zika	Encephalitis
<i>WHO Global summary estimates 2016²¹</i>	

When comparing Figure 12 and Table 2, the top 10 diseases reported by GOARN are not the diseases estimated to contribute the most DALY's, or the most burdensome per the WHO global summary estimates from 2000 - 2016.. Shockingly, there are no DON reports of HIV/AIDS outbreaks. However, HIV/AIDS is the third most common etiology associated with deaths by infectious and parasitic diseases (Table 2 above). Hemorrhagic fever events²² accounts for the second most reported type of disease event (21%). However, per the WHO's Global summary estimates, viral hemorrhagic fevers does not make the top 10 most reported diseases. It begs to question what is the surveillance criterion for GOARN, is it based in true health concerns or politics? Again there are more instances of reports of diseases that are more easily transmitted thorough casual contact, versus diseases like HIV that is typically transmitted through sex or sharing of needles used for injecting drugs.

Table 3. Top 15 outbreaks per total number of updates

Year	Country of Origin	Disease	Number of Updates
2010	Multi-Countries	A(H1N1)	115
2003	Multi-Countries	SARS	96
2014	China	A(H7N9)	85
2013	Saudi Arabia	MERS-CoV	72
2012	Egypt	A(H5N1)	64

²¹ Taken from https://www.who.int/healthinfo/global_burden_disease/estimates/en/index1.html

²² Hemorrhagic Fever Events were coded using the CDC' and WHO classification. These lists can be found at <https://www.cdc.gov/vhf/diseases.html> and http://www.who.int/topics/haemorrhagic_fever_viral/en/

2014	West Africa	Ebola Virus Disease	55
2005	China	A(H5N1)	51
2008	Indonesia	A(H5N1)	45
2001	Uganda	Ebola Virus Disease	40
2006	Indonesia	A(H5N1)	38
2005	Angola	Marburg	26
2002	Gabon	Ebola Virus Disease	23
2001	South Africa	Cholera	19
2001	United States of America	Anthrax	15
2005	Indonesia	Poliomyelitis	14

Respiratory type diseases account for 8 of the top 15 most updated outbreaks. It is not unsurprising that MERS-CoV is one of the most updated disease reports because it is a relatively new and novel disease. Additionally, it should be noted that the Anthrax outbreak of 2001 is just below that of cholera. This is despite the fact that the global burden of Cholera, a bacterial infection caused by *Vibrio cholerae* and considered a disease of developing countries, far surpasses that of Anthrax. If Anthrax is considered a top 15 disease of concern, then politics plays a more crucial role for surveillance than legitimate and seemingly unremitting public health concerns.

Where are the reports coming from?

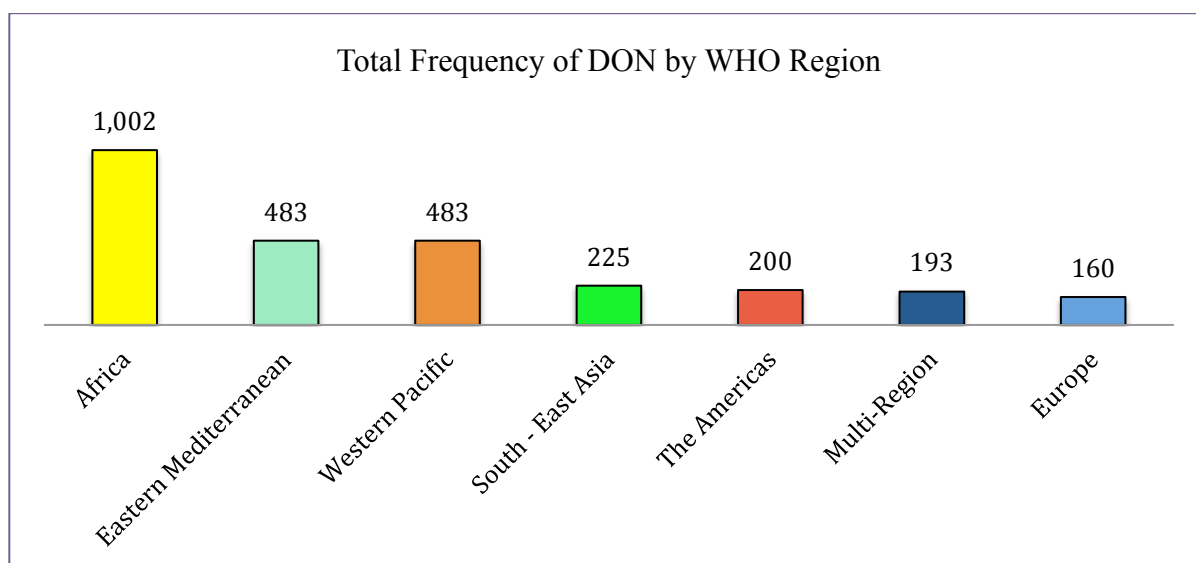


Figure 3. Total DON reports for WHO Region

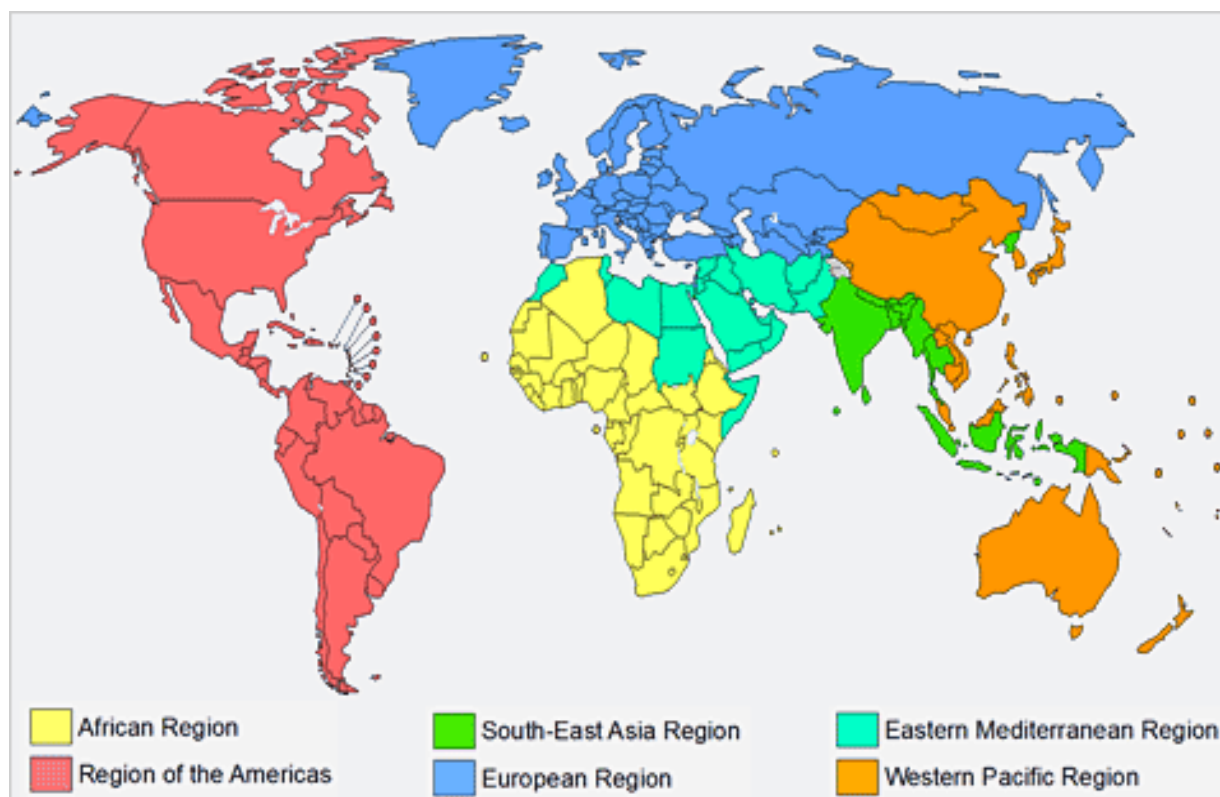


Figure 4. Six Regional Offices of the WHO²³

²³ Taken from http://www.who.int/about/regions/en/WHO_Regions.gif

The WHO Region of Africa possesses the most DON reports, followed by Eastern Mediterranean (Figure 3). Africa has been home to many notorious hemorrhagic fever outbreaks including the 2014-2016 EBV outbreak and recurring outbreaks of Marburg virus. Similarly, the Eastern Mediterranean region experienced the novel 2013 MERS-CoV outbreak beginning in Saudi Arabia, and a major A(H5N1) outbreak in Egypt in 2012.

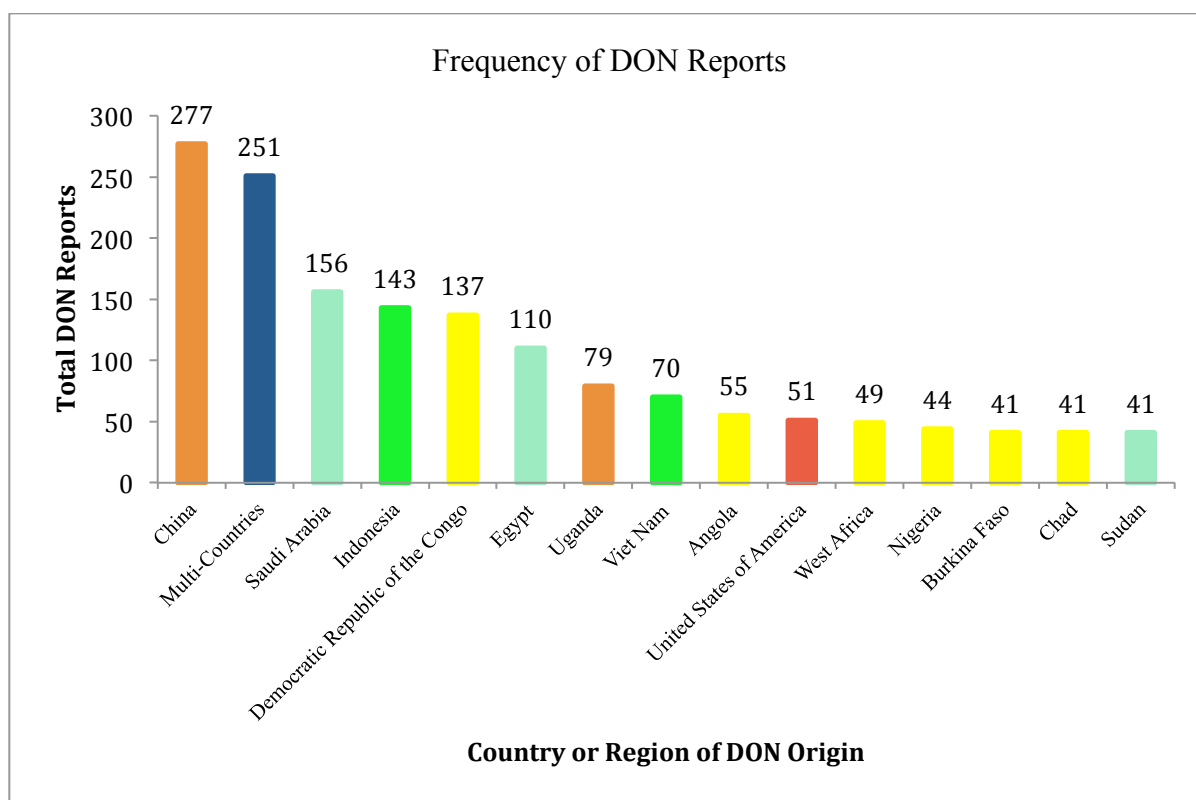


Figure 5. Frequency of DON reports per DON origin

China as an individual country produces the most DON reports with a total of 227, followed by Multi-Countries with 251 (Table 2).²⁴ This is somewhat counterintuitive as figure 14 (above) indicates that the WHO Region of Africa as a whole encompasses the majority of DON reports. Figure 15 of the heat map helps visualize the breakdown of DON reports by region, and shows

²⁴ Neither 'Multi-Country' nor DON's using jargon like 'Horn of Africa or Asia' is included in the heat map. A complete list of DON's by country is available in the annex.

that while China is home to the most reports, the Region of Africa as a total accumulates the most number of reports.

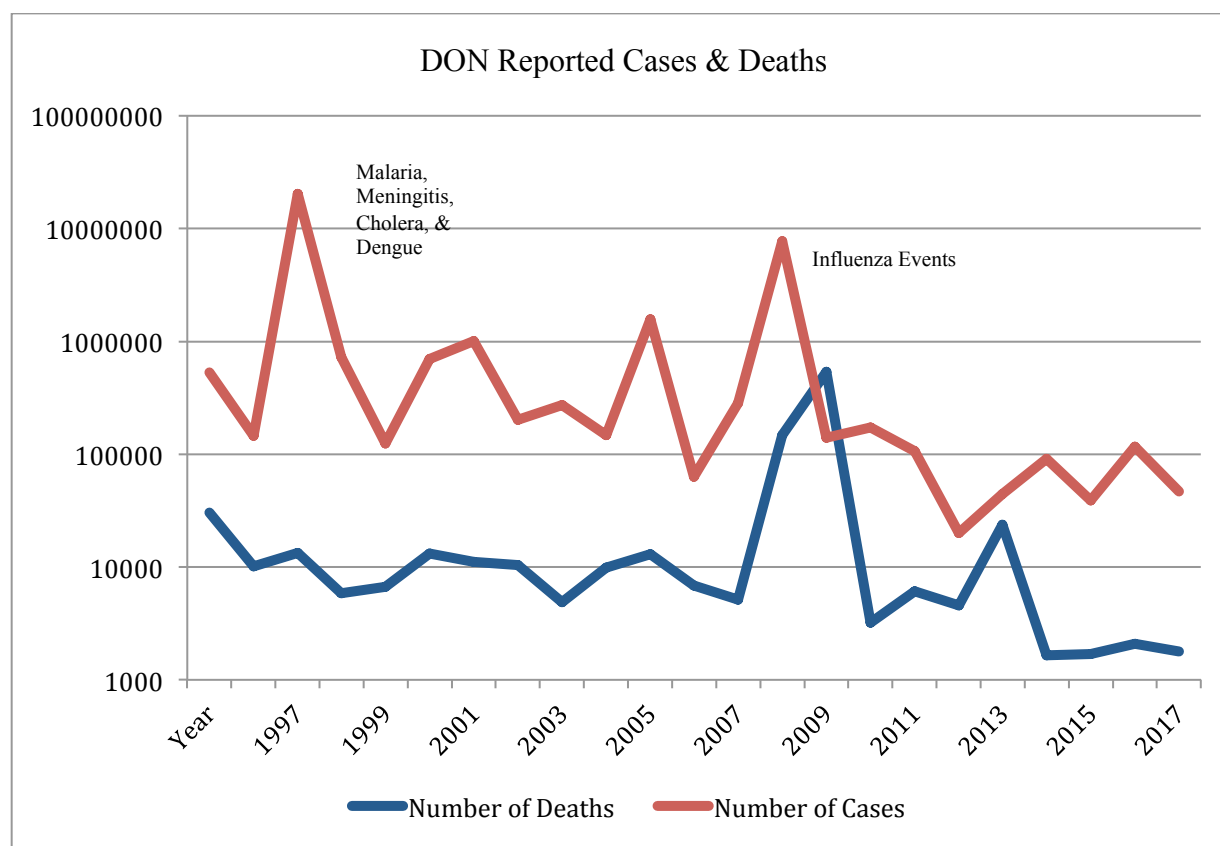


Figure 6. Total reported number of cases and deaths between 1996 and May 2018

Figure 6, above, shows the number of DON reported cases and deaths per year²⁵. From the DON reported cases, in 1998 there were major multi-region outbreaks of Malaria, Meningitis, Cholera, and Dengue. In 2008 and 2009 there was a major outbreak of meningitis in Africa, and another major outbreak of influenza in many countries, this accounts for the increased reporting in those years. The most visible increase in deaths beginning in 2008 and peaking in 2010, this is likely the result of the global influenza outbreak and localized outbreaks of Rift Valley Fever. There is another notable increase in the DON reports of deaths in 2014 – 2016 most likely related to the

²⁵ The log of numbers are reported to account for extreme high and low variables

Ebola virus outbreak in West Africa.²⁶ At first glance, it seems that over time there has been a decline in reports both deaths and cases.²⁷

²⁶ While 2014-2016 is the last ‘spike’ scene in this series, it should be noted that results for 2018 are not complete, but still included to show possible trends.

²⁷ It should be noted that in DON reports the reporting of deaths occurs in two ways. First as total number of new deaths, but most frequently as cumulative total. To maintain the integrity of showing the DON reports as is, I chose to show exactly what the DON reported.

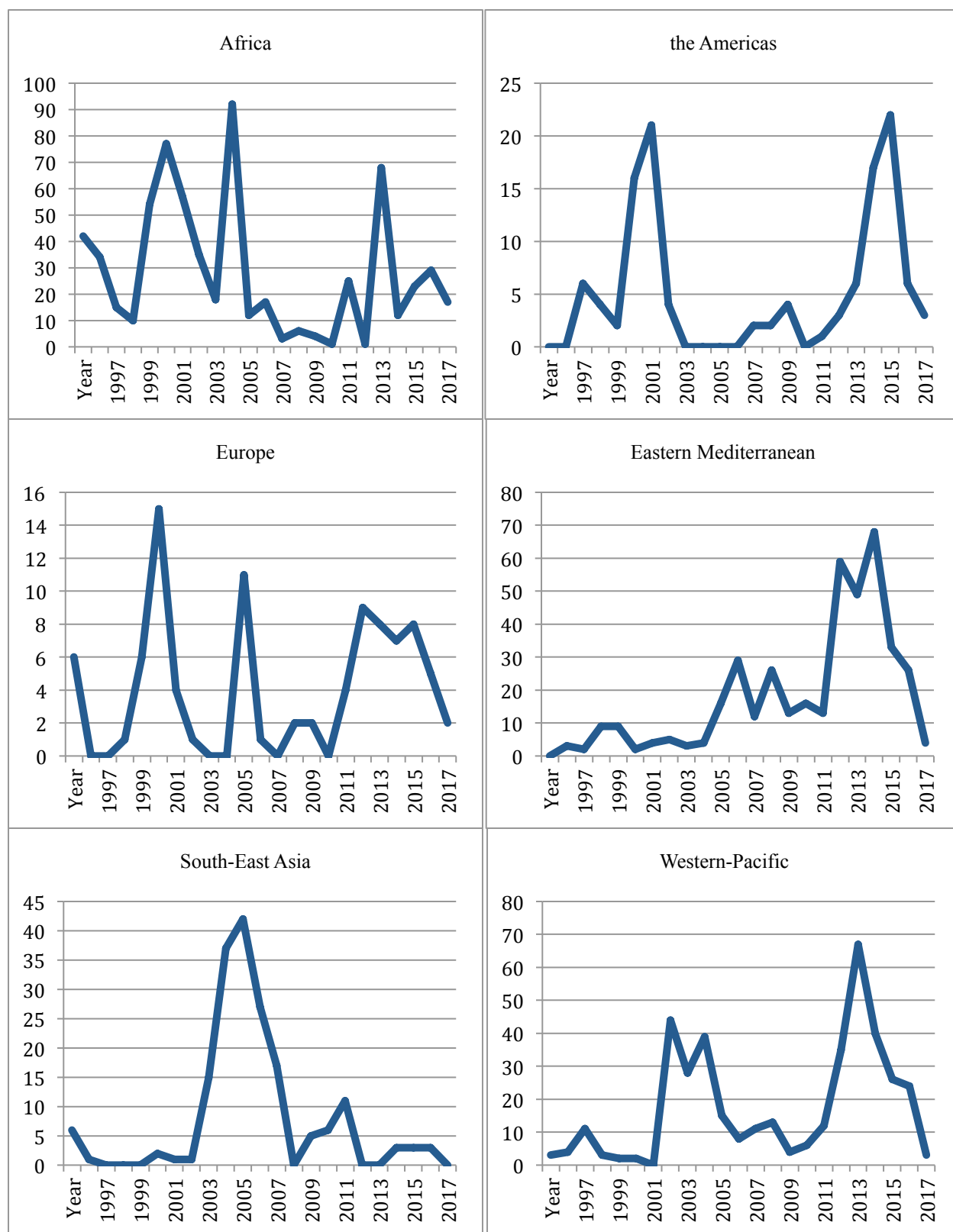


Figure 7. DON reports per WHO Region from January 1996 to May of 2018

In the above Figure 7, it is important to note the varying scales between the number DON reports of WHO Regions. For example, the WHO Region of Europe has a scale ranging from 0 to 16 DON reports per year versus the WHO Region of Africa with a range of 0 to 100 DON reports per year. This gives a clear example of what regions produce the most reports.

Referring to the first two sets of graphs in Figure 7 - In the WHO Region of Africa, beginning in 2001 and 2002 there were many reports of Cholera, Ebola virus (EBV), Meningococcal disease, and Yellow fever. In 2005 there was a major outbreak of Marburg virus, and additional outbreaks of Cholera. In the WHO Region of the Americas, in 2001 a rare event in the intentional release of Anthrax led to increased DON reports. In 2015-2016 reports of Zika and associated Guillain-Barre syndrome again caused increased number of DONs in the WHO Region of the Americas.

Referring to the second two sets of graphs in Figure 7 - Reports of A(H5N1), A(H7N7), and novel coronavirus are the likely cause in the increase of Europe reports between 2012 and 2016. In 2013 in the WHO Region of the Eastern Mediterranean, experienced an outbreak of a novel coronavirus, causing a spike in reports. This novel coronavirus is what we now know as the MERS-Cov virus and is associated with many outbreaks in surrounding Middle Eastern countries.

Referring to the third set of graphs in Figure 7 - In the WHO Region of South-East Asia, between 2003 and 2009 outbreaks of A(H5N1) caused recurrent and increased DON reports. Around 2001 there were increased reports of outbreaks of Meningococcal disease and hemorrhagic fevers. In 2003 the SARS outbreak was first found in the Western-Pacific region, and quickly became a worldwide outbreak event. In 2005 the A(H5N1) outbreak, and in 2014 – 2014 the MERS-CoV, and A(H7N9), are the likely cause of the most recent spike in DON reports.

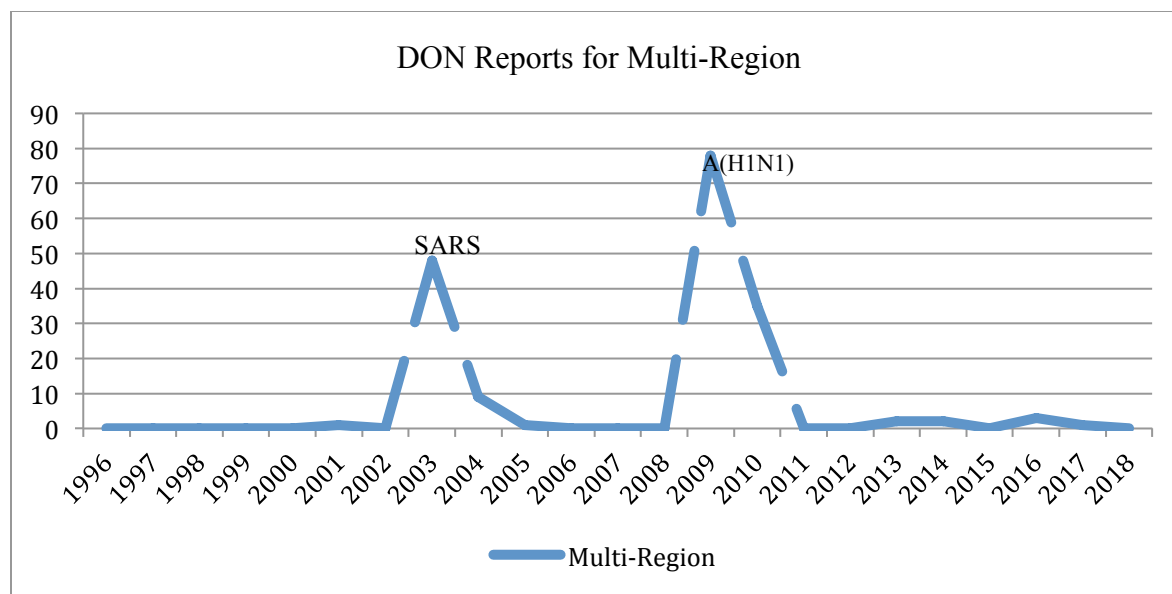


Figure 8. DON Reports for Multi-Region

DON reports that encompass more than one WHO Region or are considered global outbreaks were combined to create the Multi-Region variable (Figure 8). In many cases there were few to no reports of Multi-Region outbreak events. However, in 2003 the SARS and 2009 A(H1N1) outbreaks spread either to more than one region or worldwide. The number of reports produced during these outbreaks indicates how seriously the WHO took this outbreak.

Table 4. Regression of DON Reports

		Number of obs	=	23		
		F(6, 16)	=	3.13		
		Prob > F	=	0.0316		
		R-squared	=	0.5403		
		Adj R-squared	=	0.3679		
		Root MSE	=	20.353		
africa	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
theamericas	.7409202	.7816167	0.95	0.357	-.9160332	2.397874
southeastasia	.0019519	.4095026	0.00	0.996	-.8661548	.8700586
europa	2.240908	1.261198	1.78	0.095	-.4327111	4.914528
easternmediterranean	-1.119581	.3084939	-3.63	0.002	-1.773558	-.465603
westernpacific	.9575267	.3143872	3.05	0.008	.2910556	1.623998
multiregion	-.2354755	.2379589	-0.99	0.337	-.7399258	.2689748
_cons	20.44003	8.729246	2.34	0.032	1.934853	38.9452

The results of the adjusted R^2 show that the predictors explain only 36% of the variance ($R^2=0.54$, $F(6,16)=3.13$, $P<0.05$). It was found that the number of DON reports for the WHO Region of the Eastern Mediterranean significantly predicts the number of DON reports for the WHO Region of Africa ($\beta=-1.13$, $p>.05$). Meaning, with every one unit increase in DON reports for the Eastern Mediterranean there will be a -1.12 unit decrease in WHO Region of Africa reports, holding all other variables constant ($p<0.5$). Additionally, it was found that DON reports for the WHO Region of the Western Pacific significantly predicts DON reports for the Region of Africa ($\beta=.96$, $p>.05$). Meaning, for every one-unit increase in DON reports for the WHO Region of the Western Pacific, there will be a .96 increase in DON reports for Who Region of Africa, holding all other variables constant ($p<0.05$).

Summary: the object, subject and temporality of infection disease surveillance

Influenza events (Figure 12) and specific influenza strains (Table 1) represent the most tracked and updated diseases. Interestingly, cholera accounts for the second most tracked disease, ignoring all ‘other events,’ but has a comparatively low number of updates for a single event. Indicating that cholera outbreaks were frequent, but not often updated or tracked for a shorter time period. In addition, while the 2003 SARS outbreak was the second most frequently updated outbreak event, SARS as an event only accounted for 4.15% of tracked diseases.

Interestingly, it is readily apparent that the WHO chooses not to report on ‘Diseases of Poverty’ (Tuberculosis, Malaria, and HIV/AIDS)²⁸ and sexually transmitted diseases, despite their significant impact on morbidity and mortality. Does this indicate that the WHO and consequently GOARN focus primarily on disease that can disrupt trade and travel? If this were the case, it would be the assumption that the WHO would also focus primarily on cholera outbreaks, as was the original intention of the IHR.

Despite the WHO Region of Africa producing the most DON reports, China that is in the WHO Region of the Western Pacific has the most DON reports as a single source. This brings into question why does the WHO focus most reporting on the WHO Region of Africa while the

²⁸ Diseases of Poverty and the 10/90 gap
<http://www.who.int/intellectualproperty/submissions/InternationalPolicyNetwork.pdf>, accessed on

Western Pacific, specifically China, has the most reports? Does the WHO focus on Africa because it has the most influence in this region, versus countries like China that in the past have been resistant towards WHO intervention and sharing of information?

Table 5. Key findings of DON report analyses

Key Findings of DON Reports
<p>Top 3 infectious disease reports, ignoring combined ‘all other events’</p> <ol style="list-style-type: none"> 1. Influenza type disease 2. Viral hemorrhagic fevers 3. Cholera
<p>Respiratory type diseases accumulate the most DONs per event (AH1N1, SARS, AH7N9, MERS-CoV, AH5N1).</p>
<p>Distribution of DONs by WHO Region</p> <ol style="list-style-type: none"> 1. Africa 2. Eastern Mediterranean 3. Western Pacific 4. South East Asia 5. The Americas 6. Multi-Region 7. Europe
<p>Top 3 locations or sources of DON reports:</p> <ol style="list-style-type: none"> 1. China (277) 2. Multi-Countries (251) 3. Saudi Arabia (156)
<p>The United States of America is the only Region of the Americas or ‘Western’ country in the top 15 most reported origin</p>
<p>When there is an increase in reporting of DON’s for the Eastern Mediterranean there is a decreasing in reporting for WHO Region of Africa reports</p>
<p>When there is an increase in DON reporting for the Western Pacific there is also an increase in reporting for the WHO Region of Africa.</p>

Chapter 3: Qualitative analysis of WHO and GOARN official documents

We help mothers and children survive and thrive so they can look forward to a healthy old age. We ensure the safety of the air people breathe, the food they eat, the water they drink – and the medicines and vaccines they need

World Health Organization, 2018

In this chapter, 15 documents from the WHO are selected and analyzed through the relationship of thematic coding based on the text. To this end, codes are used to provide an alternative narrative showing the prioritizations or relationships between certain themes found throughout the documents. This type of analysis develops a more nuanced understanding of the focuses and prioritizations of the WHO that may not be directly stated in the text. Documents were chosen based on the following criteria:

Table 6. Document selection criteria for QDA Miner

1. All documents must pertain to the WHO and outbreak alert and response, and should include key words or phrases including, but not limited to:

- GOARN
- Alert and response
- Preparedness
- International partnerships
- Health Security

2. All documents must be dated following the establishment of GOARN (i.e. 2000)
3. Documents must be accredited by the WHO and can include: <ul style="list-style-type: none"> • Reports • Informative or educational material • News or media reports • Policy & legislation documents

QDA Miner analysis of WHO and GOARN documents:

QDA Miner is a qualitative data analysis software package. This software allows for coding and annotating of documents to aid in uncovering themes through statistical analysis and visualization of results.²⁹ Fifteen documents from the WHO, pertaining to GOARN or alert and response efforts, were analyzed for common themes.

Table 7. Documents analyzed using QDA Miner

<i>Title</i>	<i>Document Type</i>	<i>Code Name</i>	<i>Year</i>
<i>A Framework for Global Outbreak Alert and Response</i>	Policy & Legislation	Framework for Global Outbreak	2000
<i>Emergency Response Framework</i>	Policy & Legislation	ERF	2017
<i>Global Health Security – epidemic alert and response</i>	Report	GHS – epidemic alert & response	2001
<i>Global Health Security from the WHO</i>	Informative	GHS WHO	2003
<i>Global Outbreak Alert and Response – Partnership in Outbreak Response</i>	Informative	GOARN	
<i>Global Outbreak Alert and Response – Report of a WHO meeting</i>	Report	Report of a WHO Meeting	2000

²⁹ QDA Miner can be found at <https://provalisresearch.com/products/qualitative-data-analysis-software>

<i>Guiding Principles for International Alert and Response</i>	Informative	Guiding Principles	2018
<i>IHR News</i>	News Release	IHR News	2015
<i>International Health Regulations</i>	Informative	IHR	2015
<i>Independent Evaluation of the Global Outbreak Alert and Response Network</i>	Report	Ind. Eval. GOARN	2011
<i>Meeting to establish a regional network for outbreak alert and response</i>	Report	Meeting Summary	2015
<i>Nigeria battles its largest Lassa fever outbreak on record</i>	News Release	Nigeria Lassa Outbreak	2018
<i>Operational Response to SARS</i>	Informative	Operational SARS	2003
<i>WHO responding to health crises caused by large-scale population displacements in Iraq</i>	News Release	WHO Response Iraq	2014

Table 8. Three major categories and corresponding themes

	Category	Theme
1	<i>Data Collection & Surveillance</i>	Surveillance & Data Collection
		Information Sharing & Communication
2	<i>Intervention & Response Methods</i>	Humanitarian Aid or Response
		Prevention & Control
		Preparedness
		Global Public Health Risks
		Alert & Response
3	<i>Coordination & International Partnerships</i>	WHO Leadership

	International Coordination
	Normative & Technical Expertise
	Function of GOARN
	Utility of Network Approach
	Operational Response
	Finance
	Policy & Legislation

During the coding process the 15 themes were further grouped into three overarching categories (1) Data Collection and Surveillance, and (2) Intervention and Response Methods, and (3) Coordination and International Partnerships (Table 3 above). These three broad categories represent the major themes found in all fifteen documents.

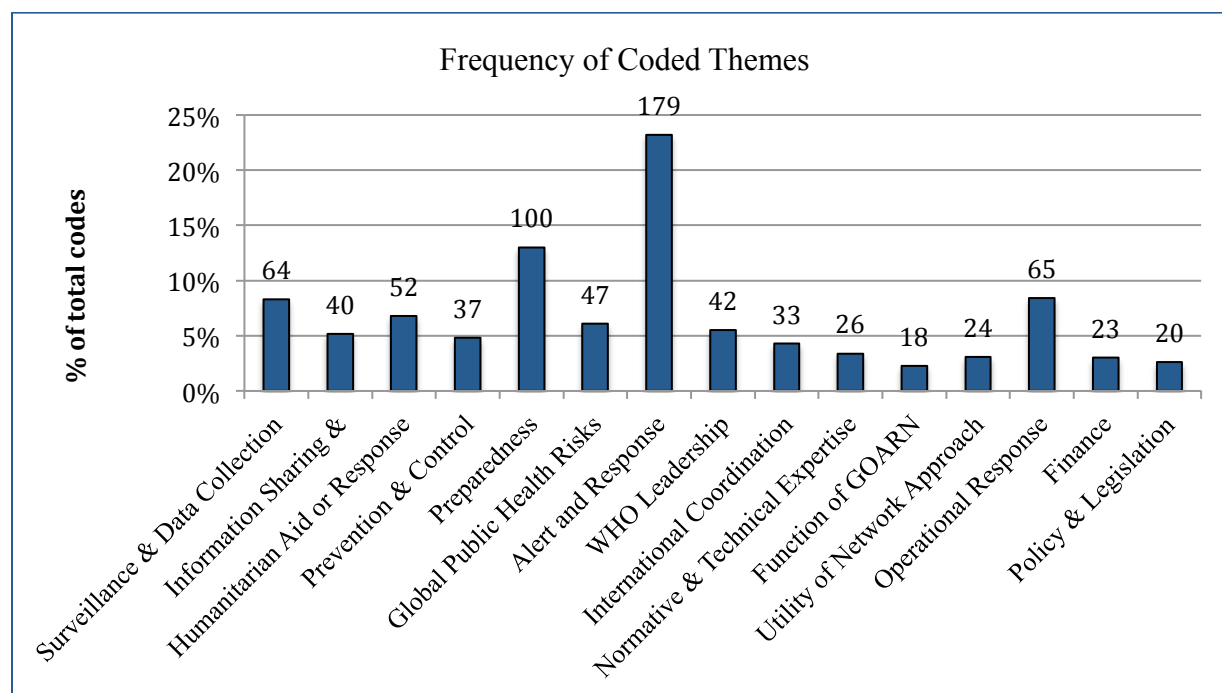


Figure 9. Distribution of all codes in WHO and GOARN documents

In all 15 codes, without regard to three categories, ‘Alert and Response,’ ‘Preparedness,’ ‘Operational Response,’ ‘Surveillance & Data Collection,’ and ‘Humanitarian Aid or Response’ are the five most frequently coded themes. These codes signify a narrative through which the WHO takes an active, if not authoritative role in preparing, monitoring, and responding to health crises.

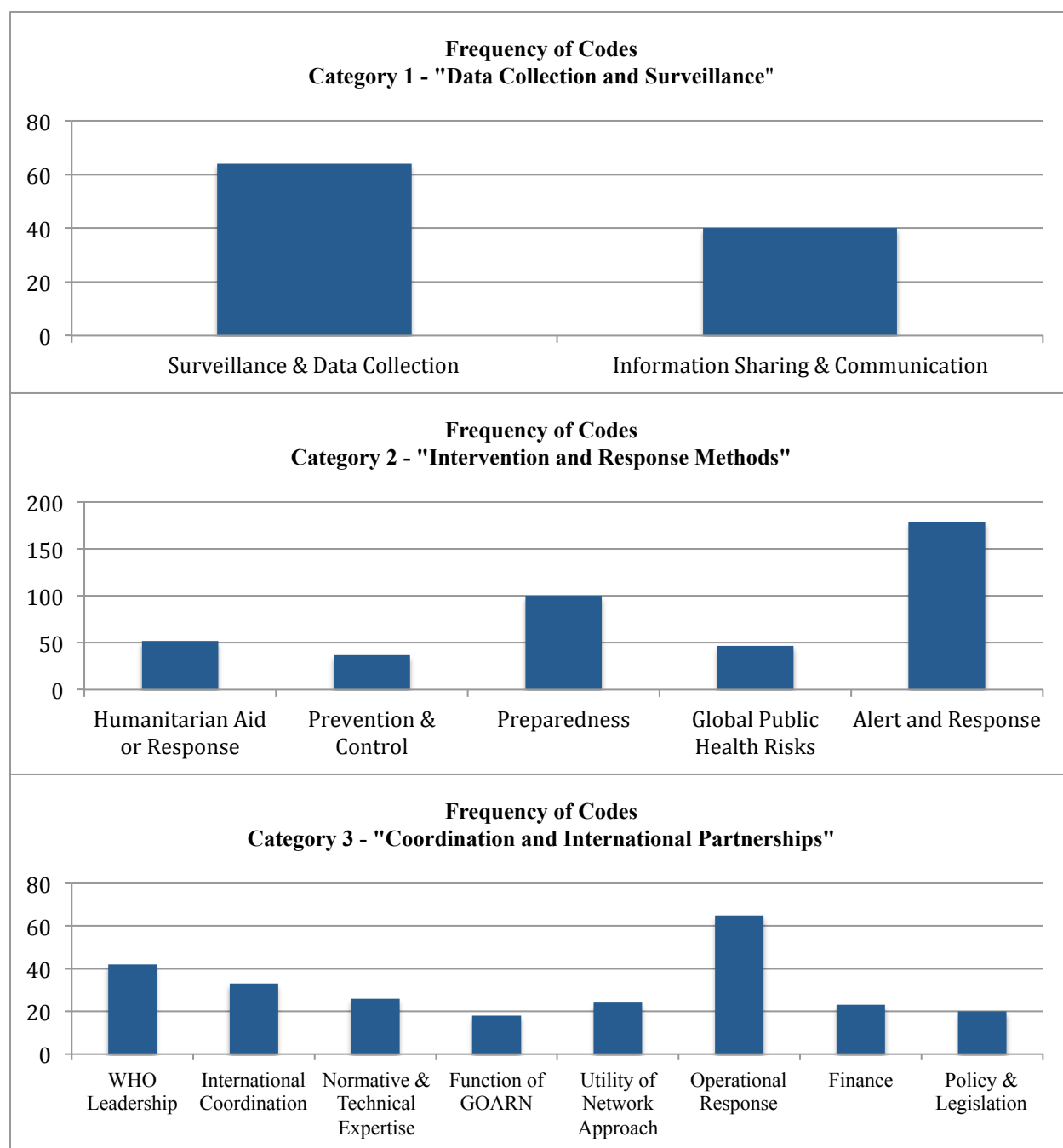


Figure 10. Distribution of codes by category

Within the first category, ‘Data Collection and Surveillance,’ there are only two thematic codes. Thus, ‘Data Collection Surveillance’ is coded more frequently than ‘Information Sharing and Communication.’ In second category, ‘Intervention and Response Methods,’ ‘Alert and Response’ (179) is the most frequently cited theme, followed by ‘Preparedness,’ and ‘Humanitarian Aid or Response.’ Finally, in the third graph of Figure 10, ‘Coordination and International Partnerships,’ and ‘Operational Response’ are the most frequently cited thematic code.

Based on the distribution of the codes throughout the documents, as expected, ‘Alert and Response’ is a prioritization of the WHO. The frequency of ‘Preparedness’ as a theme in WHO documents fits the public health focus on preventative measures. The WHO’s emphasis on ‘Data Collection & Surveillance’ in documents underscores the organizations commitment to the production of data and knowledge. Rounding out with the high frequency of ‘Operational Response,’ the WHO very clearly transitioning to increase operational capability to add to its existing credentials as a normative and technical authority. Based on this analyses is it fair to question if the WHO sees the operational capacity as the next phase of the IO to maintain normative authority, following failure in this area during recent outbreaks?

Comparison of documents

In the next series of graphs, I will show the comparison of the documents versus individual codes. Rather than to look at each document individually, I chose to organize the documents based on document type, believing the sum of the narrative tells more than the individual document. I argue that the WHO asserts its normative power and authority through the growth of operational capability and surveillance and this is visible through the analysis of the narrative of its reports and policy documents.

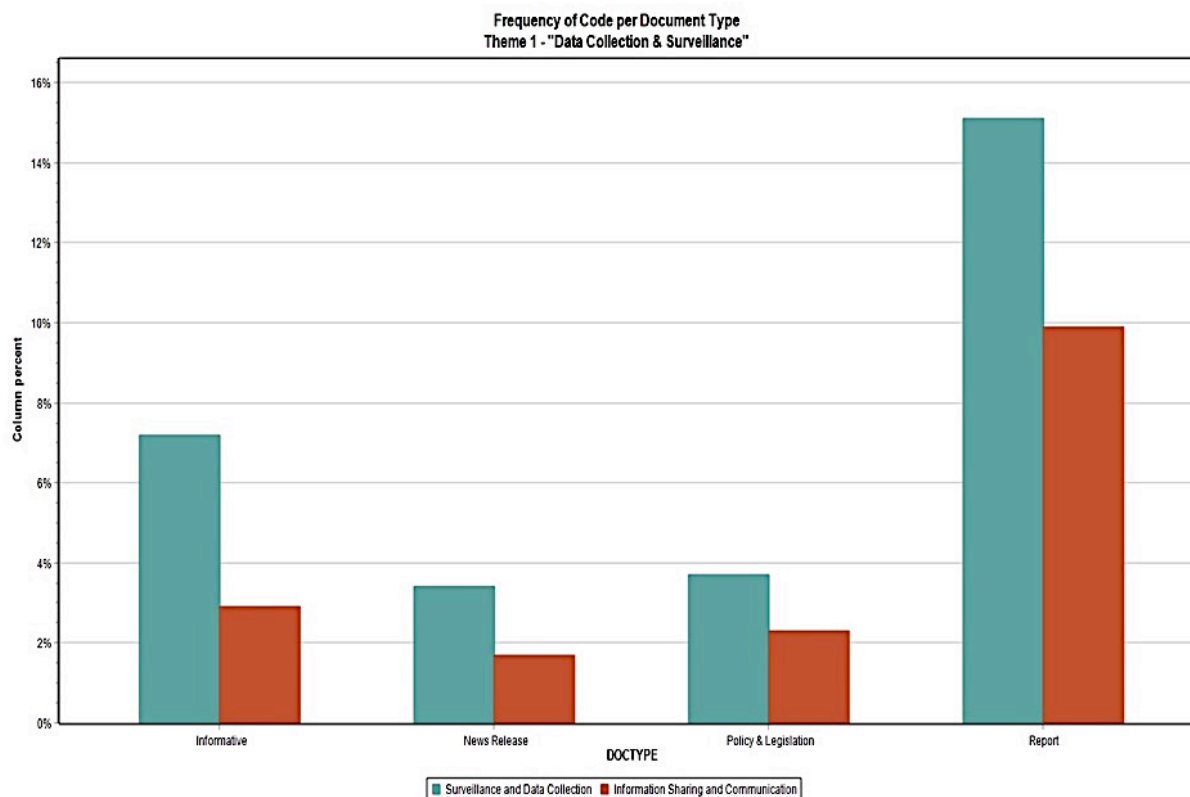


Figure 11. Distribution of 'Data Collection & Surveillance' category

The above figure shows the distribution of the category 'Data Collection & Surveillance' in the four document types. Based on the above information, approximately 15% of 'Surveillance and Data Collection' and 'Information Sharing and Communication' is most frequently found in Report-type documents. Conversely both of these codes are least frequently found in News Release-type documents.

There is contention surrounding the ethics of surveillance, both through formal and informal sources of information, therefore the WHO may consciously choose to not emphasize this in information directly for public consumption. Additionally, both of these categories are highly technical and not easily digestible to the average reader. WHO reports are typically very detailed, and this may indicate why these topics are also frequently coded.

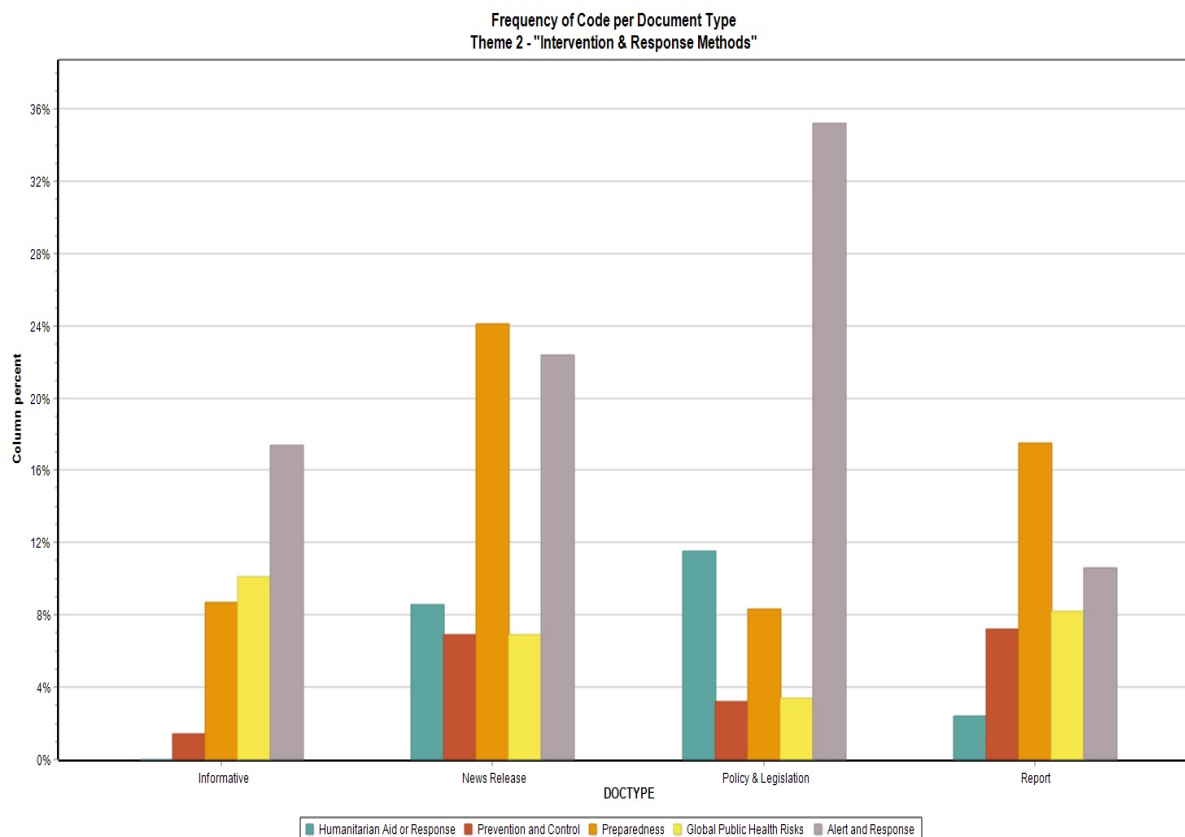


Figure 12. Distribution of 'Intervention & Response Methods' code

In the second category, 'Intervention and Response Methods,' the vast majority of 'Alert or Response' coding is found in Policy & Legislation-type documents, followed by News Release-type documents. The code 'Preparedness' is most frequently found in News Release-type documents. 'Humanitarian Aid or Response' is seen most frequently in Policy & Legislation-type documents. Interestingly, 'Humanitarian Aid or Response,' was not coded in the informative- type documents.

'Alert and Response,' as the most cited code within the second category was expected. 'Humanitarian Aid or Response,' was not expected to materialize in documents as this is typically out of the scope of the WHO. This may indicate that with the growing amount of humanitarian issues, like those following natural disasters or movement of refugees, the WHO is seeking to assert authority into this area.

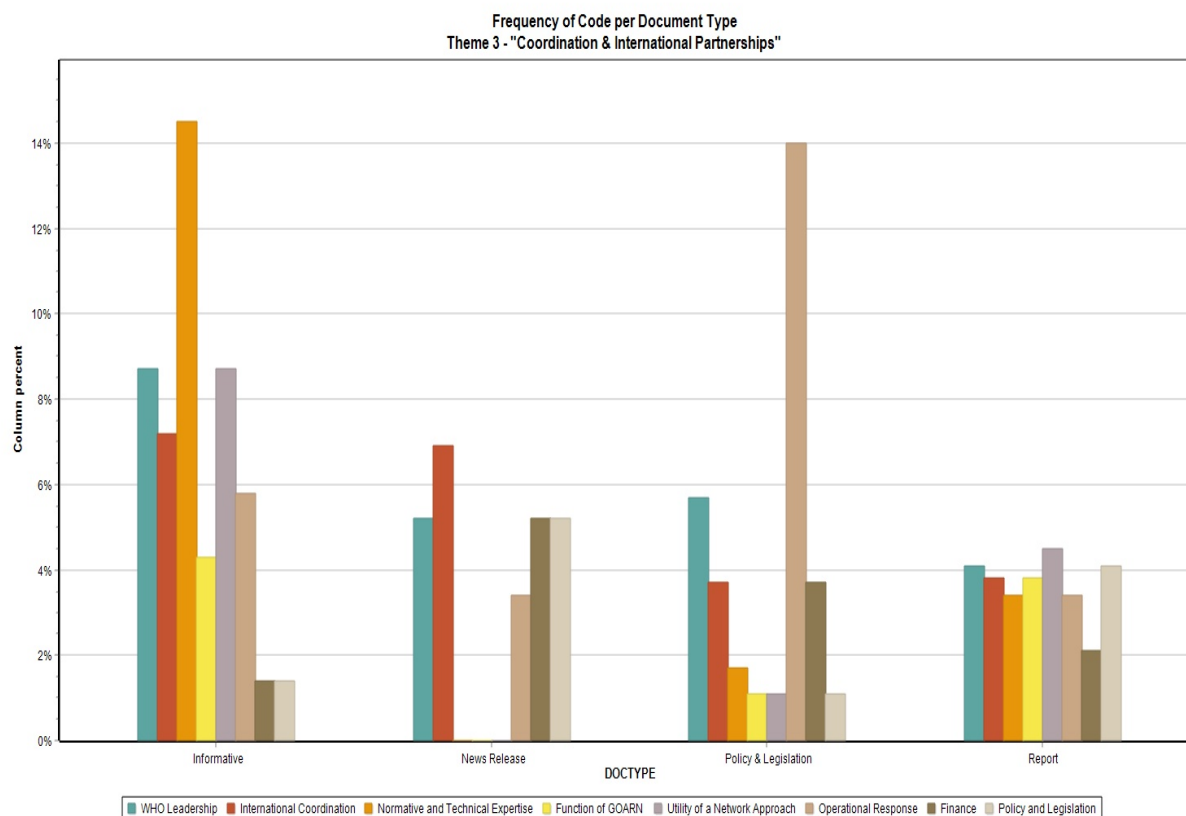


Figure 13. Distribution of 'Coordination & International Partnerships' codes

In informative-type documents, themes of 'Normative & Technical Expertise,' 'WHO Leadership,' and 'Utility of Network Approach,' are the most frequently coded. In News Release-type documents 'International Coordination' is the most frequently coded theme. In Policy & Legislation-type documents, themes of "operational response" are most frequently coded. In the Report-type documents, all eight themes are relatively evenly coded.

The prevalence of 'Operational Response' in Policy & Legislation-type documents may indicate the WHO intentions to grow capability in this area. Additionally, in the WHO informative documents the focus on 'Normative and Technical Expertise' and 'WHO Leadership' may indicate the WHO wishes to recognize the leadership role of the organization in these two areas of expertise. Interestingly, 'Finance' as most frequently coded in News Release-type documents may be an intentional call for increased financial resources.

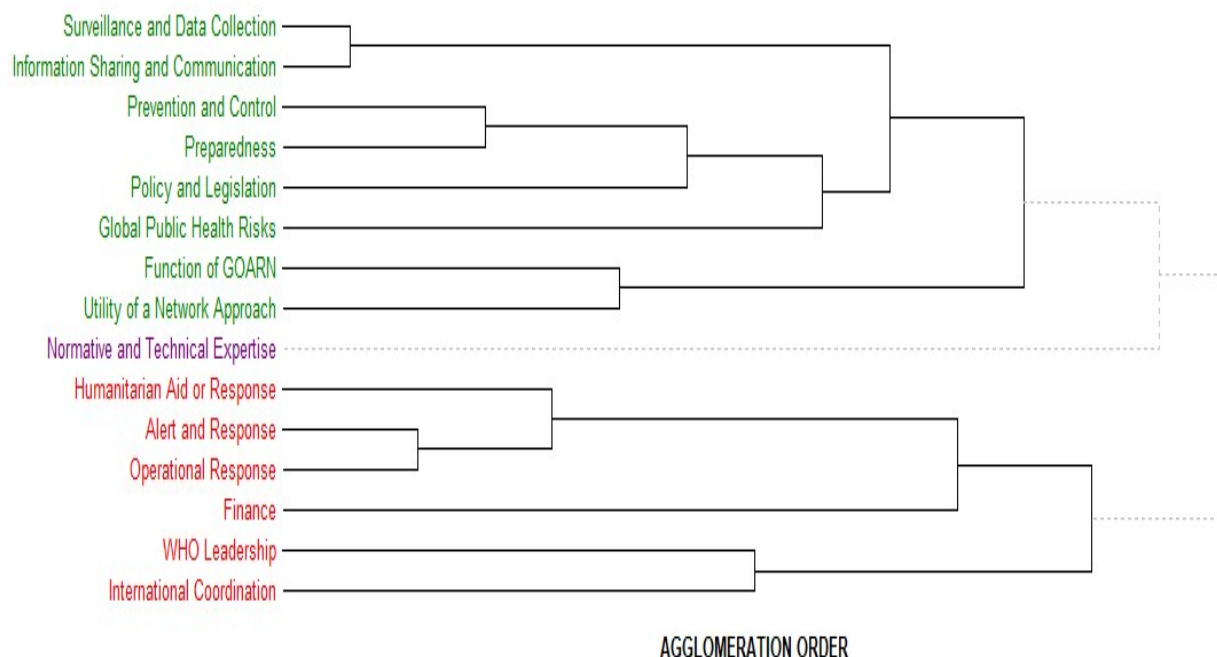


Figure 14. Dendrogram showing relationship or similarity between codes

The above Dendrogram use Agglomeration Hierarchical Clustering to show similarity between observations (i.e. codes). Unexpectedly, the ‘Normative and Technical Expertise’ code stands alone, or less related to its counterparts. Interestingly, the WHO projects a very synchronized narrative throughout all fifteen documents. The six categories in red represent response activities. The six codes in green all deal with the WHO preventative and surveillance activities.

The close relationship between ‘Surveillance and Data Collection,’ and ‘Information Sharing and Communication’ is expected if the WHO consciously chooses to prioritize the production and distribution of knowledge. Additionally, the similarly close relationship ‘Alert and Responses’ and ‘Operational Response’ indicates the WHO understands the importance of expanding expertise in operational capability in alert and response methods, as demanded in WHO failures during outbreak response.

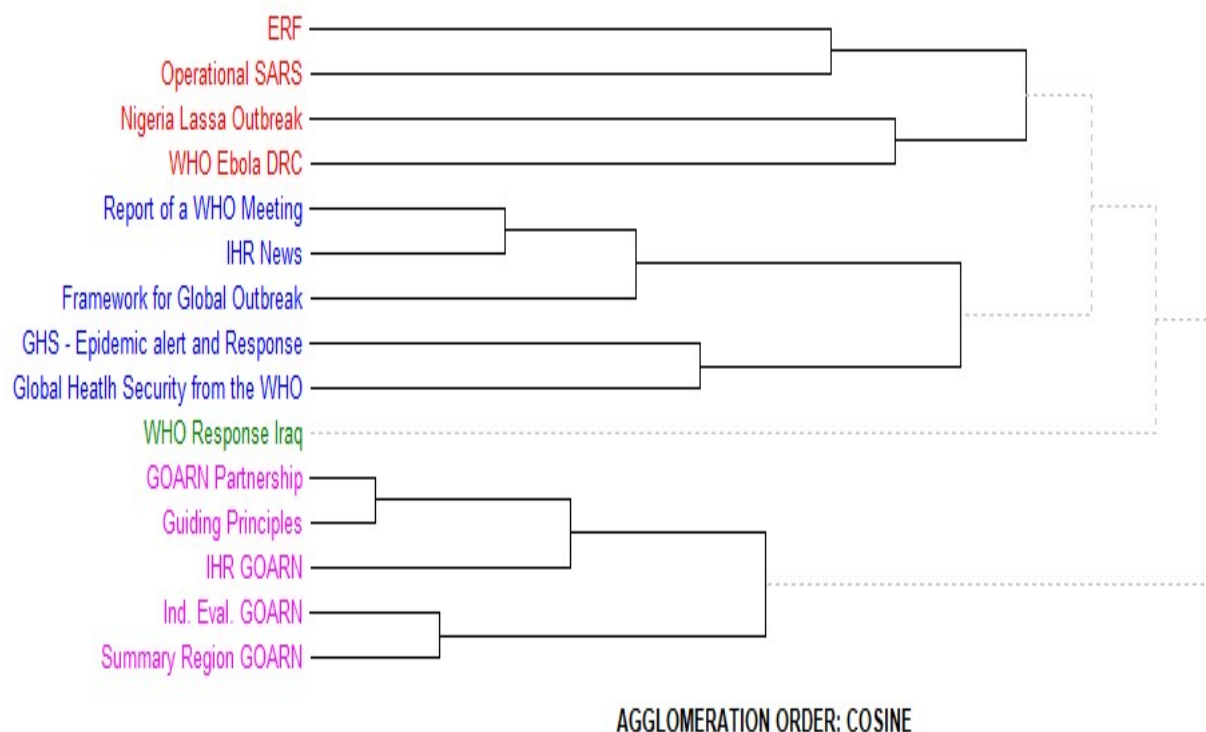


Figure 15. Dendrogram showing relationship between documents

The three main branches comprise three major subjects - operational (red), policy & management (blue), and GOARN (purple). The 'WHO Response in Iraq' would have been expected to fall into the 'red' or operational subject. Over all this indicates the WHO has consciously chosen to produce a narrative to promote its role in global health security actions. The role as outlined through the relationship of these documents is one where WHO has operational capability and success, a breadth of proactive policy, and detailed expectations for the duties of GOARN.

Summary: shaping the operationalization narrative

From the above discursive analysis emerge three main findings:

- 1) There is an overall emphasis on preparedness and response in the WHO/GOARN documents, framing the WHO as the legitimate actor when it comes to preparing for and anticipating outbreaks

- 2) When desegregating by type of documents, we see that humanitarian responses is less consequential in the production of the WHO narrative, compared to the overall preparedness, showing that a predictive approach is favored compared to a humanitarian one.
- 3) Paradoxically, this emphasis on alert and response seems to be made at the expend of surveillance (in the narrative), which we however contrasted with the fact that the main activity of the GOARN is surveillance and not necessarily intervention (see introduction for a review of GOARN activity)

From the results of the QDA Miner text analysis, it is clear the WHO continues to shift priority towards alert and response capability reinforced by greater surveillance and data collection. This gives legitimacy to the discussion of the WHO maintaining normative authority as the global public health leader through the production and transformation of knowledge.

Table 9. Key findings from document analyses with QDA Miner

Key Findings from QDA Miner	
1	<p>Top 5 codes in all documents</p> <ol style="list-style-type: none"> 1. Alert & Response (23%) 2. Preparedness (13%) 3. Operational Response (8%) 4. Surveillance & Data Collection (8%) 5. Humanitarian Aid or Response (7%)
2	<p>Top 3 codes in 'Informative' documents</p> <ol style="list-style-type: none"> 1. Alert & Response (17.45%) 2. Normative & Technical Expertise (14.5%) 3. Global Public Health Risks (10.1%)
3	<p>Top 3 codes in 'News Release' documents</p>

	<ol style="list-style-type: none"> 1. Preparedness (24.1%) 2. Alert & Response (22.4%) 3. Humanitarian Aid or Response (8.6%)
4	<p>Top 3 codes in ‘Policy & Legislation’ documents</p> <ol style="list-style-type: none"> 1. Alert & Response (35.2%) 2. Operational Response (14%) 3. Humanitarian Aid or Response (11.5%)
5	<p>Top 3 codes in ‘Report’ documents</p> <ol style="list-style-type: none"> 1. Preparedness (17.5%) 2. Surveillance & Data Collection (15.1%) 3. Alert & Response (10.6%)
6	<p>‘Surveillance & Data Collection’ and ‘Information Sharing & Communication’ most closely related codes (i.e. most commonly occur together)</p>
7	<p>‘Global Outbreak Alert and Response – Partnership in Outbreak Response’ and ‘Guiding Principles for International Alert and Response’ most closely related documents</p>

Chapter 5 - Putting it all together: How the WHO maintains normative authority

“Somewhere in the world, the wrong pig met up with the wrong bat”

Contagion, 2011

The analysis of DON reports reveals the prioritization of threatening infectious diseases of the WHO. These diseases do not corroborate the leading cause of mortality according to other WHO documentation. Therefore, burden of disease is not the criteria for GOARN and DON reporting. Thus the WHO establishes authority through the production and distribution of DON reports and influences the nature of threats as a practice of power.

The narrative as observed through the QDA Miner analyses indicates the WHO prioritizes the ‘alert and response’ activities, and preventative and proactive approach of surveillance over humanitarian aid. This indicates the WHO aims to adapt to the operational capability sought by Member States of the organization. GOARN has a unique role in both of these interpretations as it serves as a main surveillance mechanism and as the prospective operational arm of the WHO.

Table 10. Mapping ANT with the WHO and GOARN

<i>Problematization</i>	The WHO relies on the IHR (2005) and traditional normative and technical authority to re-problematize the global infectious disease threat
<i>Interessement</i>	GOARN is established as the network to survey and respond to new threats
<i>Enrolment</i>	The production/ reproduction of knowledge through surveillance

<i>Mobilization</i>	The WHO publishes DON reports and serves as a mouth piece for the accomplishments of the network
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Table 11. Final observations

Main empirical observations

1 DON reports political threats over health threats

Surveillance and reporting of the WHO and GOARN, through the DON, is not based on diseases with greatest morbidity and mortality.

2 DON reports alter the perception of ‘true’ health threats

The WHO is able to transform data and perception of threats based on what disease they choose to report. Influenza type diseases and viral hemorrhagic fevers account for almost half of all DON reports, signifying these are the most ‘threatening’ public health concerns.

3 Per the DON reports the WHO chooses to prioritize surveillance on the Region of Africa, and China as an individual country

The WHO Region of Africa has produced the most DON reports of all WHO Regional Offices. However, China produces the most DON reports as an individual country. Both results indicate a focus on developing countries or regions that have in the past failed to comply with IHR (2005) reporting requirements.

4 The WHO fabricates a leadership narrative emphasizing preparedness and response

Based on the QDA Miner analyses, the WHO seeks to expand its role as the legitimate leader in preventing, monitoring, and responding to infectious disease outbreaks.

5 The WHO emphasizes ‘alert and response’ as a narrative, over ‘surveillance and data collection’

The WHO through this prioritization produces a narrative of strengthening operational capability. This prioritization deemphasizes the surveillance and monitoring techniques of the organization despite this being a main function and justification of GOARN.

Production of Data and Distribution of Knowledge:

What disease should we worry about?

The WHO maintains its authority and leadership through the collection, transformation, and distribution of knowledge, notably with the production and organization of data, information, graphs, etc. regarding the main infectious disease threats. As such, the WHO altars the recipient's perception of what is 'threatening' and that in itself I argue is a measure of power and authority. Through the DON analysis, influenza type diseases and viral hemorrhagic fevers account for almost half of all DON reports. The narrative of the DON reports suggest that the diseases that are frequently reported or prioritized by the WHO are the most 'politically' burdensome in context of causing the most 'global threat,' but are not the most burdensome to public health.

The 2003 SARS pandemic is the second most updated outbreak event (i.e. 96 updates) total. However, the SARS event accounts for only 812 deaths in total ("WHO | SARS outbreak contained worldwide," n.d.). While these deaths are still tragic, Cholera has had an average of 20,000 deaths per year since 2000 ("WHO | Number of reported deaths due to cholera," n.d.). Moreover, the SARS pandemic was considered a failure in terms of IHR (2005), as Member States were quick to close borders, halting all trade and travel with China. The economic impact of the SARS outbreak on China, and fear of other nations, likely plays a key factor in its position as the second most reported DON. Additionally, the Anthrax outbreak in North America remains a top ten outbreak event, despite only five people dying ("A History of Anthrax | Anthrax | CDC," n.d.). The intentional release of a disease as a bioweapon and its target of the political elite underscore how constructed fear versus burden, is the driving criteria for DON reporting. The WHO maintains its normative authority by producing and alerting the world to these threats and then acts as the IO with the expertise to respond and mitigate outbreak threats.

Respiratory diseases account for the greatest majority of DON reports and reports with updates. Influenza has its own specified surveillance and reporting system. It begs the question, why does the WHO still choose to prioritize a disease in two separate locations despite a limited budget?

The socio-political implications of sharing pertinent health data have long been a source of contention for the WHO and Member States. In 2003, China was accused of being unwilling to share important knowledge of the SARS pandemic for fear of economic backlash (Huang, 2004). Even in 2018, China is still slow to surrender critical information on the Asian Lineage Avian Influenza A (H7N9) Virus (Majid, 2018). The societal fear placed on ‘disease x,’ the unknown virus that scientists say will be responsible for death of millions in the near future, has not only given power to the WHO in demanding states to report unusual disease outbreaks but also gives power back to the states that possess this invaluable knowledge (Shaikh, 2018).

Cholera, HIV/AIDS, Malaria, and other endemic and pandemic diseases are less consequential through this narrative, despite the critical role they play in shaping the health and capability of the globe’s population. Through this perception the WHO is able to garner support and attention as the focus is now on the response towards these unexpected outbreaks and possible impact on trade and travel, rather than the larger more difficult structural problems found in global public health and maintenance of health security.

What countries are we told to worry about?

The WHO through the ‘formal’ and ‘informal’ sources of information is able to locate possible locations of emerging outbreaks. Based on the analysis of DON reports, the WHO Region of Africa is the most frequent source of DON reports (1002). However, China is the individual source of the most DON reports (277). The WHO Region of the Americas and the WHO Region of Europe are rarely, and in some years never, host to DON reports. Why does the WHO focus surveillance efforts and reporting on these locations?

As the top contributor, the United States of America accounts for 16.99% of the WHO annual budget (“WHO | Programme Budget Web Portal,” n.d.). The 2016 -2017 program budget for the WHO spent of ‘preparedness, surveillance and response’ was 379.3 million, with an

increase of 32.3% from 2014 -2015 (WHO, 2015). The country providing the most resources ironically seems to ‘benefit’ the least from them. Does this indicate that the states even if they may not directly benefit from them abide by institutionalized norms of international health cooperation? Or does the United States and other regions gain other favors from these contributions? If Africa as a WHO Region produces the majority of DON reports why does the WHO focus surveillance and report efforts primarily on China?

Another easily drawn conclusion from this the competition between that the ‘East’ experiences far more outbreaks of significance than the ‘West’. The only time the Region of the America’s has an increase in reports, was during the Anthrax attacks and introduction of the West Nile virus to the continent of North America between 2001 and 2003, and progression of the Zika virus northwards from Latin America in 2015 - 2016. This is also interesting as the region of the Americas has its own set of ‘disease’ problems. Especially, in North America, non-communicable or lifestyle disease cause more deaths than communicable (“FastStats - Leading Causes of Death,” n.d.).

Anthrax is a spore commonly found in southwest America, infections are rare but not unexpected. The weaponization of the Anthrax and use on politicians and the government is where the difference lies. It was not until under the new IHR (2005) the ‘all hazards approach,’ that Member States were responsible for reporting disease that are considered ‘possible threats to international public health.’ It is unclear why the outbreak was considered an international threat, possibly due to the initial unknown source of the Anthrax powder. Additionally this outbreak did not require WHO intervention or response.³⁰ So what does this indicate that this single event constitutes one of the top 15 DON report events? This signifies that the WHO at this point was still surveying and monitoring both naturally occurring and intentional spread of disease, before its ‘binding mandate.’

The WHO narrative of Normative Authority:

The WHO practices normative authority and power in two ways. First in the ‘hard’ sense enacting mandates and setting policy to measure benchmarks for global health (Zapp, 2018). The

³⁰ When reviewing the WHO DON reports, only a few sentences appear on the page. The page directs traffic to the Centers for Disease Control and Prevention website for detailed information.

second method is through ‘soft’ power by influencing norms through recommendations. The results of the QDA Miner analysis shows the relationship between emergent themes and how this explains the role of the WHO in global health security.

‘Alert and Response’ and ‘Preparedness’ are the most frequently coded themes in the fifteen documents. This is an example of ‘soft’ power as the documents routinely ‘recommend’ the strengthening of these two areas in the context of fortifying global health security. Preventative action is inherent to the practice of reducing risks and threats, the rationale of the current security strategy. This is followed by ‘Operational Response’ and ‘Surveillance and Data Collection’ that are both methods of the WHO in the practice of maintaining global health security. However, what these themes are not, are mandates or legally binding actions or what might be referred to ‘hard’ power.

Reference to ‘Policy and Legislation’ or more hard practices of power, while still recognized as a theme, is the least referenced. The WHO, while a legitimate organization does not have the authority to discipline Member States who do not abide by policy and legislation. Therefore, it is less imperative for the WHO to stress this type of action, as they do not have the ability to enforce it. To some extent the United Nation’s at a larger level also struggles with this concept. The UN is more apt to impose binding mandates in both what they will do or what Member States should do, and is often criticized for the lack of action on part of the Security Council in the enforcement of these mandates. For the WHO to maintain relevance in light of its inability to enact hard power they must focus on the soft power approach of influencing norms through recommendations to maintain authority in the global health security field.

How GOARN fits in:

Mapping GOARN through the ANT:

In late 1999 and early 2000, a new ‘problem’ arose in the surveillance and response to infectious disease outbreaks. The WHO seeing this as an opportunity took it upon itself to ‘*problematise*’ this situation. First and foremost, the WHO positioned itself as the leader of this problem saying “WHO, with its international mandate, including the International Health Regulations, and with its unique experience with and privileged access to countries, is in a

unique position to coordinate global outbreak alert and response (WHO, 2000).” By referencing legal documents, past leadership roles, and access to people and places most other organizations do not have, the WHO stipulates its place is the logical head of this new endeavor. However, as Callon notes, that ‘translation’ as a complex description of power provides the “explanation of how a few obtain the right to express and to represent the many silent actors of the social and natural worlds they have mobilized” (Callon, 1984). In summary, the WHO through the creation of the GOARN, is able to collect and transform data to represent the problem of ‘threatening infectious disease’ in a way they only the WHO can fix.

This relationship is not linear, as Callon and Fox explain, the WHO must also provide something to the actors that answer the WHO’s call for assistance. One of the ways where we see this is WHO’s and subsequently GOARN’s mandate to provide support and capacity building in areas that request or require it. So actors may seek partnerships in the Network in order to provide resources of their own communities, or also to fulfill their own mandates and objectives. Secondly, a regularly discussed especially among surveillance and laboratory actors is poor communication. The WHO sees the GOARN as the central node connecting all of these actors and creating a consistent and predictable method of information and knowledge both during outbreak response, and general surveillance.

The WHO therefore needs ‘partners’ to be able to effectively find a solution, and must admit that they cannot answer this problem as a single organization. Therefore, the creation of GOARN enters the *‘Interessement’* phase of ANT translation. The WHO goes on to prove this point saying “the success of these endeavors will be guaranteed through WHO’s partners - national (ministries of health, scientific institutes) and international (networks, other organizations, NGOs) with WHO support and coordination (WHO, 2000).” The WHO frames the problem of a need for partnerships and international collaboration to this global problem of alert and response, yet still underscores its preeminence as the coordinator of the solution.

To solidify the building of the Network the WHO must complete *‘Enrolment’* or “the process in which the proposed course of action is carried out consolidating the roles and activities which the researchers originally suggested (Fox, 2000),” or as Callon defines it “a set of strategies in which the researchers sought to define and interrelate the various roles they had allocated to others (Callon, 1984).” However, this is not simply a single action or distribution of

tasks, “the definition and distribution of roles ... are a result of multilateral negotiations during which the identity of the actors is determined and tested (Callon, 1984).”

So, what are the strategies of negotiations that the WHO uses to enroll the actors necessary to successfully complete the building of the Network? A frequently coded theme found in the QDA Miner results was the *‘Information Sharing and Communication.’* The WHO can both establish norms of information sharing and communication between Member States, but also leverage their ‘ownership’ and ‘rights’ to this information based on the IHR (2005). Secondly, through GOARN, the WHO is seeking to expand operational response and capacity building efforts for Member States as seen in the prevalence of both ‘operational response’ and ‘preparedness’ themes. By increasing *actants* globally, the WHO is both strengthening the ability of GOARN but also providing Member States with capacity building resources.

The final stage of *‘Sociology of Translation,’* called *‘Mobilisation’* requires a single actor to act as the mouthpiece for the network. Again, at this point the WHO must situate itself as the most reliable and credible source of information involving the Network. Callon (1948) describes the production of the speaker as a result of a “few individuals [that] have been interested in the name of the masses they represent (or claim to represent).” From the assembled documents and Disease Outbreak News reports we can see that the WHO is the ‘individual’ that speaks on behalf of the Network actors on the accomplishments or recent actions. As Fox (2000) reasons, this allows for a simplification of communication of success (or failures) of the Network, bonding actors to their representative (the WHO) through their capitulation to allowing the WHO to speak on their behalf and on their success.

Operational Role of the WHO thanks to GOARN:

The operational capability of the WHO, and accordingly the GOARN, is imperative to the success and continuation of the WHO as a global leader in health. Based on the QDA Miner analysis of the documents related to the WHO and GOARN, *‘operational response’* is the third most frequently mentioned theme. However to some extent *‘preparedness’* the second most mentioned theme, may also relate to this topic. In that preparedness in public health, is the “capability of the public health and health care systems, communities, and individuals, to prevent, protect against, quickly respond to, and recover from health emergencies, particularly

those whose scale, timing, or unpredictability threatens to overwhelm routine capabilities (Nelson, Lurie, Wasserman, & Zakowski, 2007).”

Following the 2014-2016 Ebola outbreak in West Africa, the WHO convened a High-Level Panel to evaluate and provide recommendations on outbreak alert and response.

Table 12. Recommendation of the High Level Panel on the Global Response to Health Crises³¹

<p>Recommendation 1 –</p> <p>By 2020, States parties to IHR, with appropriate international cooperation, are in full compliance with the IHR core capacity requirements.</p> <p>In implementing the IHR core capacity requirements, States parties, under the leadership of Heads of State and Government, should:</p>
<ol style="list-style-type: none"> 1. Define emergency workforce protocols to ensure adequate protection, training, equipment, payment and occupational safety 2. Constitute an emergency workforce by training all public and private health workers in emergency protocols

Following this recommendation, the GOARN began assembling a ‘Training Working Group’ with the intent of building a “predictable and interoperable” emergency workforce with the specific intent of bettering outbreak response capacity (Global Health Crisis Task Force, 2017). This is concrete evidence that the WHO seeks to grow their operational distinctly through GOARN. In 2017 the WHO further mandated that the GOARN establish ‘Public Health Rapid Response Teams,’ to create ‘Rapid Response Capacity’ comprised of specially trained GOARN partners (Global Health Crisis Task Force, 2017).

Infectious disease outbreaks are garnering less attention due to the recent epidemiological shift to non-communicable or lifestyle disease. High-income countries like those found in the WHO region of the Americas (exclude Latin America), and WHO region of Europe now face increasing number of deaths due to non-communicable disease like Ischemic Heart Disease, Stroke, and Diabetes. This could diminish the value of GOARN as high-income member states provide the majority of the WHO/GOARN budget, earmarking most of it towards pertinent

³¹ Information adapted from the High Level Panel on the Global Response to Health Crises. This document is available from: http://www.un.org/News/dh/infocus/HLP/2016-02-05_Final_Report_Global_Response_to_Health_Crises.pdf

issues. This means that priorities may shift for the WHO without too much control. How should GOARN keep up with the times, or should it at all? The answer is ultimately yes. While high-income countries are not necessarily dying from infectious disease they are still prone to outbreaks, including unintentional or bioterrorism events. Moreover, GOARN is mandated to increase capacities of countries in to meet IHR (2005) core capacities. This should become a priority for GOARN to maintain relevance in this epidemiological shift.

Limitations

This research was not without its difficulties and limitations. The original intention was to provide a comprehensive examination of the day-to-day work of the GOARN. While, this paper does provide an in-depth analysis of the reporting of the GOARN and narrative of the WHO, the personal interviews with GOARN Operational Support Team are missing. These interviews would have provided a more nuanced and personal appreciation of the GOARN OST members' activities, and challenges of maintaining a network of diverse technical institutions.

Conclusion and Future Research

Global public health is more than a political and economic commodity. Health is a fundamental right. As the normative authority of global public health, the WHO is in a unique position to influence and shape the right of health for billions of people for centuries to come. However, the increasing fear of infectious disease transmission through trade and travel is the major beneficiary of current WHO policy and action.

The analysis undertaken in this thesis proves that politics and power play a pivotal role in how the WHO chooses to prioritize health concerns and allocate limited resources. The DON report analysis emphasis the WHO/ GOARNs focus on infectious disease emerging from both developing countries in Africa, and Eastern countries like China. Secondly, the narrative of the WHO is that of 'alert and response.' This invokes feelings of support for countries plagued by recurrent outbreaks and assurance to those who fear importation of 'foreign' disease or diseases of poverty.

In a competitive health environment, the WHO must adapt to its surroundings to maintain power and authority in global health matters. The WHO has modified itself through the establishment GOARN as its primary surveillance and operational arm. The production of knowledge through the collection and distribution of data is a key source of authority for the WHO. Increased operational capability in a period of time wrought with unending reports of ‘new’ or emerging infectious diseases serves to appease critics of former WHO response missions. By continuing to adapt and influence the perception of ‘health threats’ the WHO has positioned itself as the vital source of global public health knowledge in response to societal fears of infectious disease outbreaks.

There is limited public information of the function and actions of the GOARN. Therefore, future research could include gathering data on deployment operations of GOARN. Additionally, the WHO is not the only major actor in global health. Médecins Sans Frontières (Doctors Without Borders) continues to play a critical role in outbreak response, especially the 2014-2016 Ebola outbreak response. A comparison of both organizations’ prioritizations and differences in data collection and response activities would provide insight into benefits and challenges of two competing global health practitioners.

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